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Predictors of positive mental health in higher education students. A cross-sectional predictive study

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Abstract

Purpose: To describe positive mental health (PMH) psychological vulnerability (PV) and identify predictors of PMH in higher education students (HES).

Design and Methods: A cross-sectional, predictive study was performed with a convenience sample of 3322 students, using an online questionnaire with sociodemographic information, the PMH Questionnaire, and the PV Scale.

Findings: The majority scored a *flourishing* level, and 67.7% of the participants scored high levels of PV. The Regression Model found a significant predictive variable for PMH.

Practice Implications: Gender, age, regular exercise, healthy diet, number of meals per day, and leisure activities are significant positive predictors of PMH. PV is the sole significant negative predictor. Therefore, improving mental health literacy can be a strategy to support HES.

KEYWORDS
health predictors, literacy, positive mental health psychological vulnerability, students

1 | INTRODUCTION

Positive mental health (PMH) is a positive psychological state, the sense of feeling good and functioning well, expressed by how people feel, think, and act. PMH encompasses positive and negative thoughts, feelings, and emotions that allow people to strengthen, maintain, and increase their capacities to face daily life (Sequeira et al., 2019; Sousa et al., 2021). High levels of PMH correspond to *flourishing* branded by positive emotions, engagement, positive relationships, meaning, and accomplishments with various positive work and life outcomes. For example, recent research suggested a relation between *flourishing* students and academic performance, and

flourishing students were less likely to procrastinate, had higher levels of self-control, adopted a mastery approach toward their goals, and reported higher levels of academic performance (Zyl & Stander, 2019). Therefore, the PMH is an asset from a *Salutogenic* perspective. This perspective, introduced by Aaron Antonovsky, focuses on positive factors that support health and well-being rather than on risks, problems, or pathogenic factors (Bhattacharya et al., 2020). PMH encompasses the ability to think and communicate with others, recognize, understand, and interpret the different contexts and, if necessary, to adapt and change them, positively contribute to one's sense of well-being (Sequeira et al., 2019). In addition, literature shows that higher education students' (HES) PMH is weighty for academic accomplishments, personal competencies, and coping with several mental health issues (Demirci et al., 2019; Zyl & Stander, 2019), since it promotes *flourishing*.

Psychological vulnerability (PV) is related to maladaptive functioning and cognitions, rigid global negative thinking, and automatic negative thoughts about the self, the world, and the future (Demirci et al., 2019). Also, it is a disadvantage demonstrated by dependence and the need to be approved by others, and maladaptive cognitive patterns are a significant risk factor for depressive symptoms and are associated with students with worse levels of PMH (Nogueira & Sequeira, 2017; Sequeira et al., 2019).

Nogueira et al. (2021) found that 17% of HES have a low level of mental health and moderate PV. literature review, overall, reveals a high level of PMH or *flourishing; n*evertheless, some authors report high levels at the *Intermediate* level (Kuettel et al., 2021). Equally, a cross-sectional study to analyze PMH in a sample of 276 Portuguese students (aged 12–20 years) reveals that men have higher levels of personal satisfaction (PS) and self-control, and women have higher levels of *Pro-Social* attitude (Sequeira et al., 2019). Recently, researchers have been interested in studying the relations between the PMH and some demographic psychophysiological variables such as sleep, exercise, and diet (Cahuas et al., 2020; Ghrouz et al., 2019; Sequeira et al., 2019).

Some variables seem to be students' psychological well-being predictors, like male gender, dating relationship, good academic performance, exercise, sleeping 7 h per night, and academic life satisfaction (Nogueira & Sequeira, 2020). Evidence shows that exercise, the quality of sleep, and a healthy diet are strong predictors of HES well-being (Bartonicek et al., 2020; Collins et al., 2020; Mendes et al., 2019). Good night's sleep is essential for a person's well-functioning. However, conversely, irregular sleep increases the risk of physical and psychological problems (i.e., poor memory, learning, creativity, and emotions) (Mnatzaganian et al., 2020; Tafoya & Aldrete-Cortez, 2019). However, sleeping problems are pretty common among college students (Ghrouz et al., 2019; Mulyadi et al., 2021). Recent studies established an association between health-related quality of life, learning problems, and academic performance (Kayaba et al., 2021) between poor sleep quality and physical and mental health (Clement-Carbonell et al., 2021), lower academic success and satisfaction levels, worse adaptation to scholastic demands, more physical and psychological symptoms, and daily and academic organization problems (Wang & Bíró, 2021).

Similarly, In a sample of 324 HES, to analyze the associations between sleep quality (Pittsburgh Sleep Quality Index [PSQI]) and the quality of life (WHOQOL-Bref) was found that all PSQI components were significantly associated with the general quality of life and the psychological and physical quality of life domains (Marques et al., 2017). Mendes et al. (2019) also found high levels of sleep disturbances (48.2%) in HES. A binary logistic Regression Model used in a sample of 617 Indian college students found that 51% of participants reported low physical activity levels, and 51% had poor sleep quality. Odds ratio calculations showed that the participant's physical activity levels (moderate and high) were significantly and inversely associated with scores for anxiety and depression. Poor sleep quality was significantly associated with anxiety and depression (Ghrouz et al., 2019). Similarly, Clement-Carbonell et al. (2021) study showed a stronger association between sleep quality and mental health than young adults' sleep quality and physical health.

Cahuas (2020) examined the relationship between physical activity, sleep, and depression among college students and gender differences in physical activity, sleep, and depression in a sample of 143 students in Beijing. Results indicated that vigorous physical activity and sleep variables significantly predicted depression for the overall sample; vigorous and moderate physical activity variables significantly predicted depression for males, whereas no level of physical activity had a significant relationship with depression for females (Cahuas et al., 2020).

Likewise, a systematic review examined the associations between diet quality and common mental disorders in emerging adulthood. The researchers found moderate associations between diet quality and depression, anxiety, positive/negative affect, suicide ideation, and psychological health (Collins et al., 2020). Conversely, positive relations have been found between PV and negative health outcomes like perceived helplessness, self-judgment, over-identification, negative affect, and hostility and positively correlated with adverse health outcomes in HES (Satici & Uysal, 2017). Moreover, evidence shows that PV is a negative predictor of students' mental health; and is negatively correlated with adaptive constructs such as social competence, subjective happiness, social safeness, life satisfaction, positive affect, flourishing, hope, social connectedness, and well-being (Yelpaze et al., 2021). Since PV is related to maladaptive functioning (Demirci et al., 2019), it is a disadvantage associated with students with worse well-being (Nogueira & Sequeira, 2020; Yelpaze et al., 2021).

Despite growing interest in students' mental health, the published research about PMH in HES is scarce. There is a lack of information about the correlates or preditors of PMH in HES' research. Mainly regarding the current relations between the students' PMH and demographic, health behaviors, and cognitive variables. Also, we found no data related to the possible direction between these variables. Furthermore, salutogenic variables promote students' PMH and are a strong indicator of student adjustment (Roldán-Merino et al., 2017; Sequeira et al., 2019). In short, it seems necessary and relevant to investigate the effect of inner and context variables on the student's PMH. This information can add specific

data to promote PMH and mental health literacy. Thus, we decided to carry out this study, hoping to deepen our knowledge about the positive and negative mental health-related factors and the levels of PMH and PV in HES.

2 | PURPOSE

This study aimed to describe HES' PMH and PV and identify PMH predictors.

3 | METHOD

3.1 | Study design

A correlational, cross-sectional, predictive, and multicentre study was conducted.

3.2 | Sampling and setting

A nonprobabilistic convenience sample of 3322 students participated in the study. All students were eligible and invited to participate in the study. Participants filled out an online questionnaire with all study variables. The submitted questionnaire was excluded if more than 5% of questions were left unanswered. All students enrolled in the study gave written informed consent after formal authorization from all universities involved in the study. An internet protocol address restriction was set to prevent multiple replies, and a pilot study with 18 students validated the content and anonymization of the e-questionnaire. In addition, to avoid possible biases, some minor wording was reformulated. Students' completion of the survey lasted about 17 min. An automatic follow-up reminder was sent every 15 days during the study period to increase response rates. Data collection took place from December 2019 to February 2020 on several university campuses in different cities in Portugal (mainland and Madeira and Azores islands).

3.3 | Measurements

Demographic characteristics information was collected using 13 questions (gender, age, marital status, cohabitation, academic year, scholarship, study, and work, dating/relationship, residence status, sleep quality, diet, leisure activities, and physical exercise). Twenty-five mental health experts validated these items; to measure PMH, we used the Lluch-Canut *Positive Mental Health Questionnaire* (PMHQ) (Roldán-Merino et al., 2017). PMHQ is a 39-item self-administered instrument. PMH scores on a 4-points Likert-type scale (rating from 1 = always or almost always; 2 = quite often; 3 = sometimes; and 4 = rarely or never). Nineteen items stated negatively and twenty items stated positively (4, 5, 11, 15, 16, 17, 18, 20, 21, 22, 23, 25, 26, 27, 28, 29, 32, 35, 36, and 37. PMHQ have six factors: F1 PS (8 items); F2 Prosocial Attitude (PA) (5 items); F3 self-control (5 items); F4 Autonomy (5 items); F5 Problem Solving and Personal Achievement (PSPA) (9 items); F6 Interpersonal Relationship Skills (IRS) (7 items). The total score of the PMHQ is the sum of all items, ranging from 39 to 156 points. Higher scores correspond to better PMH status. PMHQ has a very good internal consistency (total Cronbach $\alpha = 0.92$ and Cronbach's alpha of six factors varying between 0.60 and 0.84) (Roldán-Merino et al., 2017). For qualitative analysis of PMHQ scores, by using the following criteria: *languishing* (scores 39–78); *intermediate* (scores 79–117); *Flourishing* (scores 118–156). Thus, total PMHQ higher values correspond to better PMH or *flourishing* (the upper limit is 156). Conversely, lower values correspond to poor PMH or *languishing* (the lower limit is 39) (Kuettel et al., 2021); In the subscales, the scores should be evaluated by averaging, with higher values indicating better PMH.

The Psychological Vulnerability Scale (PVS) Portuguese version (Nogueira, Barros, et al., 2017) is a six-item self-administered instrument initially developed by Sinclair and Wallston in 1999. PVS screens for maladaptive cognitive patterns, such as dependence, perfectionism, criticism, negative attribute, need for external sources of approval, and generalized negative attributions (e.g., "I need approval from others to feel good about myself"). Each item response is rated with anchors 1 = does not describe me at all to 5 = describes me very well. Possible total scores range from 6 to 30, with higher scores indicating greater PV. Values above 15 are considered a PV. Cronbach's α coefficient of Portuguese version was $\alpha = 0.73$. PVS is a valid, reliable, and stable measure in HES (Nogueira, Barros, et al., 2017).

3.4 | Data analysis

Data analysis was completed with the IBM SPSS® v. 26.0 using descriptive and exploratory statistical analysis techniques. First, the Cronbach α Coefficient was calculated for the internal consistency reliability analysis test. Next, Simple Linear Regression (SLR) analysis was applied to explore and control for the individual effects of each determinant associated with PMH. The SLR model reduced variables without a statistically significant association, and the significance levels ($p < 0.01$ and $p < 0.05$) were established for all analyses. The normality of distribution of the residuals model was explored, and no violations against assumptions were detected.

4 | RESULTS

4.1 | Demographic characteristics of the participants

Participants were mostly women (78.2%) with ages ranging from 17 to 36 years (Mean (*M*) = 23; Standard Deviation (SD) = 7), Median = 21 and Mode = 20. The larger group (33,7%) were first-year students

and did not have a dating or marriage relationship (57.8%). Most students reported being satisfied with their sleep, and the majority did not take medication to sleep. However, they consider that they do not sleep enough hours, and 14.8% sleep less them 6 h per night. The majority (66.3%) do not exercise, and those who exercise do it for an average of 5 h a week (SD = 8.05). 69.7% of the students declared having a healthy diet with fruit and vegetables, and the majority (95.8%) reported eating three or more meals per day. More than a quarter of the participants (26.2%) work during the school period and 85.1% reported that they do not have any recreational or leisure activities. Table 1 summarizes the participants' characteristics.

4.2 | Measures and variables

Table 2 displayed the results from descriptive statistics obtained in the PMHQ total and subscales (F1–F6) and from the PVS. Levels of PMH are good (M = 123.84, SD = 15.54), scoring from a minimum of 62 to a maximum of 156. The majority of the participants (67.9%) scored in the group *flourishing* (range scores 118–156); 31.5% scored in the *intermediate* group (range scores 62–117), and a residual 0.6% value score in the *languishing* (range scores 62–78). The highest mean was obtained at PA subscale (M = 3.58, SD = 0.373), followed by PS subscale (M = 3.22, SD = 0.597), Problem Solving (M = 3.15, SD = 0.494), Autonomy (A) (M = 3.10, SD = 0.586), and Personal Achievement (PSPA) (M = 3.16, SD = 0.491), IRS (M = 3.19, SD = 0.485), and the lowest values was obtained in self-control subscale (M = 2.78, SD = 0.639). Cronbach's α of Total PMHQ is excellent. Results show that a significant number of participants (67.7%) reported total PVS scores higher than 15 (M = 17.2, SD = 5.3), indicating high levels of PV. Item six obtained the highest mean

TABLE 2 Mean and SD scores of PMHQ total and subscales, PVS, and Cronbach α

Scales/subscales	*M*	SD	Cronbach α
PMHQ			
F1 Personal Satisfaction (PS)	25.75	4.78	0.863
F2 Prosocial Attitude (PA)	17.87	1.88	0.551
F3 Self-control (SC)	13.88	3.18	0.824
F4 Autonomy (A)	15.50	8.75	0.761
F5 Problem Solving and Personal Achievement (PSPA)	28.37	4.44	0.813
F6 Interpersonal Relationship Skills (IRS)	22.34	3.40	0.696
Total	123.60	15.54	0.921
PVS	17.22	5.29	0.776

Note: N = 3322.

Abbreviations: PMHQ, Positive Mental Health Questionnaire; PVS, psychological vulnerability scale; SD, Standard deviation.

TABLE 1 Demographic characteristics of the total sample N = 3322

Gender	*N* (%)		Year	*N* (%)	
Female	2597	78.2%	1° Year	1120	33.7%
Male	725	21.8%	2° Year	812	24.4%
Age	(M = 23; SD = 7)		3° Year	740	22.3%
Dating/relationship			4° Year	536	16.2%
Yes	1403	42.2%	5° Year	77	2.3%
No	1919	57.8%	6° Year	37	1.1%
Displaced from home			**Scholarship**		
Yes	1417	42.7%	Yes	1273	38.3%
No	1905	57.3%	No	2049	61.7%
Study and work			**Meals per day**		
Yes	872	26.2%	<3 meals	139	4.2%
No	2450	73.8%	>3 meals	3183	95.8%
Hours slept by night			**Leisure activities**		
<6 h	492	14.8%	Yes	494	14.9%
>6 h	2830	85.2%	No	2828	85.1%
Physical exercise					
Yes	1119	33.7%			
No	2203	66.3%			

TABLE 3 Regression Model of total PMH and positive and negative preditors, in the sample

Variables	*R*	R^2	*F*	*p*	*df*	*β*	*t*	*p*
Model	0.643	0.413	194.25	0.000	12			
Gender						0.034	2.520	0.012**
Age						0.040	2.441	0.015**
Regular exercise or sport						0.042	3.095	0.002***
Healthy diet						0.091	6.474	0.000***
Average of meals per day						0.040	2.913	0.004***
leisure activities						0.048	3.618	0.000***
PVS						−0.593	−42.216	0.000***

Abbreviations: PMH, positive mental health; PVS, psychological vulnerability scale; PMHQ, Positive Mental Health Questionnaire; SD, standard deviation

**$p < 0.05$; ***$p < 0.01$.

level ($M = 3.39$, SD = 1.29), and item four the lowest ($M = 2.38$, SD = 1.27). Cronbach's α of PVS can be considered as good.

Bivariate analysis shows that the older participant has better levels of PMH (aged 18 to 25 years; $M = 122.81$, DP = 15.39; aged 26−30 years $M = 124.86$, DP = 15.68; aged over 30 years $M = 128.89$; DP = 14.71), wild related to PVS the results show the opposite, the youngest has a greater PV (aged 18−25 years, $M = 17.58$, SD = 5.160; aged 26−30 years $M = 16.83$, SD = 5.18; aged over 30 years $M = 15.01$, DP = 5.67).

4.3 | Regression Model

To find predictors of PMH in HES, we performed a SLR analysis. Table 3 displayed details of the predictors and coefficients. In the Regression Model, we used the total score of the PMHQ T as a dependent variable. As predictors (Constant), we used the variables: gender, age, and displacement from home, receiving a scholarship, study and work, average sleep hours per day, regular physical exercise or sport, healthy diet, the average of meals per day, dating relationship, recreational activity, and total score of the PVS.

Results show that Regression Model is significant ($F = 194.25$, $p = 0.000$). Furthermore, we found that these predictive variables accounted for 41.3% of the total variance in PMH. Results of regression coefficients indicated that gender, age, regular exercise or sport, healthy diet, the average number of meals per day, leisure activities, and PVS significantly predicted total for PMH individually ($\beta = 0.034$, $p = 0.012$; $\beta = 0.040$, $p = 0.015$; $\beta = 0.042$, $p = 0.002$; $\beta = 0.091$, $p = 0.000$; $\beta = 0.040$, $p = 0.004$; $\beta = 0.048$, $p = 0.000$; $\beta = -0.593$, $p = 0.000$) respectively.

The positive preditors that can better explain the Regression Model were a healthy diet (9.1%) followed by leisure activities (4.8%). The PVS can be considered the negative preditor that better explains the model (59.3%). No significant relationship was found between the variables displaced from home, receiving a scholarship, studying, and working, average sleep hours per night, and the relationship with total PMH.

5 | DISCUSSION

The study design aimed to find predictors of students' PMH, and the results show a significant *Regression Model* that presents a novel positive and negative predictive variable that explains a good percentage (41.3%) of the total variance of PMH. Overall characteristics of the sample fit into the more extensive literature on studies with university students (Krishnakumar et al., 2018; Roldán-Merino et al., 2017). Participants were primarily women (78.2%), with an average of 23 years old. The majority do not have a dating relationship, as reported previously in similar samples (Ariño & Bardagi, 2018; Mendes et al., 2019). However, we found a smaller percentage of women and mean age higher than in earlier studies (e.g., Sequeira et al., 2019; 88.6% women, 21 years and by Roldán-Merino et al., 2017; 87% women, 21.5 years).

PMH levels of the sample were very good, and the majority scored in the *flourishing* group as prior research. This result shows that overall, the participant's mental state expresses a positive effect of feeling good, and this result is due mainly to the *Pro-social Attitude* (subscale with the highest score), meaning that students have an active predisposition toward society, adopt an altruistic social attitude, take pleasure from helping others, and feel trustworthy. Similarly, the *Personal Satisfaction* subscale also scored high values suggesting that participants are satisfied with their skills, personal life, self-esteem, and have confidence in the future. *Problem Solving* and *Autonomy* also obtained high scores showing that students have an attitude toward growth and self-development, the capacity to make decisions, be reflective, and adapt. All those basilar aptitudes and skills are crucial to the self-development and independence process of young adults once they are linked to a sense of personal security and self-confidence. Therefore, *flourishing* students have a higher probability of experiencing fruitful and rewarding careers. Thus, it is essential to provide students with the necessary skills to increase *flourishing* early in their academic careers (Zyl & Stander, 2019). Predictably *Self-Control* subscale scored the lowest values, revealing some lack of emotional balance and control, ability to cope with

stress and conflict situations, and tolerance to frustration and anxiety (Sequeira et al., 2019; Sousa et al., 2021). As previously reported (Sequeira et al., 2019), we found a similar residual percentage of students in the *languishing* group (0.6%). Although this residual value cannot be unnoticed since feeling *languishing* means struggling to deal with self-growth adaptation's challenges. In sum, these students struggle to live purposeful lives (Herrero et al., 2019; Vaingankar et al., 2021) and to function well and achieve success (Demirci et al., 2019).

As predicted, results from the Regression Model coefficients indicated that gender, age, regular exercise or sport, healthy diet, number of meals per day, and leisure activities are significant positive predictors of PMH in the sample. However, as in prior studies, we expected to find more relevance from these predictors in explaining the model variance, namely from physical activity (Cahuas et al., 2020) and sleep (Ghrouz et al., 2019). Contrasting and surprisingly, we found no statistically significant effect of sleep on PMH in the sample. Our results diverge from prior investigations that report clear associations and sleep quality effects on college students' mental health. However, we found no studies investigating the effects of sleep quality or exercise on students' PMH.

Conversely, a healthy diet was the positive predictor that better explained the model (9.1%), followed by leisure activities. Our results align with previous evidence that reports significant relations between diet quality and better mental health. Nevertheless, our results establish a significant positive relationship between a healthy diet and leisure activities and students' PMH, and as far as we know, this is novel information. Additionally, these variables are modifiable determinants sensitive to health-promoting interventions, so our results add essential data to improve students' mental health literacy.

In addition, results show that PV is the sole significant negative predictor of the model and alone predicted the higher percentage of the model (59.3%). Somehow this result was expected since PV renders people less protected, more dependent, and susceptible to anxiety and psychological breakdown. PV impoverishes people's relationships, positive coping behaviors, and psychological well-being. Furthermore, psychologically vulnerable individuals tend to overreact to minor stressful events and are more susceptible to stress. Overall, participants report high levels of PV, higher than in earlier studies (Nogueira, Barros, et al., 2017; Nogueira et al., 2021; Uğur et al., 2020), with the youngest reporting the higher levels. These results may be related to the lack of maturity, satisfying relationships, pessimism, and the absence of decision-making ability, as alluded to previously (Demirci et al., 2019), since PV strongly and negatively affects the students' ability to develop skills and accomplish success (Demirci et al., 2019). High levels of PV in the sample may be related to less connectedness and less opportunity to express negative feelings. In future studies, exploring the influence of these variables, as well as school success, satisfaction with the course, and family problems, may add some additional knowledge and contributions. Likewise, loneliness, poor self-perception, anxiety, and depression are high-risk factors for harassment and suicide attempts (Cuesta et al., 2021). Conversely, high levels of wisdom, courage, optimism, calmness, and psychological resilience may lead to reduced PV (Demirci et al., 2019).

Recent approaches to the PMH emphasize the idea that PMH is a dynamic state swing through all the human emotions range (Nogueira & Sequeira, 2020; Sequeira et al., 2019). For example, being healthy may be feeling sad, angry, bored, or disappointed (Sequeira et al., 2019). Therefore, PMH promotion is about acquiring a mindset to express complexity, authenticity, and positive attitudes (communication, empathy, interpersonal relationships, problem-solving, critical thinking, self-control, and relaxation techniques); to lengthen conditions for positive thoughts and well-being, happiness, joy, and satisfaction. In addition, this approach considers the person's standard behavior patterns to fit time, culture, and social expectations (Alves, 2018) and also allows positive changes, healthier behaviors, and the ventilation of whole kinds of feelings.

Anyhow students PMH and PV are under-investigated. Results point out positive and negative predictors that should be taken into account to reinforce their resilience to face vulnerability (Demirci et al., 2019), promote *flourishing*, and empower students with soft skills to enhance academic success and well-being (Zyl & Stander, 2019). Results can now help to improve PMH on campus. Educators and health professionals must invest in increasing *flourishing* feelings in students. However, more studies are needed to estimate the prevalence, identify risk and protective factors, and ultimately guide policies and intervention strategies to better advise and promote PMH in vulnerable groups.

6 | LIMITATIONS

The present study has some limitations that must be considered. First, the cross-sectional design limits solid and causal evidence for detected associations better understood with longitudinal designs. Second, our final sample comprised mainly female students. As reported in previous studies, this could weaken the sample representativeness. This fact, as well as a nonprobability sampling technique, decreased the study's external validity. However, despite these limitations, the current study has several strengths, such as the potential contribution to the mental health field; a good sample size; finally, the study addresses both negative and positive variables as PMH preditors.

7 | CONCLUSIONS

Information about students' PMH is scarce. A significative Regression Model allowed us to find positive and negative predictors of PMH in the sample. Gender, age, regular exercise or sport, healthy diet, number of meals per day, and leisure activities are significant positive predictors of PMH in the sample. Conversely, PV is the sole significative negative predictor of the model and individually predicted the highest percentage of variance. This information adds specific information to promote students' PMH and mental health literacy on higher education institution campuses. Further studies are necessary to deepen and robust this data in other samples.

8 | IMPLICATIONS FOR NURSING PRACTICE

The study results provide important information about positive and negative predictors of HES' PMH. Deep knowledge of students' PMH is essential to increase academic success and well-being. This data is now available to support mental health nurses and health professionals' robust evidence-based interventions and improve more accurate mental health literacy programs on the campus. These results can also be used in further student investigations to explore other variables' relations as positive or negative predictors.

AUTHOR CONTRIBUTIONS

All the authors have equally contributed to the conception, design, data collection, analysis, interpretation of the data, and writing of the paper draft. In addition, all authors have read, reviewed, and approved the final version of this manuscript before submitting it for publication, and all authorship met the requirements.

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CONFLICT OF INTEREST

The authors declare no conflict of interest.

DATA AVAILABILITY STATEMENT

Additional data is available on request from the corresponding author. The data supporting this study's findings are available on request from the corresponding author. However, the data are not publicly available due to privacy or ethical restrictions.

ETHICS STATEMENT

The Ethics Committee Review Board approved the study protocol of the School of Nursing of Porto. The present study follows the Declaration of Helsinki and the Oviedo Convention to approach the students. The study protocol had the approval of the Ethics Committee Review Board of the School of Nursing of Porto (CE-ESEP- Flow 2019_1945), the approval of the Board directors from involved institutions, and author authorization of all the instruments used. Previously, students were informed about the study's purpose, implications, and their right to withdraw at any time. The personal data EU General Data Protection Regulation (GDPR2016/679) followed. All participants gave informed consent before filling out the online questionnaire.

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