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Mental health of students and employees of a federal educational institution in the state of Espírito Santo, Brazil

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ABSTRACT
The academic population is especially vulnerable to mental disorders and this can directly impact their psychosocial well-being. In this sense, this research had as its primary objective to verify the levels of stress, anxiety and depression in students and employees of a federal educational institution in the state of Espírito Santo, Brazil. The secondary objective was to identify differences in mental health levels between men and women. To this end, a quantitative and cross-sectional study was carried out with a sample of 304 participants. Data were collected using a sociodemographic questionnaire and the DASS-21 short form scale. Statistical analyzes were performed using JASP software, version 16.3. The results indicated that 57.24% of participants presented mild to extremely severe symptoms of stress, 55.26% of anxiety and 61.51% of depression. Independent samples Mann-Whitney tests demonstrated that women had higher levels of mental disorders than men, with all differences being statistically significant ($p < 0.001$). However, effect sizes were low. These results raise concern and the need for greater care regarding this issue, especially for women. At the end of the chapter, limitations of the study and implications for future research are addressed.

Keywords: Stress, Anxiety, Depression, Mental health, Education.

1 INTRODUCTION

Mental health is defined by the World Health Organization (WHO) as a state of integral well-being of the individual, in which he/herself, on his/her own, is able to recover from daily stress and be willing to cooperate with his/her community (GAINO et al., 2018). However, pressure and excessive demands in the academic environment can have several negative psychosocial impacts on individuals, whether they are students or education professionals (DEMENECH et al., 2023; McCarthy et al., 2022). To aggravate the situation, several studies have found significant increases in the levels of mental disorders in this population, during and after the COVID-19 pandemic (ESTEVES; OLIVE TREE; ARGIMON, 2021; FREITAS et al., 2023; MENDES, 2021), and many others found significant differences between men and women, in which the latter were shown to have been more affected than the former (BARROS et al., 2021; GOMES; SILVA; BARBOSA, 2021; PEREIRA et al., 2020). Thus,

students and education professionals of both sexes can be considerably vulnerable to mental disorders, with stress, anxiety, and depression being three of the main types of these disorders.

According to Dalgalarrondo (2018), the main characteristics of depressive syndromes are depressed mood, discouragement, fatigue, insomnia or hypersomnia, feelings of insufficiency and suicidal ideation. Anxiety syndromes mostly present symptoms of worry, irritability, insomnia, and cold sweating. Acute stress disorder, on the other hand, has as an essential characteristic the development of symptoms of intrusion, negative mood, dissociation, avoidance and excitement, starting or worsening after a traumatic or stressful event (SADOCK; SADOCK; RUIZ, 2017).

In view of these considerations, the objective of this study was to investigate the mental health indices (stress, anxiety and depression) in a sample of students and employees of a federal institution of secondary, technical and higher education in the state of Espírito Santo, Brazil. In addition, we sought to verify whether there were differences in the levels of these mental disorders between males and females.

2 METHODOLOGY

This is a quantitative, descriptive, and cross-sectional study, whose data were collected from April 8 to July 12, 2022. At the time, the academic community was composed of 1,335 individuals, 304 of whom participated in the study. The subjects answered two instruments via the Google Forms platform. The first instrument was a socioeconomic and demographic questionnaire, which contained questions about age, gender, ethnicity, functional category (student, administrative employee, or teacher), previous mental health history, and socioeconomic status of the participants. However, considering the objectives of this study, only the data related to the gender of the participants were analyzed, and the other sociodemographic information mentioned only for the purpose of characterizing the sample.

The second instrument consisted of the Depression, Anxiety and Stress Scale – EDAE (adapted version of the *Depression Anxiety and Stress Scale – DASS-21 – Short Form*) which aimed to analyze the levels of the respective mental disorders in individuals. The scale has 21 items and is divided into three subscales, with an equal number of items, which measure the symptoms of each of the disorders. The answers are marked on a four-point Likert scale, ranging from "0 – It didn't happen to me this week" to "3 – It happened to me most of the time of the week" (PATIAS et al., 2016; SILVA et al., 2016). To measure symptoms, the items of each subscale are added together and then multiplied by two (LOVIBOND; LOVIBOND, 2004; VIGNOLA; TUCCI, 2014).

For data analysis, the JASP software (LOVE et al., 2019), version 16.3, was used. Descriptive statistics of mean (M), 95% confidence interval of the mean (95% CI), median (Mdn) and standard deviation (SD) were used for scalar variables, and absolute and relative frequency (percentage) for

categorical variables. In order to classify the severity of mental disorders, the scores of the symptoms of stress, anxiety, and depression were converted into levels of severity (normal, mild, moderate, severe, and extremely severe), as established by the authors of the original scale (LOVIBOND; LOVIBOND, 2004; VIGNOLA; TUCCI, 2014) and shown in Table 1.

Table 1 – Severity levels on the EDAE Scale.

Classification	Z-score	Percentil	Stress	Anxiety	Depression
Normal	< 0,5	0-78	0-14	0-7	0-9
mild	0,5-1,0	78-87	15-18	8-9	10-13
Moderate	1,0-2,0	87-95	19-25	10-14	14-20
Severe	2,0-30	95-98	26-33	15-19	21-27
Extremely severe	> 3,0	98-100	34+	20+	28+

Source: Lovibond and Lovibond, 2004; Vignola and Tucci, 2014.

The Shapiro-Wilk test found that there was no normal distribution of data ($p < 0.001$). Therefore, the Mann-Whitney test of independent samples was used to identify the differences in the levels of stress, anxiety and depression between males and females (FIELD, 2009). The effect size of the differences was also calculated by means of the rank-bisserial correlation, and using the criteria established by Cohen (1988), namely: derisory ($r < 0.2$), low ($r \geq 0.2$), medium ($r \geq 0.5$) and high ($r \geq 0.8$).

This research was submitted to and approved by the Human Research Ethics Committee of the Federal Institute of Espírito Santo (CEP/IFES), under CAAE number 56213422.4.0000.5072, having followed the ethical precepts determined by CNS Resolutions No. 466/2012 (BRASIL, 2012) and 510/2016 (BRASIL, 2016). Initially, campaigns were carried out to disseminate the research through the academic system, the institution's social networks, and visits to administrative sectors and classrooms. Candidates to participate were informed about the objectives of the study, its voluntary nature, the confidentiality and anonymity of their participation, and the risks and benefits of the research. They were also informed that the results would be demonstrated globally, without individual identification. Subjects over 18 years of age who wished to participate in the research (students, administrative staff and teachers) accessed the link *attached to the electronic invitation, which directed to the Free and Informed Consent Form (ICF), and, after reading and consenting, answered the questionnaire and the scale.*

The assent process of students under 18 years of age was carried out by contacting their parents or guardians in advance. Thus, these students were approached only after the prior formal consent of the parents, through the informed consent form, sent by e-mail. After this procedure, students under 18 years of age had access to the Term of Free and Informed Assent (TALE) and, after reading and agreeing, answered the research instruments.

3 RESULTS

Among the research participants (n = 304), 161 were male (52.96%) and 143 were female (47.04%). Age ranged from 15 to 65 years (M = 25.23; 95% CI = 23.96 - 26.50; SD = 11.23; Mdn = 19), and on average, the women were slightly younger (M = 23.98; SD = 9.92; Mdn = 19) than men (M = 26.35; SD = 12.20; Mdn = 20). The descriptive statistics regarding the participants' mental health scores, total and separated by gender, are shown in Table 2.

Table 2 – Descriptive statistics of mental health according to the gender of the participants.

	Stress			Anxiety			Depression		
	Total	Female	Male	Total	Female	Male	Total	Female	Male
Average	18,76	23,18	14,77	12,61	16,29	9,29	16,80	20,32	13,58
SD	12,63	11,73	12,09	11,63	12,28	9,93	13,37	13,01	12,93
Median	18	24	14	8	16	6	16	20	10

Note: Female: female; Mal: male

The classification of the severity of the participants' mental disorders (Table 3) indicates that, if each of the strata is considered individually, normal levels of stress (42.76%), anxiety (44.74%) and depression (38.49%) prevail in the total sample. However, of the total number of participants, 57.24% had mild to extremely severe symptoms of stress, 55.26% of anxiety and 61.51% of depression. The classification of severity, separated by gender, is shown in Table 3.

Table 3 – Severity levels of participants' mental disorders (overall and by gender)

Gender		normal	mild	moderate	severe	ext. severe
Stress severity level						
Female	f	42	13	18	38	32
(n = 143)	%	29,37%	9,09%	12,59 %	26,57 %	22,38 %
Male	f	88	15	19	23	16
(n = 161)	%	54,66 %	9,32%	11,80 %	14,29 %	9,93 %
Total	f	130	28	37	61	48
(n = 304)	%	42,76%	9,21 %	12,17 %	20,06 %	15,79 %
Anxiety severity level						
Gender		normal	mild	moderate	severe	ext. severe
Female	f	48	7	15	17	56
(n = 143)	%	33,57%	4,90%	10,49%	11,89 %	39,16%
Male	f	88	13	21	14	25
(n = 161)	%	54,66%	8,08%	13,04%	8,70 %	15,53%
Total	f	136	20	36	31	81
(n = 304)	%	44,74%	6,58%	11,84%	10,20%	26,65 %
Depression severity level						
Gender		normal	mild	moderate	severe	ext. severe
Female	f	39	10	25	21	48
(n = 143)	%	27,27%	6,99%	17,48%	14,69 %	33,57%
Male	f	78	11	27	17	28
(n = 161)	%	48,45%	6,83%	16,77%	10,56%	17,39%
Total	f	117	21	52	38	76
(n = 304)	%	38,49%	6,91%	17,11%	12,50%	25%

Note: Women: female; Men: male; f: absolute frequency; % = relative frequency (percentage); ext: extremely.

To assess whether there were differences between mental health indices between males and females, independent sample Mann-Whitney tests were performed (FIELD, 2009). The results of the Mann-Whitney tests showed that women had higher levels of stress (U = 15967.00; z = 5.834), anxiety (U = 15525.00; z = 5.266) and depression (U = 15111.00; z = 4.715) than men, and all differences were statistically significant (p < 0.001). However, the effect sizes of the differences were low: stress (r = 0.33), anxiety (r = 0.30) and depression (r = 0.27).

4 DISCUSSION

As previously explained, the present study found the presence of high levels of stress, anxiety and depression in the sample evaluated by EDAE. The results showed that more individuals had some degree of symptomatic mental disorders than the number of people with normal levels. This percentage is close to those described in the literature (MARTINS et al., 2019; COSTA et al., 2020).

In view of this, Apostle, Tanner and Arfken (2012) found results that converge with those observed in this study. These authors describe that females scored significantly higher than males on indicators of stress, anxiety, and depression. These data reveal the need for studies that delve into the reasons why women show higher levels of symptoms than men. However, it is assumed that some reasons involve the way female people are socialized, making them more likely to follow an oppressive and exhaustive behavior model (LEITE, 2017). In other words, women, in general, are more vulnerable to developing mental disorders because they are more susceptible to violence, social pressure, greater family responsibility, high workload, among other social and economic factors (LEITE, 2017).

5 CONCLUSION

This study presents important data on the mental health of the academic community of a federal educational institution in the state of Espírito Santo, Brazil. The results showed that there is a considerable proportion of people presenting some degree of symptoms of stress, anxiety and depression, including severe and extremely severe levels of these disorders. In addition, statistically significant differences were found in the symptoms of these disorders between females and males, with females and males being more anxious, depressed, and stressed than men. In this sense, the study revealed that more men had normal and mild levels, while more women had moderate, severe and extremely severe levels in all mental health variables analyzed. It should be noted that the results of this study cannot be generalized to other populations due to the limitations of its methodology and the population studied. However, its results converge with other studies, carried out in other contexts and with methodologies different from those used here. It is recommended that future research investigate the possible causes of the differences in stress, anxiety and depression levels between women and men, as well as delve into these contexts.

SUPPORT

Interdisciplinarity and Innovation in Scientific Research
Mental health of students and employees of a federal educational institution in the state of Espírito Santo, Brazil

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