

Original research articles based on limited empirical data

Mental Health and Academic Experiences of Health Undergraduates at a Public University in Bahia

Heitor Blesa Farias¹, Fernanda David Vieira², Edi Cristina Manfroí², Amanda Gonzaga de Oliveira², Viviane Rocha Dias², Amanda Santos Oliveira², Andréa Macêdo Teles² e Maycoln Leôni Martins Teodoro¹

¹ Federal University of Minas Gerais, Belo Horizonte, Minas Gerais, Brazil

² Federal University of Bahia, Vitória da Conquista, Bahia, Brazil

Received: August 20, 2024.

Accepted: January 22, 2026.

Section Editor: Marina Xavier Carpena.

Author Note

Heitor B. Farias  <https://orcid.org/0000-0002-8090-4012>

Fernanda D. Vieira  <https://orcid.org/0000-0002-4478-9459>

Edi C. Manfroí  <https://orcid.org/0000-0003-2375-1205>

Amanda G. de Oliveira  <https://orcid.org/0000-0002-2272-8938>

Viviane R. Dias  <https://orcid.org/0000-0002-5093-1167>

Amanda S. Oliveira  <https://orcid.org/0000-0002-1838-2268>

Andréa M. Teles  <https://orcid.org/0000-0003-4360-3701>

Maycoln L. M. Teodoro  <https://orcid.org/0000-0002-3021-8567>

Correspondence concerning this article should be addressed to Heitor Blesa Farias, Rua Hormindo Barros, nº 58, Sala 309, Bairro Candeias, Vitória da Conquista, Bahia, Brazil. Zip-code: 45.029-094.
Email: heitorblesa@gmail.com

Conflict of Interest: None declared.

Abstract

With a focus on health sciences undergraduates, this study aimed to investigate differences between men and women in mental health indicators (negative affectivity, suicidal ideation, and positivity) and the association between these indicators and the perception of the quality of academic experiences. A total of 429 students from a public university in Northeastern Brazil participated. The QVA-r, DASS-21, FSII, and EP scales were applied. Data were analyzed in two stages: a) verification of the psychometric properties of the instruments through confirmatory factor analysis (CFA); and b) comparison of mental health indicators via invariance analysis and examination of associations between constructs. The main findings were higher negative affectivity among women and significant correlations, small to moderate in magnitude, between mental health indicators and the perception of academic experiences, highlighting the relevance of understanding such relationships and their implications for institutional policies of psychological support.

Keywords: Mental Health, Health Sciences Students, Psychological Stress, Psychometrics, Psychological Adaptation

SAÚDE MENTAL E VIVÊNCIAS ACADÊMICAS EM GRADUANDOS DA SAÚDE EM UMA UNIVERSIDADE PÚBLICA BAIANA

Saúde Mental e Vivências Acadêmicas

Resumo

Com foco em acadêmicos da área da saúde, o objetivo deste estudo foi investigar as diferenças entre homens e mulheres em indicadores de saúde mental (afetividade negativa, ideação suicida e positividade) e a associação entre esses indicadores e a percepção da qualidade das vivências acadêmicas. Participaram 429 estudantes de uma universidade pública nordestina. Foram utilizadas as escalas QVA-r, DASS-21, FSII e EP. Os dados foram analisados em duas etapas: a) verificação das propriedades psicométricas dos instrumentos via análise fatorial confirmatória (AFC); b) comparação entre os indicadores de saúde mental via análise de invariância e exame de associações entre os construtos. Os principais achados foram a maior afetividade negativa entre as mulheres e correlações significativas, de magnitude pequena a moderada, entre indicadores de saúde mental e a percepção da qualidade das vivências acadêmicas, evidenciando a relevância de compreender tais relações e suas implicações para políticas institucionais de apoio psicológico.

Palavras-chave: Saúde mental, Estudantes de ciências da saúde, Estresse psicológico, Psicometria, Adaptação psicológica

SALUD MENTAL Y VIVENCIAS ACADÉMICAS EN ESTUDIANTES DE GRADO DE SALUD EN UNA UNIVERSIDAD PÚBLICA BAIANA

Salud mental y vivencias académicas

Resumen

Con foco en estudiantes de grado del área de la salud, el objetivo de este estudio fue investigar las diferencias entre hombres y mujeres en indicadores de salud mental (afectividad negativa, ideación suicida y positividad) y la asociación entre estos indicadores y la percepción de la calidad de las vivencias académicas. Participaron 429 estudiantes de una universidad pública del nordeste de Brasil. Se utilizaron las escalas QVA-r, DASS-21, FSII y EP. Los datos fueron analizados en dos etapas: a) verificación de las propiedades psicométricas de los instrumentos mediante análisis factorial confirmatorio (AFC); b) comparación de los indicadores de salud mental mediante análisis de invariancia y examen de las asociaciones entre los construtos. Los principales hallazgos fueron una mayor afectividad negativa en las mujeres y correlaciones significativas, de magnitud pequeña a moderada, entre los indicadores de salud mental y la percepción de las vivencias académicas, evidenciando la relevancia de comprender dichas relaciones y sus implicaciones para las políticas institucionales de apoyo psicológico.

Palabras clave: Salud Mental, Estudiantes del Área de la Salud, Estrés Psicológico, Psicometría, Adaptación Psicológica

The mental health of university students has been the subject of increasing international attention, with multicenter studies indicating a high prevalence of psychological distress in this population (Auerbach et al., 2018; Lipson et al., 2019, 2022). In Brazil, a national survey conducted by the National Association of Directors of Federal Institutions of Higher Education (ANDIFES) in partnership with the National Forum of Pro-Rectors of Student Affairs (FONAPRACE) showed that 83.5% of undergraduates reported emotional difficulties, 60% presented symptoms of anxiety, 10.8% reported thoughts of death, and 8.5% suicidal ideation, with an increase compared to the 2014 figures, especially regarding suicidal ideation (ANDIFES & FONAPRACE, 2019). This scenario is particularly relevant because mental illness has been identified as one of the factors associated with dropout and abandonment of higher education (Sahão, 2019).

Several factors contribute to the development of psychopathological conditions, including stress, anxiety, depression, and suicidal ideation. Among the most frequently reported factors are pre-existing emotional problems, financial vulnerability, difficulties adapting to the academic environment, relocation for professional training, and balancing university and work (Leal et al., 2019). Recent reviews reinforce this condition, highlighting that prior trauma, belonging to minority groups, social isolation, and academic overload are among the main predictors of psychological distress in higher education students (Campbell et al., 2022; Pérez-Jorge et al., 2025). Furthermore, the transition to adulthood and entry into university courses involve substantial changes in lifestyle, responsibilities, and routines, creating a period of heightened vulnerability for the development of emotional symptoms (Duraku et al., 2024; Galanaki & Leontopoulou, 2017).

Difficulties of this nature are often even more frequent among students in the health field. The mental strain on these students can extend beyond the individual sphere, leading to professional consequences such as premature fatigue, the development of mental disorders, and difficulties in rational coping, which directly impact their relationship with patients and the quality of care provided (Vieira et al., 2020). Furthermore, there is evidence of a high suicide risk rate among university students, associated with variables such as depression (Sousa et al., 2022). In part, this condition stems from continuous exposure to emotional stressors, which can lead to poor academic performance, psychological illness, and impairment in professional practice (Almhdawi et al., 2018).

It is important to strengthen support and development of coping strategies among university students in the health field. These initiatives enhance the capacity to address emotional issues during academic training and directly affect how future professionals promote health in their practice (Souza et al., 2017). From this perspective, mental health is understood not only as the absence of disorders but as a dynamic state of well-being, in which the individual recognizes their abilities, maintains positive affect and a sense of purpose in life, adequately faces daily challenges, and contributes to their community (Park et al., 2023). This concept requires an institutional and collective approach, since social markers such as gender, sexual orientation, and socioeconomic vulnerability are associated with worse mental health indicators among Brazilian

university students (Paula et al., 2022). Thus, solutions must be conceived as a network involving students, teachers, and professionals affiliated with higher education, as this is also an institutional task (Graner & Cerqueira, 2019).

As an ally in the university evaluation process for promoting mental health, the academic experiences framework proposed by Braga (2017), based on Almeida et al. (1999), organizes the quality of academic life into five dimensions: Career, Personal, Interpersonal, Study, and Institutional. The Career Dimension integrates factors related to the course, learning, expectations, satisfaction, and professional skills; the Personal Dimension includes variables of physical and psychological well-being and health habits; the Interpersonal Dimension encompasses relationships and cooperation among peers and involvement in extracurricular activities; the Study Dimension involves competence in studies and time management; and the Institutional Dimension refers to satisfaction with the institution, services, and infrastructure. This framework supports instruments such as the Academic Experiences Questionnaire – reduced version (QVA-r) and has remained the subject of investigation in recent works in the Brazilian and Latin American context (e.g., Correa-Aranguren, 2024; Silva et al., 2021, 2025).

Assessing factors associated with the mental health of university students is essential to support institutional prevention and intervention programs, as well as to foster the development of potential related to the well-being and quality of life of students. In this sense, expanding research in this field contributes not only to scientific advancement but also to public health strategies and institutional articulation, consistent with recent analyses that place university mental health on the collective health system agenda in Brazil (Leão et al., 2025).

Although several national and international studies highlight the issue of mental health in academia, in Brazil, there is still relatively little empirical research that systematically investigates the relationship between academic experiences and indicators of mental health in university students, especially those in the health field. Among existing contributions, the study by Ariño and Bardagi (2018) highlighted relevant associations between academic quality of life and mental health. Still, it employed summed scores without analyzing the factorial structure of the instruments used. Similarly, Silva et al. (2021) investigated academic experiences and anxiety symptoms in students using the QVA-r, without, however, examining advanced psychometric properties or testing invariance between groups. More recently, Barbosa et al. (2025) analyzed anxiety, depression, stress, and satisfaction with academic experiences in Gerontology students. Still, they resorted to traditional descriptive and comparative approaches, without psychometric controls that would ensure the robust validity of the inferences. This methodological pattern, common in research in this area, limits the accuracy of the conclusions, since comparisons between groups or correlations between constructs remain subject to measurement biases (McNeish & Wolf, 2020).

Considering these limitations and the need to broaden the debate with more robust evidence, the present study sought to advance the analysis of the mental health of university students in the health field at a public institution in northeastern Brazil, incorporating validated

instruments and appropriate psychometric techniques, such as confirmatory factor analysis and verification of invariance between groups. Specifically, the objectives were: (a) to compare men and women with regard to mental health indicators (negative affectivity, suicidal ideation, and positivity); and (b) to investigate the associations between these indicators and the perception of the quality of academic experiences. Based on existing literature, we hypothesized that women would exhibit higher levels of psychological distress compared to men, a pattern widely documented in international reviews on student mental health (Harrer et al., 2019; Ibrahim et al., 2013). Furthermore, negative mental health indicators were expected to be negatively associated with perceived quality of academic experiences, while positive indicators were expected to be positively associated, with magnitudes ranging from small to moderate.

Method

Participants

The sample for this study comprised 429 undergraduate students from a public university in the interior of Bahia. The average age of the participants was 21.4 years ($SD = 2.7$), ranging from 18 to 30 years, with the majority being female (71.79%). By course, participants were distributed as follows: Biology (13.75%), Biotechnology (8.16%), Nursing (15.15%), Pharmacy (13.99%), Medicine (15.15%), Nutrition (15.85%), and Psychology (17.95%). By semester, participation was observed among students at different stages of their studies, with a higher concentration in the first semesters (1st = 22.84%; 2nd = 15.62%; 4th = 17.25%; and 6th = 21.21%).

The sampling process was non-probabilistic and convenience-based, aiming to include students from different health courses. The initial sample consisted of 540 respondents, of whom 51 were excluded for not fully completing the QVA-r, 31 for being enrolled in postgraduate courses, and 29 for not meeting the defined age criterion (18 to 30 years). Thus, 429 students who met the established requirements remained. Although no prior sample size calculation was performed, the final sample size is considered adequate for factor analyses with ordinal data, as evidenced by the satisfactory performance of the Weighted Least Squares Mean and Variance Adjusted (WLSMV) estimator in small to moderate samples (DiStefano et al., 2019).

Instruments

Participants completed a personal data form developed by the researchers to collect sociodemographic information relevant to characterizing the sample.

Adaptation to university life was assessed using the Academic Experiences Questionnaire – short version (QVA-r), a self-report instrument composed of 60 items distributed across five dimensions: personal (13 items), interpersonal (13 items), career (13 items), study (13 items), and institutional (8 items). Responses were provided on a five-point Likert scale, ranging from 1 (not at all like me / totally disagree / never happens) to 5 (all like me / totally agree / always happens) (Almeida et al., 1999, 2002).

Emotional symptoms were assessed using the Depression, Anxiety, and Stress Scale – 21 items (DASS-21), a self-report instrument comprising three subscales (depression, anxiety, and stress), each with seven items, rated on a four-point Likert scale (0–3). The responses refer to the last week (Vignola & Tucci, 2014).

The frequency of suicidal ideation was investigated using the Frequency of Suicidal Ideation Inventory (FSII), composed of five items answered on a Likert scale ranging from 1 (never) to 5 (almost every day), referring to the last 12 months (Teodoro et al., 2020).

Finally, a positive view of oneself, life, and the future was assessed using the Positivity Scale (PS), comprising eight items rated on a five-point Likert scale, ranging from 1 (strongly disagree) to 5 (strongly agree). Empirical evidence indicates that positivity is a common component of variables such as self-esteem, life satisfaction, hope, and optimism (Borsa et al., 2016).

Procedures

This study is part of an investigative phase linked to a research project conducted by the Federal University of Minas Gerais (UFMG) and approved by the Research Ethics Committee under opinion number 3.979.338, CAAE: 07077019.3.0000.5149. All stages were conducted in accordance with the ethical principles governing research with human subjects, as evidenced by the signing of the Informed Consent Form (ICF). The design adopted was quantitative, non-experimental, descriptive, and cross-sectional.

Data collection took place in 2018, following authorization from the higher education institution's management. The procedure was conducted in person in the classrooms, with a presentation of the objectives and guidelines for participation. The students completed the instruments accessing a link sent through an instant messaging application or email, accessed while the proctor was present, to allow for immediate clarification of any questions.

Data analysis

The analyses were divided into two stages. The first involved verifying the psychometric properties of the instruments; and the second involved comparing mental health indicators among university students and assessing correlations among the constructs under study. The first step was to investigate the validity of the scores produced by the tests used and the use we will make of them (American Educational Research Association, American Psychological Association, & National Council on Measurement in Education [AERA, APA, & NCME], 2014). This investigation of the validity of the scale scores was conducted by examining the dimensionality, invariance, and reliability of the measure, that is, an investigation of validity based on internal structure (Rios & Wells, 2014). Although other studies on the validity of scales have been carried out, as we will present, we understand that validation studies are cumulative and never validate the scale itself (Reppold et al., 2015). According to AERA, APA, and NCME (2014), it is incorrect to say that a test is valid. Based on these arguments, in the first stage, we conducted exploratory and confirmatory factor analyses to assess the validity of the test scores (Rios & Wells, 2014).

Analysis of invariance was performed as a prerequisite for comparing the groups. Without an analysis of scalar invariance, group comparisons are neither valid nor fair (Bowen & Masa, 2015; Cheung & Rensvold, 2002; Rios & Wells, 2014; Putnick & Bornstein, 2016).

The investigation of psychometric properties was conducted using confirmatory factor analysis (CFA). For the Positivity Scale and the Frequency of Suicidal Ideation Inventory-2, the factorial models from the Brazilian validation of these instruments were tested (Borsa et al., 2016; Teodoro et al., 2020, respectively). For the DASS-21, the bi-factor model was tested, chosen because it allows for the simultaneous estimation of a general factor of psychological distress and specific factors of depression, anxiety, and stress, an interpretation considered more appropriate for the factorial structure of the instrument (Martins et al., 2019; Rocha et al., 2021). For the QVA-r, two factorial models were tested: that of Almeida et al. (2002) and that of Granado et al. (2005). None of the QVA-r models showed good fits, which is why a new model was generated via exploratory factor analysis (EFA), followed by a CFA to verify the fit of the latter. All confirmatory factor analyses were performed using the WLSMV estimator, which is suitable for categorical data (DiStefano et al., 2019), since all instruments have responses on an ordinal scale. The adjustments were verified using the Comparative Fit Index (CFI) and the Root Mean Square Error Approximation (RMSEA), with the former needing a value $\geq .90$ and the latter a value $< .10$ for the model not to be rejected (Cangur & Ercan, 2015; Lai & Green, 2016).

Subsequently, invariance analyses were performed for the DASS-21, the Positivity Scale, and the Frequency of Suicidal Ideation Inventory-2. Invariance refers to the verification that the instrument's structure remains stable across groups, ensuring that observed differences reflect genuine variation in the construct rather than measurement artifacts. The standard order for invariance tests establishes configural invariance analysis as the benchmark, and the most restrictive models are compared in the following order: the metric with the configural, and the scalar with the metric (Bowen & Masa, 2015; Cheung & Rensvold, 2002; Putnick & Bornstein, 2016). In this study, the metric and scalar models were compared with the configural model to ensure minimal variation in fit indices. The configural model would not be rejected if it presented $CFI \geq .90$ and $RMSEA < .10$, and the metric and scalar models would not be rejected if they presented $\Delta CFI < .002$, $\Delta RMSEA < .000$, and a p -value $< .01$ for the chi-square differences when compared with the configural model (Putnick & Bornstein, 2016).

The factor score was calculated on all scales for later use in verifying correlations (DiStefano et al., 2009). In QVA-r, it was estimated using confirmatory factor analysis. The scores for the other scales were estimated based on the scalar model of the analysis of invariance. For the multidimensional instruments, QVA-r and DASS-21, factor scores were estimated using the tenBerge method (Logan et al., 2021), as it preserves the covariance structure between factors, while the scores for the unidimensional instruments, EP and FSII, were estimated using the Bartlett method (Skrondal & Laake, 2001), as it provides more consistent estimates in unidimensional measures.

The analyses were performed using the R Statistical software, version 4.0.3 (R Core Team, 2020). The lavaan package, version 0.6.8 (Rosseel, 2012) was used for confirmatory factor analysis and invariance; semTools, version 0.5.4 (Jorgensen et al., 2021) and BifactorIndicesCalculator, version 0.2.2 (Dueber, 2021) for reliability analysis; psych, version 2.1.3 (Revelle, 2020) for exploratory factor analysis; and Hmisc, version 4.5.0 (Harrell, 2021) for descriptive statistics and correlations.

Results

Initial analysis of the QVA-r indicated a lack of convergence with the model by Granado et al. (2005), while that of Almeida et al. (2002) presented unsatisfactory fit indices ($\chi^2(1700) = 11564.37$, CFI = .881, RMSEA = .116 [.114–.118]). Therefore, an exploratory factor analysis (EFA) was performed using a weighted least squares (WLS) estimator and a promax rotation, yielding a five-factor model. However, the items were distributed differently from those theoretically proposed. Items that presented low factor loadings ($< .30$) or cross-loadings were excluded. The Personal factor had 13 items (4, 9, 11, 13, 17, 21, 26, 28, 31, 39, 45, 51, 55), the Career factor had 13 items (2, 3, 5, 7, 8, 14, 16, 20, 22, 37, 54, 56, 60), the Interpersonal factor had 10 items (1, 19, 24, 27, 33, 36, 38, 40, 42, 43), the Study factor had 7 items (10, 32, 34, 41, 44, 47, 53) and the Institutional factor had 5 items (12, 46, 48, 50, 58). This refined model was tested using confirmatory factor analysis (CFA), which yielded a satisfactory fit ($\chi^2(1070) = 3139.78$, CFI = .966, RMSEA = .067 [.065–.070]). Given that the main objective of the study was to investigate associations between academic experiences and mental health, no sex comparisons were made in the QVA-r; only relational analyses were conducted with the other indicators.

Subsequently, the factor structures and invariance of the other instruments were evaluated (Table 1). The bi-factor model of the DASS-21 and the one-factor model of the FSII showed configural, metric, and scalar invariance between sexes. The Positivity Scale (PS) required partial adjustments, but achieved acceptable invariance, since releasing less than 20% of the parameters does not compromise the interpretation of the models (Dimitrov, 2010). These findings enable comparisons between men and women in this sample, thereby enhancing the validity of the observed differences (Damásio, 2013). Table 1 presents the complete results of the analysis of invariance.

Table 1

Results of the Analysis of Invariance with respect to Sex for DASS-21, EP, and FSII

Model	$\chi^2(df)$	$\Delta\chi^2(\Delta df)$	p	CFI	ΔCFI	RMSEA	$\Delta RMSEA$	RMSEA 90% CI
DASS-21								
CFA	274 (336)	-	-	1.000	-	.000	-	.000-.000
Configural	274 (336)	-	-	1.000	-	.000	-	.000-.000
Metric	426 (374)	49 (388)	.098	.999	-.001	.026	.026	.008-.037
Scalar	374 (412)	105 (76)	.014	1.000	.000	.000	.000	.000-.010
FSII								
CFA	20 (28)	-	-	1	-	.000	-	.000-.032
Configural	6(10)	-	-	1	-	.000	-	.000-.053
Metric	10(14)	4(4)	.327	1	.000	.000	.000	.000-.052
Scalar	20(28)	23(18)	.172	1	.000	.000	.000	.000-.032
EP								
CFA	90 (20)	-	-	.993	-	.091	-	.072-.110
Configural	109 (40)	-	-	.993	-	.090	-	.070-.111
Metric	198 (47)	34 (7)	.000	.985	-.008	.123	.033	.106-.141
Partial metric 01	146 (46)	18 (6)	.006	.990	-.003	.101	.011	.083-.120
Partial metric 02	129 (45)	15 (5)	.007	.992	-.001	.094	.004	.075-.113
Scalar	185 (70)	60 (30)	.001	.989	-.004	.088	-.002	.072-.103
Partial Scalar	152 (69)	42 (29)	.053	.992	-.001	.075	-.015	.059-.091

Note. χ^2 = chi-square; df = degrees of freedom; Δ = difference; CFI = Comparative Fit Index; RMSEA = Root Mean Square Error of Approximation; CI = confidence interval; DASS-21 = Depression, Anxiety and Stress Scale; FSII = Frequency of Suicidal Ideation Inventory; EP = Positivity Scale; Partial Metric 01 = release of item 4 load; Partial Metric 02 = release of items 4 and 2 loads; Partial Scalar = release of item 4 load.

The reliability of the factors is summarized in Table 2. Except for the institutional factor of the QVA-r ($\alpha = .39$, $\omega = .47$) and the stress, anxiety, and depression subscales of the DASS-21, all factors presented adequate indices (α and $\omega \geq .78$). Due to low internal consistency values, the institutional factor was excluded from subsequent analyses. Despite the low reliability of traditional indices, since the DASS-21 model is bifactorial, we used other indices, such as Explained Common Variance (ECV), Hierarchical Omega (OmegaH), construct replicability (H), and factorial replicability (FD) (Dueber, 2021) to assess the reliability of general and specific factors. The results suggest that, although the overall factor of Negative Affectivity shows strong predominance (ECV = .84; OmegaH = .92), the specific factors of stress, anxiety, and depression maintain acceptable levels of overall reliability (Omega $\approx$.91-.92) and replicability (H = .33-.63; FD = .72-.88), justifying their retention as distinct dimensions of the construct.

Table 2
Summary of factor loadings and reliability indices of the instruments.

Factor	N	Mean	SD	Min	Max	Cronbach's alpha	McDonald's Omega
QVA-r							
Career	13	.728	.098	.499	.860	.93	.92
Study	7	.625	.152	.310	.760	.81	.78
Institutional	5	.389	.557	-.558	.890	.39	.47
Interpersonal	10	.694	.103	.549	.834	.89	.93
Personal	13	.695	.115	.516	.853	.92	.92
DASS-21							
Anxiety	7	.254	.134	.141	.468	.93	.08
Depression	7	.399	.160	.095	.557	.93	.21
Stress	7	.176	.182	-.048	.477	.92	.04
Negative Affectivity	21	.755	.084	.587	.904	.97	.92
EF-II							
Suicidal ideation	5	.907	.027	.874	.936	.96	.93
Positivity Scale							
Positivity	8	.712	.191	.333	.884	.89	.90

Note. N = Number of items per factor; SD = Standard deviation; Min = minimum; Max = maximum; DASS-21 = Depression, Anxiety and Stress Scale; FSII = Frequency of Suicidal Ideation Inventory; QVA-r = Academic Experiences Questionnaire - reduced.

The latent sex differences in mental health indicators are presented in Table 3. The results showed statistically significant differences in depression ($d = 0.79$; large effect), negative affectivity ($d = -0.62$; moderate effect), and positivity ($d = 0.25$; small effect). Women showed higher levels of negative affect, while men had higher scores in depression and positivity. The other variables did not show statistically significant differences.

Table 3
Differences in latent mean scores on the DASS-21, FSII, and EP tests for the variable Sex.

Variables	Estimated intercept	Standard Error	z	p	d	95% CI
Difference between the sexes (Group 1 = Female; Group 2 = Male)						
DASS-21						
Stress	.055	.035	1.549	.121	0.607	[0.392, 0.821]
Depression	.315	.079	3.987	.000	0.790	[0.573, 1.006]
Anxiety	.046	.053	.875	.382	0.258	[0.047, 0.469]
Negative Affectivity	-.530	.102	-5.196	.000	-0.620	[-0.834, -0.405]
FSII						
Suicidal ideation	-.263	.161	-1.631	.103	-0.235	[-0.446, -0.024]
Positivity Scale						
Positivity	.228	.101	2.264	.024	0.248	[0.037, 0.459]

Note. CI = Confidence interval; DASS-21 = Depression, Anxiety and Stress Scale; FSII = Frequency of Suicidal Ideation Inventory.

Finally, Spearman correlations were estimated between the QVA-r dimensions, the DASS-21 factors, the FSII, and the EP (Table 4). The dimensions of the QVA-r showed correlations of small to moderate magnitudes with each other, ranging from $r = .11$ to $r = .53$. Among the mental health indicators, the highest correlation was observed between negative affectivity and the personal dimension of the QVA-r ($r = .60$), composed of items formulated in reverse. The negative direction of the association should be considered. Overall, the correlations showed the expected patterns: more positive academic experiences were associated with less depression, less negative affect, and less suicidal ideation, as well as greater positivity.

Table 4
Spearman correlation with confidence interval for QVA-r, DASS-21, FSII and EP

Var	1	2	3	4	5	6	7	8	9
1. PE									
2. CA	-.11**								
	[-.20, -.02]								
3. IN	-.18**	.47**							
	[-.27, -.09]	[.39, .54]							
4. ES	-.39**	.42**	.53**						
	[-.47, -.31]	[.34, .49]	[.46, .59]						
5. EST	.12*	.00	-.01	.02					
	[0.03, 0.21]	[-.09, .09]	[-.10, .08]	[-.07, .11]					
6. DEP	.19**	-.18**	-.22**	-.18**	-.01				
	[.01, .28]	[-.27, -.09]	[-.31, -.13]	[-.27, -.09]	[-.10, .08]				
7. ANS	.01	-.05	-.09	-.06	-.07	.04			
	[-.08, .10]	[-.14, .04]	[-.18, .00]	[-.15, .03]	[-.16, .02]	[-.05, .13]			
8. AN	.60**	-.17**	-.21**	-.27**	.05	.00	-.01		
	[.54, .66]	[-.26, -.08]	[-.26, -.08]	[-.36, -.18]	[-.04, .14]	[-.09, .09]	[-.10, .08]		
9. IS	.44**	-.14**	-.17**	-.25**	-.05	.27**	.01	.49**	
	[.36, .51]	[-.23, -.05]	[-.26, -.08]	[-.34, -.16]	[-.14, .04]	[.18, .36]	[-.08, .10]	[.41, .56]	
10. PO	-.48**	.37**	.33**	.43**	-.04	-.34**	.10*	-.44**	-.49**
	[-.55, -.40]	[.29, .45]	[.24, .41]	[.35, .50]	[-.13, 0.05]	[-.42, -.25]	[.01, .19]	[-.51, -.36]	[-.56, -.41]

Note. Var = variable; values in square brackets indicate the 95% confidence interval for each correlation; * indicates $p < .05$; ** indicates $p < .01$; QVA-r = Academic Experiences Questionnaire; DASS-21 = Depression, Anxiety and Stress Scale; FSII = Frequency of Suicidal Ideation Inventory; EP = Positivity Scale; PE = Personal; CA = Career; IN = Interpersonal; ES = Study; EST = Stress; DEP = Depression; ANS = Anxiety; AN = Negative Affectivity; IS = Suicidal Ideation; PO = Positivity.

Discussion

This study aimed to analyze the differences between men and women in mental health indicators and to investigate the correlations between these indicators and academic experiences. Unlike a significant portion of the national literature, which frequently uses summed scores (Ariño & Bardagi, 2018; Barbosa et al., 2025; Silva et al., 2021), this study adopted factor scores derived from confirmatory models for the analysis of correlations and analysis of invariance for comparisons between sexes, to ensure that such comparisons were valid and addressed measurement biases. This methodological choice, anchored in international recommendations for psychometric assessment (AERA, APA & NCME, 2014; Rios & Wells, 2014), is one of the main distinguishing features of this investigation and contributes to greater reliability and robustness of the results.

Based on the results obtained, it was identified that women presented greater negative affectivity compared to men, with a moderate magnitude, a finding consistent with the literature that points to greater female vulnerability to emotional distress in the university context (Lee et al., 2019; Sheldon et al., 2021). On the other hand, men exhibited higher averages for depression and positivity. However, the effects were small to moderate, which differs from some

previous studies, such as Pezirkianidis et al. (2018), which found higher female scores on all three DASS-21 factors in an oblique model. This discrepancy can be attributed to the use of the bi-factor model in this study, which concentrates the variance shared by depression, anxiety, and stress on a single general factor (negative affectivity), reducing the risk of biased interpretations and misinterpretations due to cultural differences. Furthermore, the analysis of invariance showed that the instruments used were adequate for comparisons between the sexes, thereby enhancing the validity of the identified differences.

The investigation of correlations between academic experiences and mental health revealed that the personal factor of the QVA-r was the most sensitive to mental health conditions, correlating positively with negative affectivity and suicidal ideation, and negatively with positivity. This finding aligns with previous studies that highlight the importance of individual and subjective factors in academic life for adaptation and psychological well-being (Ariño & Bardagi, 2018). Still, it expands on these results by using factor scores, which provide greater precision to the associations. The career, interpersonal, and study factors also showed consistent correlations, albeit of smaller magnitude, suggesting that different dimensions of academic experience may act as risk or protective factors for mental illness, consistent with the academic risk factors described by Sheldon et al. (2021).

Another relevant finding was the role of positivity, with moderate and negative correlations with negative affectivity and suicidal ideation, replicating previous results that point to similar associations in different contexts (Cardoso et al., 2018). The absence of significant differences in suicidal ideation between men and women in this sample, despite divergent results in the international literature (Baños-Chaparro et al., 2021; Brownson et al., 2011), suggests the need for more studies that consider not only the psychometric structure of the instruments, but also specificities of the populations investigated, such as the area of academic training.

Although our results indicate differences between men and women in mental health indicators, we recognize that the methodological design adopted and the set of variables analyzed does not allow us to answer in depth the questions of “what is it to be a man?” or “what is it to be a woman?” at the university, in institutional, social, or cultural terms (Collins-Anderson et al., 2022). This is undoubtedly a relevant issue that implicates broader discussions of gender, class, race, and institutional context. However, the present study aimed to provide robust initial evidence of the relationship between academic experiences and mental health among health science university students, as well as gender differences, supported by appropriate psychometric analyses, such as invariance tests. We believe this is a crucial step toward establishing a solid foundation for measurement and comparison, upon which new research can advance toward a broader and more critical debate about how different university life experiences influence mental health.

In summary, the results reinforce the importance of rigorous psychometric analyses in research on the mental health of university students, showing that comparisons between groups without proper verification of measurement invariance can lead to misinterpretations. It was

found that satisfactory academic experiences are associated with lower rates of negative affect and suicidal ideation, and greater positivity, pointing to the relevance of institutional interventions that promote the quality of the university experience as a strategy for promoting mental health. Further longitudinal research with diverse samples is recommended to consolidate this evidence and enable greater generalization of the results across different academic contexts.

Final Considerations

This study aimed to contribute to the research agenda on mental health among university students in the health field by comparing men and women and examining associations between mental health indicators and academic experiences. Previous research had already pointed to greater psychopathological vulnerability in undergraduate students in this area, due to the overload and challenges inherent in professional training (Almhdawi et al., 2018; Vieira et al., 2020). By focusing on this specific population, this study provides new findings that can guide prevention and intervention initiatives to promote mental health in the university context.

The main methodological contribution of this study was the adoption of rigorous psychometric procedures, including bi-factor analysis (Markon, 2019), invariance analyses for between-group comparisons (Damasio, 2013; Putnick & Bornstein, 2016), and the use of factor scores, replacing traditional summed scores. The invariance results for the DASS-21, FSII, and Positivity Scale provide new evidence for the use of these instruments in Brazilian samples and underscore their importance for future comparisons across courses, semesters, and institutions.

Among the results, the moderate difference in the Negative Affectivity factor stands out, being higher among women, a finding that warrants replication in future research to assess whether it reflects a characteristic pattern among female students in the health field or is a particularity of this sample. Future studies that include probabilistic samples may offer greater generalizability to gender differences in mental health and quality-of-life indicators.

With regard to the Academic Experiences Questionnaire – short version (Almeida et al., 1999, 2002), the results indicated that the proposed theoretical structure was not fully maintained, with items excluded and low reliability for some factors, particularly the institutional factor. This finding suggests the need for further studies to revise the structure of the QVA-r to strengthen its use as a valid and accurate measure of university experience.

Although this study employed robust psychometric methods to investigate gender differences and correlations between academic experiences and mental health, we recognize that the absence of analysis of important intersectionalities limits its generalizability. Students were not stratified by variables such as ethnicity, sexual orientation, socioeconomic status, employment status, neurodiversity, migration, *quilombola* and/or indigenous backgrounds, age range beyond graduation (e.g., postgraduate students, older students, or emerging adults nearing 30 years of age), nor were graduates or retirees included. The non-selection of these variables was not part of this study, which prevented the capture of significant variations in mental health that arise precisely from the overlap of these identities and life situations, something that recent studies

have pointed out as critical (Collins-Anderson, 2022; Lima et al., 2025). The literature demonstrates that an intersectional framework is essential to understand how identity and context characteristics, such as gender, ethnicity, and social vulnerability, interact to produce inequalities in mental health among university students (Lima et al., 2025; Tinner & Curbelo, 2024). Therefore, we encourage future studies to adopt larger, more diverse, and representative samples and to incorporate intersectional perspectives. However, we emphasize that, when doing so, the authors must use appropriate psychometric methods.

Finally, the findings of this study reinforce the importance of investing in the quality of academic life as a strategic objective for universities, given its protective role for students' mental health. Robust evidence, such as that presented here, should support not only new psychometric research but also institutional and public policies aimed at student well-being.

References

- Almeida, L. S., Ferreira, J. A. G., & Soares, A. P. (1999). Questionário de Vivências Acadêmicas: Construção e validação de uma versão reduzida (QVA-r). *Revista Portuguesa de Pedagogia*, 33(3), 181–207. <http://hdl.handle.net/1822/12080>
- Almeida, L. S., Soares, A. P. C., & Ferreira, J. A. (2002). QVA-r: avaliação do ajustamento dos estudantes universitários. *Avaliação Psicológica*, 1(2), 81–93. <https://doi.org/10.1590/S1414-40772017000100006>
- Almhdawi, K. A., Kanaan, S. F., Khader, Y., Al-Hourani, Z., Almomani, F., & Nazzal, M. (2018). Study-related mental health symptoms and their correlates among allied health professions students. *Work*, 61(3), 391–401. <http://doi.org/10.3233/WOR-182815>
- American Educational Research Association, American Psychological Association, National Council on Measurement in Education. (2014). *Standards for educational and psychological testing*. Washington, DC: American Psychological Association.
- Andifes & Fonaprace (2019). V Pesquisa nacional de perfil socioeconômico e cultural dos(as) graduandos(as) da IFES. <https://www.andifes.org.br/wp-content/uploads/2019/05/V-Pesquisa-Nacional-de-Perfil-Socioeconomico-e-Cultural-dos-as-Graduandos-as-das-IFES-2018.pdf>
- Ariño, D. O., & Bardagi, M. P. (2018). Relação entre fatores acadêmicos e a saúde mental de estudantes universitários. *Revista psicologia em pesquisa*, 12(3), 44–52. <https://doi.org/10.24879/2018001200300544>
- Auerbach, R. P., Mortier, P., Bruffaerts, R., Alonso, J., Benjet, C., Cuijpers, P., Demyttenaere, K., Ebert, D. D., Green, J. G., Hasking, P., Murray, E., Nock, M. K., Pinder-Amaker, S., Sampson, N. A., Stein, D. J., Vilagut, G., Zaslavsky, A. M., & Kessler, R. C. (2018). WHO World Mental Health Surveys International College Student Project: Prevalence and distribution of mental disorders. *Journal of Abnormal Psychology*, 127(7), 623–638. <https://doi.org/10.1037/abn0000362>
- Baños-Chaparro, J., Ynquillay-Lima, P., Lamas-Delgado, F., & Fuster-Guillen, F. G. (2021). Inventario de Frecuencia de Ideación Suicida: evidencias psicométricas en adultos peruanos. *Revista Información Científica*, 100(4), e3507. <http://www.revinfcientifica.sld.cu/index.php/ric/article/view/3507>
- Barbosa, N. B. A. S., Azorli, L. A., Guesi, P. H. M., Iroldi, G. F., Grazziano, P., de Souza, M. O., & dos Santos Bocchio, A. (2025). Ansiedade, depressão, estresse e satisfação com as vivências acadêmicas de estudantes de graduação em Gerontologia. *ARACÊ*, 7(2), 10157–10176. <https://doi.org/10.56238/arev7n2-319>
- Borsa, J. C., Damásio, B. F., & Koller, S. H. (2016). Escala de Positividade (EP): Novas evidências de validade no contexto brasileiro. *Psico-USF*, 21(1), 1–12. <https://doi.org/10.1590/1413-82712016210101>
- Bowen, N., & Masa, R. (2015). Conducting measurement invariance tests with ordinal data: A guide for social work researchers. *Journal of the Society for Social Work and Research*, 6(2), 229–249. <https://doi.org/10.1086/681607>
- Braga, A. M. R. (2017). *Adaptação à vida acadêmica e fatores associados à qualidade de vida de estudantes de Ciências da Saúde* [Dissertação de mestrado, Universidade Federal do Triângulo Mineiro]. <http://bdtd.uftm.edu.br/handle/tede/554>
- Brownson, C., Drumm, D. J., Smith, S. E., & Denmark, A. (2011). Differences in suicidal experiences of male and female undergraduate and graduate students. *Journal of College Student Psychotherapy*, 25, 277–294. <https://doi.org/10.1080/87568225.2011.605692>
- Campbell, R., McKenzie, K., & Murray, K. R. (2022). Factors associated with mental health and well-being among university students in the United Kingdom: A systematic review. *BMC Public Health*, 22(1), 1530. <https://doi.org/10.1186/s12889-022-13943-x>
- Cangur, S., & Ercan, I. (2015). Comparison of model fit indices used in structural equation modeling under multivariate normality. *Journal of Modern Applied Statistical Methods*, 14(1), 152–167. <https://doi.org/10.22237/jmasm/1430453580>
- Cardoso, H. F., Borsa, J. C., & Segabinazi, J. D. (2018). Indicadores de salud mental en jóvenes: factores de riesgo y de protección. *Estudios Interdisciplinarios em Psicologia*, 9(3), 3–25. <https://doi.org/10.5433/2236-6407.2018v9n3suplp3>

- Cheung, G. W. & Rensvold, R. B. (2002). Evaluating goodness-of-fit indexes for testing measurement invariance. *Structural Equation Modeling*, 9(2), 233–255. https://doi.org/10.1207/S15328007SEM0902_5
- Collins-Anderson, A., Vahedi, L., Hutson, W., & Hudson, D. (2022). Intersectionality and Mental Health Among Emerging Adult Black American Men: a Scoping Review. *Current psychiatry reports*, 24(12), 819–830. <https://doi.org/10.1007/s11920-022-01386-5>
- Correa-Aranguren, F. J. (2024). Academic experiences and student adaptation: A review of the Academic Experiences Questionnaire (QVA-r) and its applications. *Psicología y Reflexión*, 12(1), e1872. https://www.scielo.org.pe/pdf/pyr/v12/en_2310-4635-pyr-12-e1872.pdf
- Damásio, B. F. (2013). Contribuições da análise fatorial confirmatória multigrupo (AFCMG) na avaliação de invariância de instrumentos psicométricos. *Psico-USF*, 18(2), 211–220. <https://doi.org/10.1590/S1413-82721013000200005>
- Dimitrov, D. M. (2010). Testing for Factorial Invariance in the Context of Construct Validation. *Measurement and Evaluation in Counseling and Development*, 43(2), 121–149. <https://doi.org/10.1177/0748175610373459>
- DiStefano, C., McDaniel, H. L., Zhang, L., Shi, D., & Jiang, Z. (2019). Fitting Large Factor Analysis Models With Ordinal Data. *Educational and Psychological Measurement*, 79(3), 417–436. <https://doi.org/10.1177/0013164418818242>
- DiStefano, C., Zhu, M., & Mindrila, D. (2009). Understanding and using factor scores: Considerations for the applied researcher. *Practical Assessment, Research, and Evaluation*, 14(20), 1–11. <https://doi.org/10.7275/da8t-4g52>
- Dueber, D. (2021). *BifactorIndicesCalculator: Bifactor indices calculator* (R package version 0.2.2) [Computer software]. CRAN. <https://doi.org/10.32614/CRAN.package.BifactorIndicesCalculator>
- Duraku, Z. H., Davis, H., Arënlju, A., Uka, F., & Behluli, V. (2024). Overcoming mental health challenges in higher education: a narrative review. *Frontiers in Psychology*, 15, 1466060. <https://doi.org/10.3389/fpsyg.2024.1466060>
- Galanaki, E., & Leontopoulou, S. (2017). Criteria for the Transition to Adulthood, Developmental Features of Emerging Adulthood, and Views of the Future Among Greek Studying Youth. *Europe's journal of psychology*, 13(3), 417–440. <https://doi.org/10.5964/ejop.v13i3.1327>
- Granado, J. I. F., Santos, A. A. A., Almeida, L. S., Soares, A. P., & Guisande, M. A. (2005). Integração acadêmica de estudantes universitários: Contributos para a adaptação e validação do QVA-R no Brasil. *Psicologia e Educação*, 4(2), 31–41. <http://hdl.handle.net/1822/12089>
- Graner, K. M., & Cerqueira, A. T. D. A. R. (2019). Revisão integrativa: sofrimento psíquico em estudantes universitários e fatores associados. *Ciência & Saúde Coletiva*, 24, 1327–1346. <https://doi.org/10.1590/1413-81232018244.09692017>
- Harrell, F. E. (2021). *Hmisc: Harrell Miscellaneous*. R package version 4.5-0. <https://CRAN.R-project.org/package=Hmisc>
- Harrer, M., Adam, S. H., Baumeister, H., Cuijpers, P., Karyotaki, E., Auerbach, R. P., ... & Ebert, D. D. (2019). Internet interventions for mental health in university students: A systematic review and meta-analysis. *International journal of methods in psychiatric research*, 28(2), e1759. <https://doi.org/10.1002/mpr.1759>
- Ibrahim, A. K., Kelly, S. J., Adams, C. E., & Glazebrook, C. (2013). A systematic review of studies of depression prevalence in university students. *Journal of Psychiatric Research*, 47(3), 391–400. <https://doi.org/10.1016/j.jpsychires.2012.11.015>
- Jorgensen, T. D., Pornprasertmanit, S., Schoemann, A. M., & Rosseel, Y. (2021). *semTools: Useful tools for structural equation modeling*. R package version 0.5-4. <https://CRAN.R-project.org/package=semTools>
- Lai, K., & Green, S. B. (2016). The problem with having two watches: Assessment of fit when RMSEA and CFI disagree. *Multivariate Behavioral Research*, 51(2-3), 220–239. <https://doi.org/10.1080/00273171.2015.1134306>
- Leal, K. S., de Oliveira, P. D. S., Rodrigues, P. R. G., & Fogaça, F. F. S. (2019). Desafios enfrentados na universidade pública e a saúde mental dos estudantes. *Humanidades & Inovação*, 6(8), 59–69. <https://revista.unitins.br/index.php/humanidadesinovacao/article/view/1149>

- Leão, T. M., Goto, C. S., & Ianni, A. M. Z.. (2025). Sofrimento psíquico na universidade e o campo da Saúde Mental Coletiva: uma revisão integrativa de 46 anos. *Ciência & Saúde Coletiva*, 30(4), e16382023. <https://doi.org/10.1590/1413-81232025304.16382023>
- Lee, J., Lee, E. H., & Moon, S. H. (2019). Systematic review of the measurement properties of the depression anxiety stress Scales–21 by applying updated COSMIN methodology. *Quality of Life Research*, 28(9), 2325–2339. <http://doi.org/10.1007/s11136-019-02177-x>
- Lima, J. D. de, Plácido, J., Andrade, B., Abend, L. D., Wacławovsky, A. J., Pires, D. A., Silva, D. R. P. da, Moraleida, F. R. de J., Moura, H. F., Coelho, N. L. G., Monteiro Junior, R. S., Matias, T. S., Schuch, F. B., & Deslandes, A. C. (2025). Intersectionality and mental health in university students: a jeopardy index approach. *Revista De Saúde Pública*, 59, e234327. <https://doi.org/10.11606/s1518-8787.2025059006197>
- Lipson, S. K., Lattie, E. G., & Eisenberg, D. (2019). Increased rates of mental health service utilization by US college students: 10-year population-level trends (2007–2017). *Psychiatric services*, 70(1), 60–63. <https://doi.org/10.1176/appi.ps.201800332>
- Lipson, S. K., Zhou, S., Abelson, S., Heinze, J., Jirsa, M., Morigney, J., Patterson, A., Singh, M., & Eisenberg, D. (2022). Trends in college student mental health and help-seeking by race/ethnicity: Findings from the national healthy minds study, 2013–2021. *Journal of affective disorders*, 306, 138–147. <https://doi.org/10.1016/j.jad.2022.03.038>
- Logan, J. A., Jiang, H., Helsabeck, N., & Yeomans-Maldonado, G. (2021). Should I allow my confirmatory factors to correlate during factor score extraction? Implications for the applied researcher. *Quality & Quantity*, 1–25. <http://doi.org/10.1007/s11135-021-01202-x>
- Markon, K. E. (2019). Bifactor and hierarchical models: Specification, inference, and interpretation. *Annual Review Of Clinical Psychology*, 15, 51–69. <https://doi.org/10.1146/annurev-clinpsy-050718-095522>
- Martins, B. G., Silva, W. R. D., Maroco, J., & Campos, J. A. D. B. (2019). Escala de Depressão, Ansiedade e Estresse: propriedades psicométricas e prevalência das afetividades. *Jornal Brasileiro de Psiquiatria*, 68, 32–41. <https://doi.org/10.1590/0047-2085000000222>
- McNeish, D., & Wolf, M. G. (2020). Thinking twice about sum scores. *Behavior Research Methods*, 52(6), 2287–2305. <https://doi.org/10.3758/s13428-020-01398-0>
- Park, C. L., Kubzansky, L. D., Chafouleas, S. M., Davidson, R. J., Keltner, D., Parsafar, P., ... & Wang, K. H. (2023). Emotional well-being: What it is and why it matters. *Affective Science*, 4(1), 10–20. <https://doi.org/10.1007/s42761-022-00163-0>
- Paula, W., Pereira, J. M., Guimarães, N. S., Godman, B., Nascimento, R. C. R. M. D., & Meireles, A. L. (2022). Key characteristics including sex, sexual orientation and internet use associated with worse mental health among university students in Brazil and implications. *Journal of Public Health*, 44(4), e487–e498. <https://doi.org/10.1093/pubmed/fdab406>
- Pérez-Jorge, D., Boutaba-Alehyhan, M., González-Contreras, A. I., & Pérez-Pérez, I. (2025). Examining the effects of academic stress on student well-being in higher education. *Humanities and Social Sciences Communications*, 12(1), 1–13. <https://doi.org/10.1057/s41599-025-04698-y>
- Pezirkianidis, C., Karakasidou, E., Lakioti, A., Stalikas, A., & Galanakis, M. (2018). Psychometric properties of the depression, anxiety, stress scales–21 (DASS–21) in a Greek sample. *Psychology*, 9(15), 2933–2950. <http://doi.org/10.4236/psych.2018.915170>
- Putnick, D. L., & Bornstein, M. H. (2016). Measurement invariance conventions and reporting. *Developmental Review*, 41, 71–90. <https://doi.org/10.1016/j.dr.2016.06.004>
- R Core Team (2020). R: A language and environment for statistical computing. R Foundation for Statistical Computing, Vienna, Austria. URL <https://www.R-project.org/>
- Reppold, C. T., Gomes, C. M. A., Seabra, A. G., Muniz, M., Valentini, F., & Laros, J. A. (2015). Contribuições da psicométrica para os estudos em neuropsicologia cognitiva. *Revista Psicologia: Teoria e Prática*, 17(2), 94–106. Recuperado de <http://editorarevistas.mackenzie.br/index.php/ptp/article/view/7367>
- Revelle, W. (2020) psych: Procedures for Personality and Psychological Research, Northwestern University, Evanston, Illinois, USA, <https://CRAN.R-project.org/package=psych> Version = 2.1.3

- Rios, J., & Wells, C. (2014). Validity evidence based on internal structure. *Psicothema*, 26(1), 108–116. <https://doi.org/10.7334/psicothema2013.260>
- Rocha, L. F. D., Hernandez, J. A. E., & Falcone, E. M. O. (2021). Latent structure evidence of the Depression, Anxiety and Stress Scales – Short Form. *Estudos de Psicologia* (Campinas), 38, e190103. <https://doi.org/10.1590/1982-0275202138e190103>
- Rosseel, Y. (2012). lavaan: An R Package for Structural Equation Modeling. *Journal of Statistical Software*, 48(2), 1–36. Disponível em: <https://www.jstatsoft.org/v48/i02/>
- Sahão, F. T. (2019). *Saúde mental do estudante universitário: comportamentos que favorecem a adaptação ao ensino superior* [Dissertação de Mestrado, Universidade Estadual de Londrina]. <http://www.bibliotecadigital.uel.br/document/?code=vtls000229231>
- Sheldon, E., Simmonds-Buckley, M., Bone, C., Mascarenhas, T., Chan, N., Wincott, M., Gleeson, H., Sow, K., Hind, D., & Barkham, M. (2021). Prevalence and risk factors for mental health problems in university undergraduate students: A systematic review with meta-analysis. *Journal of Affective Disorders*, 287, 282–292. <http://doi.org/10.1016/j.jad.2021.03.054>
- Silva, A. C. S. D., Meireles, A. L., Cardoso, C. S., Barroso, S. M., Oliveira, D. C. R. D., Paula, W. D., ... & Bandeira, M. D. B. (2021). Relação entre vivência acadêmica e ansiedade em estudantes universitários. *Contextos Clínicos*, 14(2), 563–587. <https://doi.org/10.4013/ctc.2021.142.09>
- Silva, G. O., Carneiro, P. R. C., Aredes, N. D. A., & do Nascimento, L. R. (2025). Determinants of academic adaptation and quality of life of university students in the Brazilian Amazon region. *Frontiers in Education*, 10, 1530882. <https://doi.org/10.3389/educ.2025.1530882>
- Skrondal, A., & Laake, P. (2001). Regression among factor scores. *Psychometrika*, 66(4), 563–575. <http://doi.org/10.1007/BF02296196>
- Sousa, G. S. de., Ramos, B. M. D., Tonaco, L. A. B., Reinaldo, A. M. dos S., Pereira, M. O., & Botti, N. C. L.. (2022). Factors associated with suicide ideation of healthcare university students. *Revista Brasileira De Enfermagem*, 75, e20200982. <https://doi.org/10.1590/0034-7167-2020-0982>
- Souza, M., Caldas, T., & De Antoni, C. (2017). Fatores de adoecimento dos estudantes da área da saúde: uma revisão sistemática. *Psicologia e Saúde em debate*, 3(1), 99–126. <https://doi.org/10.22289/2446-922X.V3N1A8>
- Teodoro, M., de Souza, R. S. B., Martins, C. D. C., Sediya, C. Y. N., Alvares-Teodoro, J., Chang, O. D., & Chang, E. C. (2020). Validity of the Frequency of Suicidal Ideation Inventory in Brazilian adults. *Death studies*, 1–5. <https://doi.org/10.1080/07481187.2016.1244226>
- Tinner, L., & Alonso Curbelo, A. (2024). Intersectional discrimination and mental health inequalities: a qualitative study of young women's experiences in Scotland. *International journal for equity in health*, 23(1), 1–13. <https://doi.org/10.1186/s12939-024-02133-3>
- Vieira, A. C., Leite, D. G., da Silva, L. M., Ienke, L., & Stelzner, N. B. (2020). Desafios do ensino superior: um levantamento da saúde mental dos acadêmicos da área de saúde. *Revista Journal of Health*, 1(1), 1–12. <https://www.cesage.com.br/revistas/index.php/JournalofHealth/article/view/1179>
- Vignola, R. C. B., & Tucci, A. M. (2014). Adaptation and validation of the depression, anxiety and stress scale (DASS) to Brazilian Portuguese. *Journal of affective disorders*, 155, 104–109. <https://doi.org/10.1016/j.jad.2013.10.031>

Contribution of each author to the work:

Heitor B. Farias: Conception and design of the study, literature review, data acquisition, data analysis and interpretation, manuscript drafting, critical revision of the manuscript, and final approval of the version submitted to the journal.

Fernanda D. Vieira: Conception and design of the study, literature review, data acquisition, data analysis and interpretation, manuscript drafting, critical revision of the manuscript, and final approval of the version submitted to the journal.

Edi C. Manfro: Conception and design of the study, literature review, data acquisition, data analysis and interpretation, manuscript drafting, critical revision of the manuscript, and final approval of the version submitted to the journal.

Amanda G. de Oliveira: Literature review, data acquisition, and manuscript drafting.

Viviane R. Dias: Literature review, data acquisition, and manuscript drafting.

Amanda S. Oliveira: Literature review, data acquisition, and manuscript drafting.

Andréa M. Teles: Literature review, data acquisition, and manuscript drafting.

Maycoln L. M. Teodoro: Conception and design of the study, literature review, data acquisition, data analysis and interpretation, critical revision of the manuscript, and final approval of the version submitted to the journal.

EDITORIAL BOARD

Editor-in-chief

Alexandre Luiz de Oliveira Serpa

Associated editors

Alessandra Gotuzo Seabra
Ana Alexandra Caldas Osório
Cristiane Silvestre de Paula
Luiz Renato Rodrigues Carreiro
Maria Cristina Triguero Veloz Teixeira

Section editors

"Psychological Assessment"

André Luiz de Carvalho Braule Pinto
Danielle de Souza Costa
Natália Becker
Lisandra Borges Vieira Lima
Luiz Renato Rodrigues Carreiro
Thatiana Helena de Lima

"Psychology and Education"

Carlo Schmidt
Kátia Carvalho Amaral Faro
Natália Martins Dias

"Social Psychology and Population's Health"

Fernanda Maria Munhoz Salgado
Gabriel Gaudencio do Rêgo
João Gabriel Maracci Cardoso

"Clinical Psychology"

Cândida Helena Lopes Alves
Loraine Seixas Ferreira
Vinicius Pereira de Sousa

"Human Development"

Ana Alexandra Caldas Osório
Cristiane Silvestre de Paula
João Rodrigo Maciel Portes

Review Articles

Jessica Mayumi Maruyama

Technical support

Maria Gabriela Maglio
Davi Mendes

EDITORIAL PRODUCTION

Publishing coordination

Surane Chilianí Vellenich

Language editor

Daniel Leão

Layout designer

Studio Acqua