

Healthy Learning Environments, Stress Management and Mental Health in Higher Education Students

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ABSTRACT

Educational institutions contribute to the well-being, health and performance of students. The aim of this study is to assess the mental health and well-being needs of higher education students by studying the healthy learning environment and its relationship with students' mental health, and to understand the role of stress management skills in promoting mental health and healthier adjustment. The study used the Ecosystems of Healthy Learning Environments (EA2S) instrument and involved 521 students, 359 (69.4 %) of whom were female. Regarding the age of the students, 26.2 % were aged up to 19 (n=127), 64.3 % between 20 and 30 (n=311), 4.1 % between 31 and 40 (n=20) and 5.4 % 41 or over (n=26). The EA2S instrument consists of a total of 62 items organized into 9 dimensions. A moderation mediation model was carried out in order to understand the relationship between a healthy learning environment and students' mental health and the mediating role of stress management skills in this relationship. We found that there is a relationship between a healthy learning environment and students' mental health, and that this relationship is effectively mediated by stress management skills. The study refers to a multidomain intervention with the aim of promoting psychological health, well-being and skills, academic engagement and preventing higher education students from dropping out of school, through the development of psychological intervention, prevention and health promotion activities and training based on scientific evidence.

Keywords: ecosystems; higher education; wellness; stressors; health

INTRODUCTION

Mental health represents a state of well-being that enables a person to cope with the normal stresses of life, realize their abilities, learn well, work well and contribute to their community^[1]. As an essential component of health and well-being, it underpins our individual and collective abilities to make decisions, establish interpersonal relationships and shape the world we live in. However, throughout our lives there are various factors (individual, social, and structural) that, in combination, can prove to be protective or have a less positive influence on our mental health, making us more vulnerable to possible mental health problems. A recent study published by the OECD/European Union^[2] points to revealing results, in that in addition to the direct impact that the COVID-19 pandemic has had on health, other factors such as fear, uncertainty, prolonged periods of social isolation and interruptions in education and employment have seriously disrupted the lives and routines of young people. It has exacerbated many of the risk factors associated with poorer mental health and weakened many of the protective factors, leading to an unprecedented increase in mental health problems, especially among the younger population. The expansion of Higher Education (HE) can be understood not only by the larger number of students^[3,4], but also by its diversity in terms of heterogeneity, namely different social and cultural backgrounds, as well as different educational experiences and expectations^[4,5], which translates into a series of demands in terms of the transition process^[5]. This transition

can be characterized by a series of changes that occur in terms of the new demands arising from the role assumed as a student or the learning environment^[6]. It represents a significant change in the student's life, self-perception and learning, namely towards new meanings of understanding, development and maturity^[4]. This transition process not only involves a change in study-related activities and the demands of time management^[5,7,8], but it also involves a new social situation such as stress related to the financial situation, making new friends^[5], moving away from home^[4-6,9] or becoming an independent adult^[4]. Higher education students are expected to work independently, but many have difficulty adjusting to teaching methods, meeting deadlines or understanding the best approach to learning^[7], as well as poor self-regulation skills to study in a way that is considered effective^[8,10]. Considering the demands related to the new role assumed and the new learning environment, this transition can be stressful^[3,11,12], and students often question their philosophy of commitment and permanence in this academic path, which has consequences for their long-term functioning^[13]. Several studies have identified a high prevalence of mental health problems among higher education students, which is often associated with the challenges experienced not only in terms of the transition to this cycle of education, but also throughout the academic journey, such as the change of residence, the high workload, the academic demands and pressures or the need to reconcile academic life with professional life^[13-16]. If before the COVID-19 pandemic, the burden related to mental health problems was already quite significant among the younger European population, namely symptoms of depression and anxiety, as well as suicidal ideation^[2]. The results point to an increase in these problems in the pandemic and post-pandemic period^[2,12,17]. Diverse studies^[12,18,19] show that during and after the pandemic, higher education students had high levels of anxiety, depression and emotional problems. As stated in the Programme for the Promotion of Mental Health in HE^[20], the mental health and well-being of HE students is essential for them to develop and achieve success in their academic career and in their training process and overall personal development. Considering that around 446,000 students are currently enrolled in HE (university and polytechnic education)^[21], the majority of whom are between the ages of 18 and 25 (ages that experts identify as critical for the onset of serious mental illness) and that the transition to HE is experienced by many students with difficulties in adapting, adjusting, manifestations of anxiety or other symptoms that impact on their mental health. So, it is imperative to create and implement differentiated responses in the area of mental health and well-being. Considering the importance that higher education assumes in students' lives, it is important to recognize that for an adequate transition and effective integration into the academic context, it is essential that they know, anticipate and reflect on a set of new challenges in this new stage of their lives and that they know the context, strategies and support structures available to them^[22].

This study, carried out at a Higher Education Institution in Alentejo (south of the country) in 2023, aims to assess the mental health and well-being needs of students from the different training programmes by studying the healthy learning environment and its relationship with students' mental health, and to understand the role of stress management skills in promoting mental health and healthier adjustment.

MATERIALS AND METHODS

Participants

The study involved a total of 521 students, 359 (69.4%) female and 158 (30.6%) male. Regarding the age of the students, 26.2 % were aged up to 19 (n=127), 64.3 % between 20 and 30 (n=311), 4.1 % between 31 and 40 (n=20) and 5.4 % aged 41 or over (n=26). 7.9 % of students reported having children (n=41). 25.3% of students currently live in city alone (n=132), 31.3% with 1 or 2 people (n=163), 38% with 3 or 4 people (n=198) and 5.4% with 5 or more people (n=28). With regard to schooling, 17.5% of students have already completed a Higher Technical Course (n=91), 19.5% a Professional Course (n=101), 14.1% a Degree (n=73), 1.3% a Postgraduate Course (n=7), 1.3% a Master's Degree (n=7) and 25.6% have not yet completed any of the above (n=133). 13.8 % of students are currently studying a Higher Technical Course (n=67), 2.3 % a Professional Course (n=11), 73.6 % a Bachelor's Degree (n=356) and 9.1 % a Master's Degree (n=44). Regarding the year in which they were enrolled, 53.2 % of students were enrolled in the 1st year (n=234), 25.2 % in the 2nd year (n=111), 16.4 % in the 3rd year (n=72) and 5.2 % in the 4th year (n=23).

Instruments

The Ecosystems of Healthy Learning Environments (EA2S) instrument^[23] consists of a total of 62 items organised into 9 dimensions based on the Healthy Workplaces model proposed by the World Health Organization^[24]. The Ethics and Ecosystems Values dimension has 8 items, Commitment to Leadership has 6 items, Student Involvement has 7 items, Psychosocial Risks related to content and relationships with leadership has 12 items, Psychosocial Risks related to Well-being and Mental Health has 5 items, Physical Environment has 5 items, Distance Learning has 3 items, Community Involvement has 12 items and Resources for Personal Health has 4 items. All questions have a 5-point Likert response scale. The instrument revealed adequate internal consistency for all dimensions (range between $\alpha = .84$ and $\alpha = .93$).

The DASS (Depression, Anxiety and Stress Scale)^[25,26] consists of 21 items and is organized into three dimensions: stress, depression and anxiety, each with 7 items respectively. The higher the score, the higher the level of stress, depression and anxiety. The Total score of the scale was used for this study. All questions have a 4-point Likert-type scale where 1 represents Not applied to me at all and 4 represents Applied to me most of the time. The instrument revealed adequate internal consistency for all dimensions (range between $\alpha = .81$ and $\alpha = .88$).

The 4-item version of the Stress Perception Scale (EPS) was used to assess the degree to which an individual evaluates their life situations as stressful and their stress management skills^[27,28] which in the present study revealed adequate internal consistency ($\alpha = .77$). All questions have a 5-point Likert-type scale where 1 represents strongly disagree and 5 represents strongly agree. A higher score obtained in the scale reveals a less positive perception of stress management.

Procedure

The instrument was submitted to and approved by the Ethics Committee of the Prof Fernando Fonseca Hospital, reference EPE 031/2021. The sample was obtained by convenience. Higher education institutions that agreed to participate received the instrument via a link and disseminated the link internally to their students. The link gave access to an explanation of the study, contact details for the researchers to clarify any doubts, information on confidentiality, anonymity and the voluntary nature of participation. The participant only had access to the instrument after signing the informed consent form.

RESULTS

Regarding education, 16.3% of participants had a professional course or a higher technical course ($n=78$), and 83.7% had a bachelor's or master's degree ($n=400$). 21.1% were student workers ($n=110$) and 78.9% were full-time students ($n=411$). 72.6% of participants were displaced students ($n=378$) and 27.4% were non-displaced students (already living in the area of the higher education institution) ($n=143$).

Values related to mental health (Depression, Anxiety and Stress) and stress management skills are moderate. The perception of a healthy learning environment is high (**Table 1**).

Table 1. Descriptive statistics

	Min.	Max.	M	SD
Depression Anxiety and Stress Scale (DASS)	21.00	84.00	36.81	13.41
Perceived Stress Scale	4.00	20.00	11.48	2.74
Healthy Learning Environment (EA2S)	39.00	112.00	78.61	11.34

The correlations between the scales are statistically significant, indicating the presence of a moderate positive correlation between the Depression Anxiety and Stress Scale and the Perceived Stress Scale ($r=0.621$), and a moderate negative correlation between the Depression, Anxiety, and Stress Scale and the

perception of a healthy learning environment ($r=-0.440$), as well as between the Perceived Stress Scale and the perception of a healthy learning environment ($r=-0.427$) (**Table 2**).

Table 2. Correlations between scales

	Depression Anxiety and Stress Scale (DASS)	Perceived Stress Scale (Cohen)	Healthy Learning Environment (EA2S)
Depression Anxiety and Stress Scale (DASS)		0.621***	-0.440***
Perceived Stress Scale			-0.427***
Healthy Learning Environment (EA2S)			

*** $p<0.001$

With regard to sex differences, according to **Table 3**, the values obtained in the Depression Anxiety and Stress Scale by female students ($M = 37.92$; $SD = 13.46$; $n = 359$) were higher than those of male students ($M = 33.97$; $SD = 12.60$; $n = 158$), and this difference was statistically significant ($t(515) = 3.127$; $p = 0.002$, $d=0.30$). Similarly, the values obtained in the Stress Perception Scale by female students ($M = 11.78$; $SD = 2.54$; $n = 359$) were higher than those of male students ($M = 10.74$; $SD = 3.01$; $n = 158$), and this difference was statistically significant ($t(259.33) = 3.794$; $p = <0.001$; $d = 0.39$). Regarding the perception of a healthy learning environment, no statistically significant differences were found between groups.

Table 3. Comparison between groups in terms of gender

	Female (n=359)		Male (n=158)		t/sig
	M	SD	M	SD	
Depression Anxiety and Stress Scale (DASS)	37.92	13.46	33.97	12.60	3.127**
Perceived Stress Scale	11.78	2.54	10.74	3.01	3.794***
Healthy Learning Environment (EA2S)	78.16	11.25	79.89	11.34	-1.601

** $p<0.01$; *** $p<0.001$

With regard to education level, according to **Table 4**, the perception of a healthy learning environment among students with a professional course or a higher technical course ($M = 80.88$; $SD = 11.02$; $n = 78$) was higher than that of students with a bachelor's or master's degree ($M = 77.99$; $SD = 11.48$; $n = 400$), and this difference was statistically significant ($t(476) = 2.052$; $p = 0.041$, $d = 0.25$). No statistically significant differences were found between groups in relation to the Depression Anxiety and Stress Scale and the Perceived Stress Scale.

Table 4. Comparison between groups regarding education

	Professional course or higher technical course (n=78)		Bachelor's or master's degree (n=400)		t/sig
	M	SD	M	SD	
Depression Anxiety and Stress Scale (DASS)	36.58	13.92	36.94	13.22	-0.221
Perceived Stress Scale	11.31	2.49	11.52	2.80	-0.615
Healthy Learning Environment (EA2S)	80.88	11.02	77.99	11.48	2.052*

* $p<0.05$

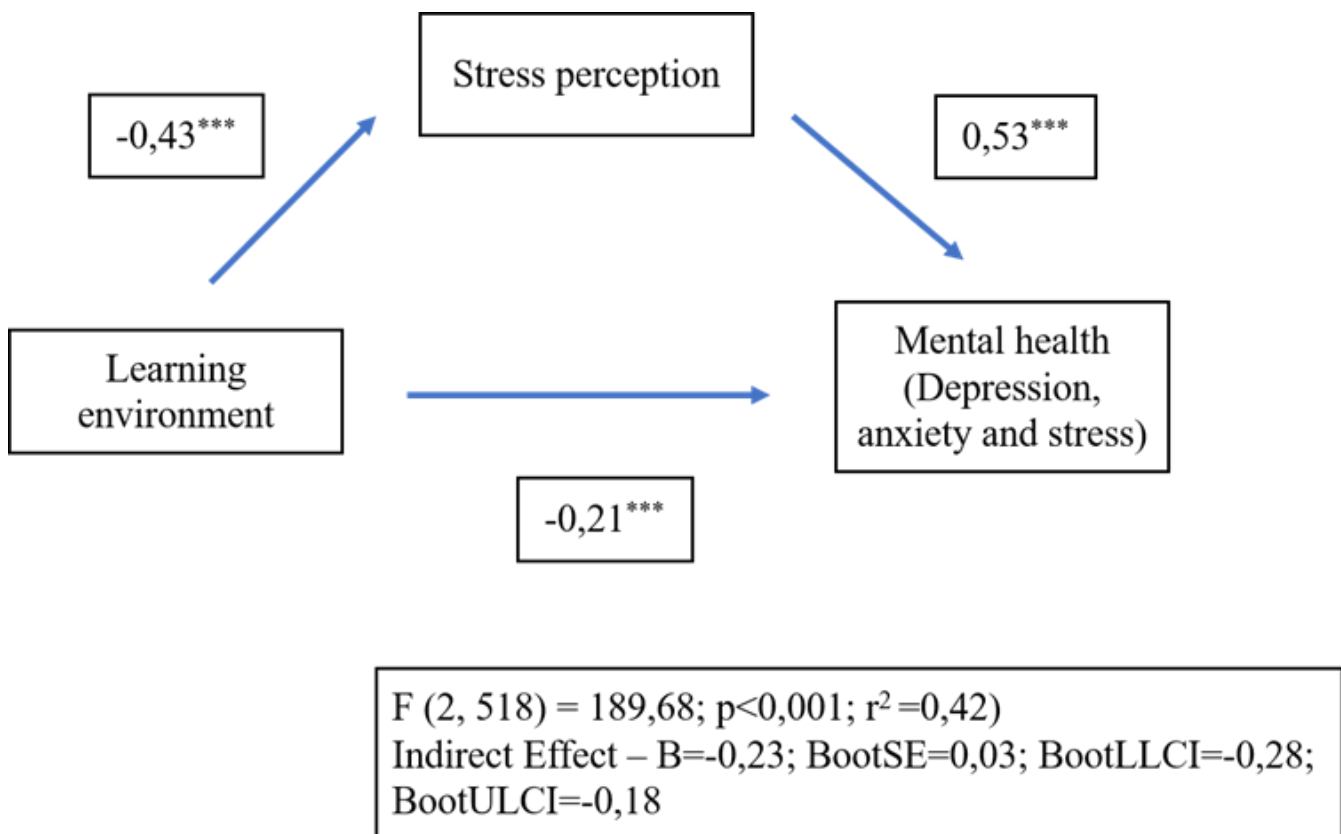
With regard to the student status, according to **Table 5**, the perception of a healthy learning environment among participants who are working students ($M = 80.52$; $SD = 11.05$; $n = 110$) was higher than that of participants who are full-time students ($M = 78.09$; $SD = 11.38$; $n = 411$), and this difference was statistically significant ($t(519) = 1.995$; $p = 0.047$; $d = 0.21$). Regarding the Depression Anxiety and Stress Scale, and the Perceived Stress Scale, no statistically significant differences were found between groups.

Table 5. Comparison between groups regarding student status

	Working student ($n=110$)		Full-time student ($n=411$)		t/sig
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	
Depression Anxiety and Stress Scale (DASS)	35.61	14.38	37.13	13.14	-1.056
Perceived Stress Scale	11.35	2.71	11.51	2.75	-0.570
Healthy Learning Environment (EA2S)	80.52	11.05	78.09	11.38	1.995*

* $p < 0.05$

With the aim of examining a potential mediating effect of stress perception in the predictive relationship between the learning environment and mental health, a mediation model was developed (**Figure 1**). The results indicate that in the tested mediation model, the assessed indirect effect is significant, with stress perception acting as a mediating factor in the relationship between a healthy learning environment and mental health ($b = -0.23$; $SE = 0.02$; $IC\ 95\% = [-0.27; -0.18]$). The model explains 42% of the variation. Thus, it is observed that the presence of a healthy learning ecosystem influences students' mental health, and the promotion of stress management skills can serve as a protective factor for mental health and the promotion of stress management skills can serve as a protective factor for mental health in this context.



*** $p < 0.001$

Figure 1. Mediation model

DISCUSSION

This study aims to deepen our understanding of healthy learning ecosystems, how they relate to students' mental health and what role the perception of stress management skills plays in promoting the mental health of higher education students.

We found that students have a positive and healthy perception of the learning environment. This ecosystem includes the organizational culture, interpersonal relationships with colleagues, teachers, and other higher education staff, and the psychosocial environment related to involvement and appreciation. For students, the higher education institution is a positive and healthy place to learn and socialize.

With regard to mental health, related to symptoms of stress, anxiety and depression, we found that the students were at moderate risk. In terms of perceived stress management skills, we also found moderate values.

When we compare boys and girls, we see that girls report worse indicators of mental health and stress management skills when compared to boys. These results are consistent with recent studies confirming that girls show less positive mental health indicators ^[2,12,14,15,17].

Comparing students according to their level of education and professional status, we see that it is undergraduate students and working students who show a more positive perception of the healthy learning ecosystem when compared to postgraduate students and students who do not carry out any professional activity respectively.

The high prevalence of mental health problems among higher education students is often associated with the challenges that this population faces throughout their academic career, such as having to move house, the workload, academic demands and pressure, or having to reconcile academic and professional life ^[13-16]. The presence of mental health problems has a high impact on the way students fulfil their social role and on their academic performance. In some cases, it can lead to dropping out of higher education and consequences for the individual's long-term functioning ^[13]. In a study by Mofatteh ^[16], various risk factors associated with stress, anxiety and depression in higher education students were identified, such as psychological factors (e.g. low self-esteem, self-confidence, personality types and loneliness), academic factors (e.g., field of study, completion of studies and uncertainty about the future, high workload, academic pressure, low academic performance, exam/assessment periods), biological factors (e.g. physical health problems and chronic illness, female gender), lifestyle factors (e.g., consumption of alcohol, tobacco and other illicit substances, unhealthy eating habits, lack of exercise/physical activity and insufficient quantity and quality of sleep), social factors (e.g. lack of social support and family support, non-involvement in social events/activities (e.g., clubs and academic groups or sports teams), sexual victimization, excessive use of the internet and social networks, belonging to ethnic and religious minority groups, stigma associated with mental health) and economic factors (e.g. lack of financial support, low family income, childhood poverty) ^[14,15,29-31].

A mediation model was carried out with the aim of understanding the relationship between a healthy learning environment and students' mental health and the mediating role of stress management skills in this relationship. We found that there is a relationship between a healthy learning environment and students' mental health, and that this relationship is effectively mediated by stress management skills.

This result emphasizes the important role that higher education institutions play in promoting and protecting students' mental health, and that the promotion and development of stress management skills related to managing challenging and new situations and confidence in the ability to manage and deal with problems are fundamental to better mental health among higher education students.

One of the protective factors for mental health identified in the literature is the acquisition of personal and social competences by students, with a view to greater adaptability and problem-solving skills. These skills

are associated with academic performance and school success, as well as young people's social and emotional well-being^[32]. Thus, Higher Education Institutions (HEIs), as organizations that promote healthy development, play an important role in promoting skills, well-being and mental health among students, teachers and non-teaching staff. HEI intervention in the area of mental health was initially focused on solving individual mental health problems, but this perspective has been evolving, providing broader actions and services that consider the individual as a whole, in interaction with others and the context^[16,33,34].

This integrative and comprehensive perspective, which is the one we adopt, argues that interventions in organizations, particularly in HEIs, should be global, preventive and promote good individual, collective and organizational functioning, with a view to contributing to the well-being of all those involved^[14,15,19]. In addition to the aspects already mentioned, studies show that interventions that are integrated into day-to-day practice and are present in the culture of the organization, seeking to involve all stakeholders in the context, namely students, teachers and non-teaching staff, as well as networking with external entities and partners, contribute to better development of young people's social and emotional skills^[32,35,36].

We conclude that students' positive development and learning are closely related to their mental health and subjective well-being. The university ecosystem, as a context that promotes development, can act as a risk context for psychopathology, but it can also be a privileged promoter of psychological health, well-being, academic and professional success.

A multidomain intervention is advocated with the aim of promoting psychological health, well-being and skills, academic engagement and preventing higher education students from dropping out of school, through the development of psychological intervention, prevention and health promotion activities and training based on scientific evidence.

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