

The Mental Health of Students at Polytechnics of Santarem and Leiria during the COVID-19 Lockdown [†]

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Abstract: The COVID-19 pandemic has reduced social mobility and social interactions in periods of confinement. Objective: to evaluate the levels of anxiety, depression, and stress of Portuguese students from two polytechnic institutions. Methodology: correlational descriptive cross-sectional study. Instrument: Anxiety, Depression and Stress Scale-21, Portuguese version, applied between November 19 and December 4, 2020. Results: about 6.5% of participants reported a severe or extremely severe level of anxiety and depression. Conclusions: Significant differences were found between the affective states of students from the two Polytechnic Institutes, with higher (worse) levels in students from Leiria. Women's affective states were more negative than men's.

Keywords: COVID-19; literacy; positive mental health; students



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1. Introduction

The COVID-19 pandemic has been considered to be a public health emergency of international concern and a major challenge for mental health, due to its impact, in the 21st century [1,2]. Concerns were expressed about the impact of the pandemic on mental health, particularly on students, at least in the short term [3].

This study aimed to evaluate the levels of anxiety, depression, and stress of students and their relationship with sociodemographic characteristics in Portuguese students from the Polytechnic Institutes of Santarém (IPSantarém) and Leiria (IPLeiria).

2. Methods

A quantitative, correlational, descriptive cross-sectional study was conducted, approved by the Ethics Committee of the IPSantarém Research Unit (112020 Saúde).

The participants (775) were selected using the convenience sampling method from a population of 6,483 students. Of the total sample, 570 (73.5%) were females and 205 (26.5%) were males.

The survey was carried out via Microsoft Forms, through a link on the page of each school of the Polytechnic Institutes (IP), with guaranteed anonymity.

The reduced, Portuguese version of the Depression, Anxiety and Stress Scale (DASS-21) was used [4]. Each subscale consists of seven items. Each item consists of a statement, which refers to negative feelings. All items are evaluated using a four-point Likert-type scale, which reflects the severity and frequency of feelings experienced. The classification

is given by the sum of the results of the seven items, obtaining a score for each subscale between 0 and 21. Higher scores correspond to more negative affective states [5].

Data were analysed using the SPSS Statistics for Windows Software platform, version 27.0.

3. Results

Strong, positive, and significant correlations ($p < 0.001$) were found between the three subscales with high Cronbach's alpha coefficients: anxiety ($\alpha = 0.877$); depression ($\alpha = 0.921$); and stress ($\alpha = 0.920$).

Stress had the highest mean value (7.67), followed by depression (6.87). The lowest value corresponds to anxiety with a mean equal to 4.27. Students from the Polytechnic Institute of Leiria (IPLeiria) indicate depression values close to the midpoint (11.06) of the subscale for females (8.12) and males (8.20).

Stress was the most felt by the females from IPLeiria with an average score of 9.10, although this deviates slightly from values considered as worrying for mental health.

Regarding anxiety, students presented values below the midpoint of the subscale.

The results in Table 1 highlight that 679 students (87.6%) had normal levels of stress, 562 (72.5%) had normal levels of depression and 618 (79.7%) had normal levels of anxiety.

Table 1. Severity of students' affective–emotional states.

Levels	Stress		Depression		Anxiety	
	No.	%	No.	%	No.	%
Normal	679	87.6	562	72.5	618	79.7
Light	64	8.3	108	13.9	47	6.1
Moderate	32	4.1	91	11.7	73	9.4
Severe	0	0	14	1.8	32	4.1
Extremely severe	0	0	0	0	5	0.6
TOTAL	775	100.0	775	100.0	775	100.0

In this study, 96 students (12.4%) reported mild to moderate stress, 213 (27.4%) reported mild to severe depression, and 157 (20.2%) showed mild to extremely severe anxiety.

The calculation of the correlation between the overall value of each subscale and the respective items (Pearson's correlation) showed the responses that most contributed to each subscale, with all correlation coefficients being significant at the 1% level.

(a) Stress—'I felt that I was experiencing a lot of nervous energy' and 'I felt that I was very agitated', where $r = 0.85$ for both, and 'I felt it difficult to relax', where $r = 0.87$.

(b) Depression—'I felt that I had nothing to look forward to in the future', 'I could not get excited about anything', 'I felt that I did not have much value as a person', and 'I felt that life was meaningless', where r values = 0.84 for all.

(c) Anxiety—I almost panicked' ($r = 0.85$), 'I felt changes in my heart without doing physical exercise' ($r = 0.75$), and 'I felt afraid without justifiable reason' ($r = 0.81$).

Comparing the level of the Polytechnic Institute (IP) attended, there were significant differences between the averages of depression, anxiety, and stress (Student's t -test) with higher scores in the three dimensions in IPLeiria students; that is, the affective states of these students were more negative (Figure 1).

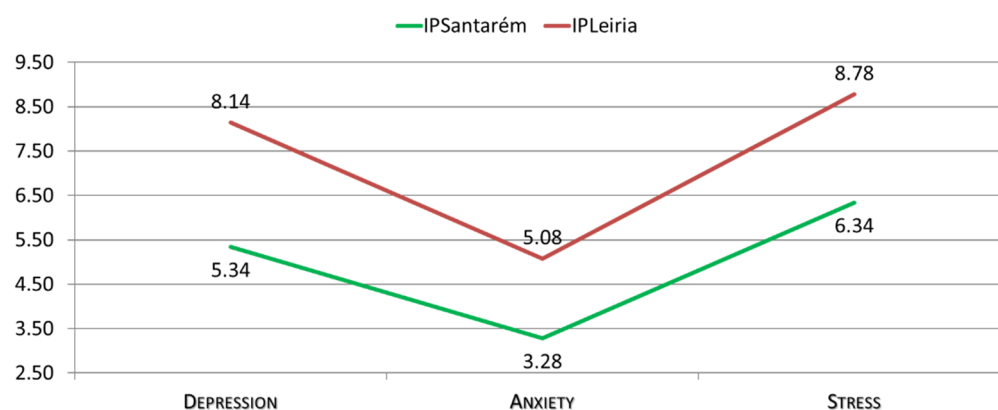


Figure 1. Institute attended by the DASS-21 subscales.

Regarding gender (Figure 2), females had statistically higher scores when compared to males, meaning that the females' affective states were more negative.

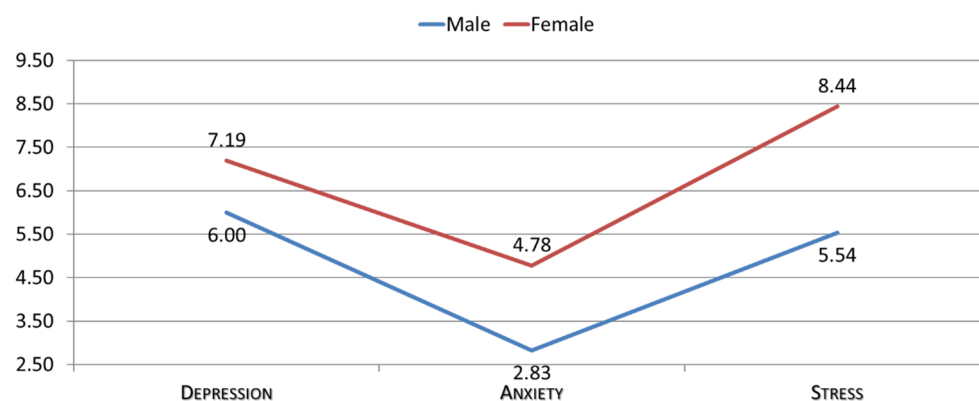


Figure 2. Gender differences in the DASS-21 subscales.

4. Discussion

This study evaluated the levels of anxiety, depression, and stress in Portuguese students from IPSantarem and IPLeiria.

Scientific evidence has detected the negative impacts of the pandemic and the need to develop preventive interventions and strategies [2].

Females and males from IPLeiria showed higher values for depression, like as other studies did [6,7]. Other evidence [7] reported that 28.7% of students had moderate to severe depression and 51.5% had mild to severe anxiety. At IPLeiria, stress is the most experienced by females. Stress was highlighted during confinement in other studies, with a higher incidence and prevalence in females than in males [1,3].

A total of 562 (72.5%) of the IP students manifested depression and 618 (79.7%) manifested anxiety. These data are like those presented in another study, as 138 (71.0%) had stress and anxiety due to COVID-19 [2]. The findings presented in another study highlighted that students had significant depressive feelings (56.9%) [7]; 14 (6.5%) reported severe or extremely severe levels of anxiety and depression, which may suggest an increase in affective states related to the pandemic being at clinical thresholds [3]; 213 (27.4%) of the IP students had mild to severe depression; and 157 (20.2%) had mild to extremely severe anxiety, which is in line with another survey where the authors reported that 28.7% had moderate to severe depression and 51.5% had mild to severe anxiety [7].

The affective states of IPLeiria students were more negative than those of Santarem. Females' affective states were more negative than males', which is in line with scientific evidence that females are more prone than males to depression and anxiety [3].

5. Conclusions

This study revealed significant differences between the two Polytechnic Institute students' affective states, with higher levels of depression, anxiety, and stress in IPLeiria students. In addition, females' affective states were more negative than males'.

Higher education students are considered vulnerable to health problems linked to emotions.

Mental health literacy (MHL) through empowerment is essential in students' lives. Higher education institutions should promote students' positive mental health through awareness, using digital platforms and developing a mental health programme that leverages positive coping measures in the face of similar situations, considering that digital technologies allow the self-management of mental health problems.

The extent and quality of adaptation to situations such as COVID-19 need to be known early. To use probabilistic samples to extrapolate the data to the population would all be important in identical situations. This was limitation of this study. Future investigations need to be carried out and positive mental health assessed using the Positive Mental Health Questionnaire (PMHQ).

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References

1. Ramírez-Ortiz, J.; Castro-Quintero, D.; Lerma-Córdobaa, C.; Yela-Ceballosa, F.; Escobar-Córdoba, F. Mental health consequences of the COVID-19 pandemic associated with social isolation. *Colomb. J. Anesthesiol.* **2020**, *48*, e930. [\[CrossRef\]](#)
2. Son, C.; Hegde, S.; Smith, A.; Wang, X.; Sasangohar, F. Effects of COVID-19 on College Students' Mental Health in the United States: Interview Survey Study. *J. Med. Internet. Res.* **2020**, *22*, e21279. [\[CrossRef\]](#) [\[PubMed\]](#)
3. Chen, T.; Lucock, M. The mental health of university students during the COVID-19 pandemic: An online survey in the UK. *PLOS ONE* **2022**, *17*, e0262562. [\[CrossRef\]](#) [\[PubMed\]](#)
4. Pais-Ribeiro, J.L.; Honrado, A.; Leal, I. Contribuição para o estudo da adaptação portuguesa das Escalas de Ansiedade, Depressão e Stress (EADS) de 21 itens de Lovibond e Lovibond. *Psicol. saúde doenças* **2004**, *5*, 229–239.
5. Kecojevic, A.; Basch, C.H.; Sullivan, M.; Davi, N.K. The impact of the COVID-19 epidemic on mental health of undergraduate students in New Jersey, cross-sectional study. *PLOS ONE* **2020**, *15*, e0239696. [\[CrossRef\]](#)
6. Sun, Y.; Lin, S.-Y.; Chung, K.K.H. University Students' Perceived Peer Support and Experienced Depressive Symptoms During the COVID-19 Pandemic: The Mediating Role of Emotional Well-Being. *Int. J. Environ. Res. Public Heal.* **2020**, *17*, 9308. [\[CrossRef\]](#) [\[PubMed\]](#)
7. Chaudhary, A.P.; Sonar, N.S.; Tr, J.; Banerjee, M.; Yadav, S. Impact of the COVID-19 Pandemic on the Mental Health of College Students in India: Cross-sectional Web-Based Study. *JMIRx Med* **2021**, *2*, e28158. [\[CrossRef\]](#) [\[PubMed\]](#)

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