

Evidence of Mental Health in University Students: A Contribution to Literacy

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ABSTRACT

The data on the mental health of young people, in the current scientific evidence, point to the need for a constant updating of perspectives in relation to the contexts in which it is inserted, aiming at a more targeted intervention and its empowerment. In this context, it was described in the study: "Consumption of psychoactive substances in university students... What reality?" as one of the objectives- Identify the level of psychological health (depression, anxiety, and stress) of students at the Instituto Politécnico de Bragança. A quantitative, descriptive, correlational, and cross-sectional study was carried out. A (non-probabilistic) sample of 392 students was used. The assessment of the students' psychological health was carried out using the Anxiety, Depression, and Stress Scale (EADS21) by Lovibond and Lovibond, adapted by Pais Ribeiro in 2004. SPSS was used to process the data using descriptive statistics and inferential with a significance level of 95%. As a result, we have that: about 25% of students show above-normal levels of intensity in the depression and stress dimensions, reaching almost one-third in the anxiety dimension. The correlations between the EADS21 dimensions were moderate to strong. There was a statistically significant difference between the respondents: according to sex ($p=0,001$; Cohen's $d=0,344$), for the dimension of stress; according to whether or not they practiced physical exercise, for the dimension of stress ($p=0,010$; Cohen's $d=0,280$), anxiety ($p=0,006$; Cohen's $d=0,252$) and depression ($p=0,034$; Cohen's $d=0,244$); according to whether or not they had already started sexual activity, for the depression dimension ($p=0,019$; Cohen's $d=0,287$); according to whether or not they consider awareness-raising actions relevant, for the depression dimension ($p=0,018$; Cohen's $d=0,331$). We conclude that the results show that the general values are low in each of the mental health dimensions of the EADS21. This implies good experiences of respondents in a university context, in addition to the fact that female students have higher values in all dimensions of the EADS21, as well as those who do not practice physical exercise, those who have not yet started sexual activity, and those who do not consider relevant awareness-raising actions.

Keywords: Academic Experiences, Literacy, Mental Health, University Students.

1. INTRODUCTION

In the last decade, mental health has been highlighted, mainly as a corollary of the growing scientific evidence, which emphasizes the importance of mental health in different contexts of society.

Generally, youth is characterized by being an intermediate phase, a phase of change, passage, shock or crisis, a succession of stages, status, presenting a variability of attitudes and behaviors that can weaken life, putting it at risk (Galvao *et al.*, 2017). Better mental health in young people, according to Abhainath and Kedare (2016), would be associated with better physical health, socially positive behaviors, and lower risk behaviors.

Upon entering the academic context of higher education, most young students experience some insecurity in relation to their new lifestyle (social contacts, roles, and routines that

they must realize). They also have positive expectations regarding their new life, which are, most of it, shared with family and friends, with a certain pride, putting pressure on young students, in addition to the pressure already created by living, in this circumstance, away from family and friends (Costa, 2009; Mullins *et al.*, 2016). During the period of university attendance, students experience several phases and many psychological vulnerabilities, and it is important for the educational institution to recognize these so that they can overcome the most difficult moments (Andrade *et al.*, 2016).

Low levels of mental health literacy in university students may not only prevent or complicate the early recognition of mental health problems but also influence help-seeking behavior (Loureiro *et al.*, 2012). In the opinion of Olivari and Guzmán-González (2017) the search for help in mental health is a learned skill, adaptive and related to psychological well-being. In the same sense Alexander (2017) explains that the

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search for help combined with early specific intervention is related to adaptive coping and positive results in the face of difficult or negative situations to which younger people are exposed.

Understanding the factors underlying behaviors and risks in university students is essential, as well as analyzing the various studies carried out in the field of mental health that have considered young people as a priority social group for the intervention (Unaid, 2016). In addition to the fact that it has been observed, as an added value for the university students, due to the proximity to their contexts, the tendency to extend health literacy outside of health care with an impact on preventive health and also reduction of the pressure on health systems (Marques, 2015).

II. METHODOLOGY

The methodology applied is crucial for the conclusions of any investigation, and the researcher must evaluate the options available at his disposal and carefully select the path to follow (Onwuegbuzie & Leech, 2005).

Since the studies found and available on the connection between substance use and the mental health of higher education students in the context of the city of Bragança lack perspectives that are constantly being updated, this type of research proves to be an added value, therefore, a new look, a new inquiry in this area was considered pertinent. Consequently, emerged the study "Consumption of psychoactive substances in university students...What reality?" as a doctoral thesis in the doctoral program: Research Applied to Health Sciences at the University of León.

A. Objective

In this context, it was described in that investigation, as one of the main objectives: To identify the level of psychological health (depression, anxiety, and stress) of the students of the Instituto Politécnico de Bragança.

For this purpose, a quantitative, descriptive, correlational, and exploratory study was carried out, in a transversal plan.

In view of the particularities of this investigation, a representative sample of the total number of students (3957 registered in the 2016–2017 academic year) who attended the theoretical components in the four organic units related to the Bragança campus of the IPB was chosen, due to the geographical proximity to the investigator. Subsequently, was considered for each organic unit, based on a sampling error of 5% and a confidence level of 95%, the sample proportional to its weight in the total number of students under study. So, a (non-probabilistic) sample of 392 students was used.

To assess the students' psychological health, the Anxiety, Depression and Stress Scale (EADS21) by Lovibond and Lovibond, adapted by Pais-Ribeiro *et al.* (2004) was used as a collection tool. The EADS21 is aimed at individuals over 17 years of age and is organized into three scales: Depression, Anxiety, and Stress.

The scale provides three notes, one per subscale, where the minimum is "0" and the maximum is "21". The higher scores on each scale correspond to more negative affective states Pais-Ribeiro *et al.* (2004).

In applying the data collection instrument, the need to protect the rights of the individual was taken into account, respecting their rights to self-determination, privacy, anonymity, and confidentiality, as well as the right to fair and equitable treatment (Fortin, 2009). That is, the principles of the Declaration of Helsinki, according to the World Medical Association (2013) were taken into account.

After processing the computerized data (Statistical Package for the Social Sciences IBM (SPSS) 23)(IBM, 2013) using descriptive statistics and with a significance level of 95% ($\alpha = 0,05$) (several authors suggest that, in human sciences, it is conventional to accept probabilities, up to at least 5 in 100), its analysis was continued allowing to respond to the defined objective and to verify the following hypotheses formulated:

- HI1: There are differences in the levels of anxiety, depression, and stress of the students in our sample, according to gender
- HI2: There are differences in the levels of anxiety, depression, and stress of IPB students, according to the practice of physical exercise
- HI3: There are differences in the levels of anxiety, depression, and stress of IPB students, according to whether or not they have started sexual activity
- HI4: There are differences in the levels of anxiety, depression, and stress of IPB students, according to whether or not they live in frequented places
- HI5: There are differences in the levels of anxiety, depression, and stress of IPB students, according to whether more awareness-raising actions are considered relevant
- HI6: There are significant correlations between the dimensions under study.

Regarding statistical procedures, in order to validate the Research Hypotheses and identify statistically significant differences between the various groups and the correlations between the various dimensions under study, it was necessary to define the statistical tests to be used, followed by, for this purpose, the most recent recommendations in this area, which involve the use of the Shapiro-Wilk normality test, to the detriment of the Kolmogorov-Smirnov test (Ghasemi & Zahediasl, 2012; Steinskog *et al.*, 2007). From the analyzes carried out using the Shapiro-Wilk tests, it can be concluded that the data distribution, for the various groups of independent variables analyzed in the Research Hypotheses, follows a non-normal distribution. This finding also defines that the verification of Research Hypothesis 6 will be done through the calculation of the Spearman correlation coefficient. Correlation coefficients are classified as follows: 0,00–0,09 negligible correlation; 0,10–0,39 weak correlation; 0,40–0,69 moderate correlation; 0,70–0,89 strong correlation; and, 0,90–1,00 very strong correlation) (Schober & Schwarte, 2018). In the case of the Research Hypothesis tests, whenever there were statistically significant differences, the effect size was also calculated using Cohen's *d* (Cohen, 1988; Fritz *et al.*, 2012; Sullivan & Feinn, 2012). The bigger the Cohen's *d*, the bigger the effect size, and the interpretation of the value is: $d < 0.01$ = very small; $0.01 \leq d < 0.5$ = small; $0.5 \leq d < 0.8$ = intermediate; $.8 \leq d < 1.2$ = large; $1.2 \leq d < 2$ = very large; and, $d \leq 2.0$ = huge (Sawilowsky, 2009).

III. RESULTS AND DISCUSSION

In order to respond to the objective of the study- Identify the level of mental health (depression, anxiety, and stress) of students at the Instituto Politécnico de Bragança, and as we have already mentioned, the EADS21 was used, the average scores obtained in terms of mental health (Depression, Anxiety, and Stress) of the IPB students were analyzed, making a comparison between female and male individuals, that is, by sex. Thus, in Table I we present the results of the analysis of the average mental health scores by sex, as well as the respective standard deviations.

TABLE I: MEAN VALUES AND STANDARD DEVIATIONS, EADS-21 DIMENSIONS, BY SEX

Gender		Anxiety	Depression	Stress
Male	M	2,95	3,18	4,34
	DP	3,670	4,059	3,987
	n	154	154	154
Female	M	3,38	3,33	5,81
	DP	3,880	3,768	4,440
	n	238	238	238
Total	M	3,21	3,27	5,23
	DP	3,800	3,880	4,323
	n	392	392	392

Transforming the respondents' scores into levels of anxiety, depression, and stress intensity, whose results are presented in Table II, it is concluded that about 25% of students show above normal levels of intensity in the depression and stress dimensions, reaching approximately one third in the anxiety dimension.

TABLE II: DISTRIBUTION OF INTENSITY LEVELS OF THE EADS-21 DIMENSIONS

		n	%
Anxiety Level	Normal	264	67,3%
	Mild	24	6,1%
	Moderate	53	13,5%
	Severe	23	5,9%
	Extreme	28	7,1%
Depression Level	Normal	289	73,7%
	Mild	30	7,7%
	Moderate	51	13,0%
	Severe	11	2,8%
	Extreme	11	2,8%
Stress Level	Normal	291	74,2%
	Mild	37	9,4%
	Moderate	37	9,4%
	Severe	20	5,1%
	Extreme	7	1,8%

Regarding the validation of HI1- There are differences in the levels of anxiety, depression, and stress of the students in our sample, according to gender; notwithstanding, there is a statistically significant difference between respondents according to sex, the effect size is small, but not invalidating, that Research Hypothesis 1 is verified for the stress dimension, with no validated differences for the other two dimensions, such as presented in Table III.

TABLE III: RESULTS OF THE MANN-WHITNEY TESTS BY SEX – EADS-21

Dimension	Genre	PM	p	d de Cohen	Effect Size
Stress	Male	172,02	0,001	0,344	small
	Female	212,34			
Anxiety	Male	189,05	0,288	n.a.	n.a.
	Female	201,32			
Depression	Male	188,18	0,235	n.a.	n.a.
	Female	201,88			

Regarding the stress dimension, the data found corroborate several studies in which female students seem to be more vulnerable to manifestations of stress than men, as well as those women, show more cognitive-emotional manifestations, while men show a greater predominance of behavioral manifestations (Galvão *et al.*, 2017; Veríssimo *et al.*, 2011) Also according to the study by Calais *et al.* (2003) these differences between sex may emerge from the fact that female students experience more stressful situations than male students, since it is common for women, in addition to studying, to also have to manage work, children, the house, among others. As in the study by Oliveira and Machado (2011), some gender differences were found, as girls tend to present a less optimistic assessment of their experiences, with a higher perceived level of stress than boys. Still regarding gender, in the study by Silva & Neto (2014), they found that the prevalence of mental disorders was higher in females (47,6%) than in males (34,7%), although there was no statistical difference. ($p=0,085$), results that are also replicated in other studies (Almeida *et al.*, 2007; Fecundes & Ludermir, 2005).

Regarding the HI2- There are differences in the levels of anxiety, depression, and stress of the IPB students, according to the practice of physical exercise, according to the values presented in Table IV, we have that there is a statistically significant difference between the respondents according to whether or not they practice physical exercise, the effect size is small, but not invalidating that the HI2 is verified for the three dimensions of the EADS-21.

TABLE IV: RESULTS OF THE MANN-WHITNEY TESTS FOR PHYSICAL EXERCISE

Dimension	Physical exercise	PM	p	d de Cohen	Effect Size
Stress	Yes	186,15	0,010	0,280	small
	No	217,12			
Anxiety	Yes	185,56	0,006	0,252	small
	No	218,31			
Depression	Yes	188,02	0,034	0,204	small
	No	213,40			

This is consistent with the evidence found in the literature. Of the benefits of regular physical activity for health, according to (WHO, 2015), there is an improvement in the individual's mental health, namely depression. In recent decades, an active lifestyle and physical exercise have been consistently associated with positive mental health and the absence of adverse states such as anxiety, depression, and physical illness (Dale *et al.*, 2014).

The lack of physical exercise or physical inactivity is a factor of great impact on the mental health of the individual because while there is a decrease in self-esteem, self-image, well-being, and sociability, there is a significant increase in stress, anxiety, and potentially depression. Depressed individuals are people who show a strong propensity to develop other diseases, and exercise can have additional benefits, such as controlling body weight, and changing self-image (Nascimento *et al.*, 2013). In addition, the numerous benefits of physical activity are attributed to the release of hormones, and endorphins, which produce protective results for the immune system, prevent the negative effects of stress and physical and mental imbalances, improve self-esteem,

physical condition, and global functioning of the individual (McGovern, 2005).

The existence of evidence of a positive association between the level of physical activity and mental health in higher education students is recognized (Demers, 2013), in addition to the significant differences between more regularly active and inactive students (Silva & Neto, 2014).

Regarding HI3- There are differences in the levels of anxiety, depression, and stress of the IPB students, according to whether or not they have already started sexual activity, taking into account Table V, however, despite the existence of a statistically significant difference between the respondents of according to whether or not they have already started sexual activity, for the depression dimension, the effect size is small, but not invalidating that HI3 is verified for the dimension in question.

TABLE V: RESULTS OF THE MANN-WHITNEY TESTS FOR WHETHER SEXUAL ACTIVITY HAS ALREADY STARTED

Dimension	Sexual activity		PM	p	d de Cohen	Effect Size
	has already started					
Stress	Yes	194,50	0,478	n.a.	n.a.	
	No	204,69				
Anxiety	Yes	193,44	0,273	n.a.	n.a.	
	No	209,01				
Depression	Yes	189,97	0,019	,287	small	
	No	223,20				

There are no statistically different differences between respondents who live or not in busy places/near night establishments, for the three dimensions of the EADS-21, thus, the HI4 is not validated. However, the literature suggests that the community, both in terms of the type of community, that is, the system of values, as well as in its daily practices, reveals itself through the impact of the risk or protection factors that this community has. plays on the individual (Abraão, 1999). The involvement of young people in community activities can be a protective factor by reducing the risk of delinquency and ensuring greater social integration. Machado (2014) points out that sociability is a dimension of the juvenile condition that occurs more frequently in leisure and entertainment spaces. Several authors have stated that worse mental health outcomes result from multifactorial causes, including factors of various natures such as biological and also social, and contextual influences (Barry *et al.*, 2013; Brown *et al.*, 2015; Curtis, 2010; Sarkar *et al.*, 2014). The evidence also shows that the socio-economic, physical, and built environments and social and cultural interaction (Loureiro *et al.*, 2012) play a very important role in terms of mental health. In addition, students displaced from their usual residence in relation to non-displaced students present even greater anxiety and stress (Costa & Leal, 2008).

TABLE VI: RESULTS OF THE MANN-WHITNEY TESTS FOR WHETHER LIVES IN BUSY PLACES- EADS-21

Dimension	Lives in busy places		PM	p	d de Cohen	Effect Size
Stress	Yes	197,44	0,872	n.a.	n.a.	
	No	195,60				
Anxiety	Yes	204,57	0,161	n.a.	n.a.	
	No	188,76				
Depression	Yes	195,08	0,805	n.a.	n.a.	
	No	197,86				

For the validation of HI5- There are differences in the levels of anxiety, depression, and stress of the IPB students, according to whether more awareness/training actions are considered relevant, and looking at Table VII, suggests that nevertheless, there is a difference statistically significant among respondents according to whether or not they consider more awareness-raising actions relevant, for the depression dimension, the effect size is small, but not invalidating that HI5 is verified for the dimension in question.

TABLE VII: RESULTS OF THE MANN-WHITNEY TESTS AS MORE AWARENESS-RAISING ACTIONS ARE CONSIDERED RELEVANT - EADS-21

Dimension	Considered relevant	PM	p	d de Cohen	Effect Size
Stress	Yes	193.35	0.193	n.a.	n.a.
	No	213.94			
Anxiety	Yes	194.90	0.505	n.a.	n.a.
	No	205.33			
Depression	Yes	190.86	0.018	0.331	small
	No	227.73			

This fits into the perspective that in Portugal, “mental health literacy”, defined as the knowledge and beliefs about mental disorders that support their recognition, management, and prevention (Jorm *et al.*, 1997; Kelly *et al.*, 2011) is still low in relation to what would be desirable (Loureiro *et al.*, 2012).

Studies have revealed that most individuals with mental health problems do not seek professional help (Barry *et al.*, 2013; Eisenberg *et al.*, 2007; Patel *et al.*, 2007). However, a study conducted by Almeida, (2014) showed that among the adult population, mostly made up of university students, previous contact with mental health problems is associated with higher levels of mental health literacy, particularly at the level of higher knowledge, and that they have the lowest erroneous beliefs/stereotypes regarding mental health problems and the highest levels of knowledge about self-help strategies.

The relationship between education and health is clearly evident in several studies, which reveal that low levels of literacy are associated with low levels of health, with the consequent costs to society, both in terms of human suffering and economics (Kickbusch, 2004; Nutbeam, 2008). Health Literacy, in this group and in general, is crucial, as it allows optimizing the search for solutions to their health problems. It promotes healthy lifestyles in general, as well as preventive and health-protective behaviors in particular, so their promotion should be encouraged (DGS, 2019).

To test the last Research Hypothesis HI6: There are significant correlations between the dimensions under study, the non-parametric correlation coefficients were calculated using Spearman's rho, presented in Table VIII, and for the case in question, all correlations are significant at the 0.05 level.

TABLE VIII: SPEARMAN CORRELATION COEFFICIENTS

Dimension	Stress	Anxiety
Anxiety	0,723	
Depression	0,723	0,628

Regarding the validation of the HI6, the correlations thus vary, between moderate to strong for the three dimensions of

the EADS-21, among them. We can thus say that the HI6 was validated.

The use of correlations in this study was not intended to find a direct cause and effect relationship, but to establish whether a dimension predicts an impact on another dimension, which is evident.

IV. CONCLUSIONS

From the data obtained in the present study and in view of the proposed objective, we can conclude that the general values are low in each of the dimensions of mental health (Depression, Anxiety, and Stress). This implies good experiences for respondents in a university context. The authors Rickwood *et al.* (2005) indicate that, despite considerable improvement in living conditions and physical well-being, the prevalence of mental health problems and disorders is increasing. We can also observe that female students have higher values, although still relatively low, in all dimensions: anxiety, depression, and stress, compared to male students. This result corroborates the research by Veríssimo *et al.* (2011), where they found that female students seem to be more vulnerable to manifestations of stress than males. Therefore, it is important to mention, in a conclusive note and also according to the evidence that:

During the period of university attendance, students experience several phases and many psychological vulnerabilities, and it is important for the educational institution to recognize these so that they can overcome the most difficult moments (Andrade & Pinheiro, 2016). The literature has shown that interventions in the scope of mental health promotion in higher education students have been highlighted as efficient, with very promising results (Conley *et al.*, 2013). Evidencing more and more, the important role that higher education institutions represent for university students. In this sense, they must act in the initial integration process, as well as throughout the academic path. Make resources available to provide positive experiences necessary for the total educational development of students, aiming at the academic success of the youth population it covers (Porto & Soares, 2017).

In short, health literacy should be used as a tool to understand relative strengths and weaknesses, both at the individual and community level, to enable health services, institutions, and systems to adopt a responsible attitude to needs of literacy for the community health (WHO, 2017).

Because health is a resource for people and society and it is a shared responsibility among all, it is extremely important to join efforts and promote, at every opportunity, the promotion of Health Literacy, in order to enable and activate the population contributing to health, well-being and the reduction of health inequalities (DGS, 2019). Thus, given the need to permanently update data on this issue, characterize their mental health and proceed to the identification of biopsychosocial variables with a positive effect and also those of greater vulnerability, it is an issue of particular interest. Thus, in our perspective, this study collaborates with elements that increase the understanding of the mental health of higher education students in the context of their academic experiences, taking into account the variables that it covered,

taxing with “Evidence of mental health in university students – a contribution for literacy”.

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