

Article

Positive Mental Health in University Students and Its Relations with Psychological Vulnerability, Mental Health Literacy and Sociodemographic Characteristics: A Descriptive-Correlational Study

Sónia Teixeira ¹, Carme Ferré-Grau ², Carlos Alberto Sequeira ^{3*}, Regina Pires ⁴, José Carlos Carvalho ⁵, Isilda Ribeiro ⁶, Carolina Sequeira ⁷, Teresa Rodrigues ⁸, Francisco Sampaio ⁹, Tiago Costa ¹⁰ and Maria Teresa Lluch i Canut ¹¹

¹ CINTESIS – Center for Health Technology and Services Research and Porto School of Nursing, Porto, Portugal - soniateixeira.esenf@gmail.com

² Universitat Rovira y Virgili Tarragona, Spain - carme.ferre@urv.cat

³ CINTESIS – Center for Health Technology and Services Research and Porto School of Nursing, Porto, Portugal - carlossequeira@esenf.pt

⁴ CINTESIS – Center for Health Technology and Services Research and Porto School of Nursing, Porto, Portugal - regina@esenf.pt

⁵ CINTESIS – Center for Health Technology and Services Research and Porto School of Nursing, Porto, Portugal - zecarlos@esenf.pt

⁶ CINTESIS – Center for Health Technology and Services Research and Porto School of Nursing, Porto, Portugal - isilda.ribeiro@esenf.pt

⁷ Faculty of Medicine of the University of Coimbra, Coimbra, Portugal – carolinasequeira7@gmail.com

⁸ CINTESIS – Center for Health Technology and Services and Porto School of Nursing, Porto, Portugal - teresarodrigues@esenf.pt

⁹ CINTESIS – Center for Health Technology and Services Research and Higher School of Health Fernando Pessoa, Porto, Portugal - fsampaio@ufp.edu.pt

¹⁰ CINTESIS – Center for Health Technology and Services Research and Centro Hospitalar de Vila Nova de Gaia / Espinho, Porto, Portugal – tiagofilipeoliveiracosta@gmail.com

¹¹ University of Barcelona, Barcelona, Spain - tlluch@ub.edu

* Correspondence: carlossequeira@esenf.pt; Tel.: (+351)966851153. Rua Dr. António Bernardino de Almeida, S/N – 4200-072 Porto, Portugal.

Abstract: This study aimed to evaluate Positive Mental Health (PMH) and its relation with socio-demographic characteristics, mental health literacy and psychological vulnerability scale (PVS) in Portuguese university students aged 17 to 62. A descriptive-correlational study was carried out. An online survey was conducted to evaluate demographic variables, and several questionnaires were applied to evaluate positive mental health, psychological vulnerability and mental health literacy. The data was collected from 1 November 2019 to 1 September 2020. Overall, 3405 students participated in the study. The results show that 67.8% of students revealed a high level of PMH, 31.6% presented a medium level of PMH, and 0.6% had a low level of PMH. Male students reported higher personal satisfaction ($t(3170) = -2.39, p=0.017$) and autonomy ($t(3170) = -3.33, p=0.001$), in PMH compared to female students. Students without a scholarship scored higher ($t(3,127) = -2.04, p=0.042$) in PMH than students who held a scholarship. Students who were not displaced from their home reported higher ($t(3170) = -1.99, p=0.047$) Self-Control in PMH than those displaced from their home. University students with higher PMH results have lower PVS results and higher Literacy results. The findings of this study will contribute to identifying students' PMH intervention needs.

Keywords: mental health; mental health literacy; psychological vulnerability; health promotion; adult

1. Introduction

The COVID-19 pandemic has reinforced the notion that mental health is as important as physical health and that both are often empirically related. Therefore, countries worldwide should disclose factual data and information on mental health to politicians and the general public, allowing the implementation of measures that promote Positive Mental Health and contribute to lowering the rates of mental disorders and subsequent social burden [1].

Despite not being widely adopted, the term *positive mental health* was first designated by Marie Jahoda in 1958 [2]. It considers health promotion as an important aspect of society and the dynamic life cycle of its citizens; that is, society needs to keep healthy and optimize what is already good. Thus, Positive Mental Health represents a specific instance resulting from the interaction of various factors within mental health, based on the strengthening and development of the optimal functioning of the human being [3,4]. The Multifactorial Model of Positive Mental Health is based on six factors: Personal Satisfaction (F1), Prosocial Attitude (F2), Self-control (F3), Autonomy (F4), Problem-solving and Self-actualization (F5), and Interpersonal Relationship Skills (F6) [4].

Several studies have focused on mental health, but few have addressed positive mental health using the Multifactorial Model. For example, some studies were focused on assessing the positive mental health of black college students [5]. Other studies have focused on the application of the Positive Mental Health Questionnaire to university professors from different nursing schools in Catalunya [6], health professionals working in mental health services [7], and adults with chronic physical health problems recruited from a primary care centre in the province of Barcelona [8]. The prevalence of positive mental health in Chinese adolescents has been explored and reported as higher than the results found in most previous studies [9]. Moreover, the results suggest that Chinese adolescents with favourable socio-economic situations, lifestyle, social support and school life tend to experience better positive mental health than those not having this type of background [9].

Furthermore, studies investigating the frequency of positive mental health and its correlates are still uncommon compared to studies on mental disorders. Interest in assessing, for example, students' positive mental health is increasing [9], but research is still scarce, and few studies have discussed the levels of positive mental health in adult students following the Multifactorial Model of Positive Mental Health. In countries such as Portugal, no studies have been found interpreting the prevalence of positive mental health in students and its relationship with other variables such as scholarship, place of habitual residence, psychological vulnerability and mental health literacy. Nonetheless, this type of study helps create intervention guidelines to promote mental health in schools, universities, and communities.

The term *mental health literacy* is defined as the knowledge and beliefs about mental disorders that enable a person to recognize, manage or prevent a mental health problem. Due to its importance, mental health literacy interventions have received increasing attention as a strategy to promote positive mental health, improve early identification of disorders, reduce stigma, and improve help-seeking behaviours [10].

Current research with higher education students shows that psychological vulnerability is negatively correlated with adaptive constructs and positively associated with negative health outcomes [11]. Psychological vulnerability refers to a cognitive structure that makes individuals more fragile under stressful environments, assuming that some people are more affected by stressful events than others [11].

University students are exposed to a group of variables that cause stress. So, it's important to assess students' positive mental health, mental literacy, and vulnerabilities to intervene and develop, increase or maintain their mental health capacity [11].

The main objective of this study was to assess students' positive mental health using the Positive Mental Health Questionnaire [4]. In addition, this study sought to evaluate the relationship between positive mental health and sociodemographic characteristics, mental health literacy and psychological vulnerability in Portuguese students.

Our hypotheses were:

- *H1*: Positive mental health is positively associated with mental health literacy;
- *H2*: Positive mental health is negatively associated with psychological vulnerability;
- *H3*: Mental health literacy is negatively associated with psychological vulnerability;
- *H4*: There are significant differences between men and women in the level of positive mental health;
- *H5*: There are significant differences between having and not having a scholarship in the level of positive mental health;
- *H6*: There are significant differences between being and not being displaced from home in the level of positive mental health.

2. Materials and Methods

2.1. Study design

A descriptive correlational study was conducted and reported following the STROBE statement; that is, following the Strengthening the Reporting of Observational studies in Epidemiology checklist, used in articles reporting observational research.

2.2. Setting

The research was carried out using online questionnaires applied via institutional email using a link sent to each school/university student. Data were collected between 1st November 2019 and 1st September 2020.

2.3. Participants

Participants needed to meet the following criteria to be included in the study: (1) be enrolled in a higher education programme; (2) be ≥ 17 years old; (3) not have a diagnosis of psychiatric pathology (this information was asked in the sociodemographic questionnaire); (4) agree to participate in the study by signing an online informed consent. Participants who did not have a good command of Portuguese were excluded.

Overall, 3405 questionnaires were completed. Of those, 6.3 (%) were excluded because some items' information was incomplete.

The final sample consisted of 3189 students from various higher education institutions studying health, education, arts, tourism, architecture and communication programmes in mainland Portugal and the islands.

2.4. Data Sources / Measurement

The students participating in the study were evaluated at a single time-point using a sociodemographic questionnaire and psychometric instruments validated for the Portuguese population.

Sociodemographic data (gender, age, marital status, parents' educational level, enrolment year, displacement from the students' home to go to university, and a yes/no question about the students receiving a scholarship) were collected and used to characterize the sample. In this regard, it is worth noting that scholarships are granted only to low-income university students.

The primary outcome measured in this study was positive mental health, assessed with the Positive Mental Health Questionnaire (PMHQ). The PMHQ measures positive global mental health by evaluating six factors: personal satisfaction, prosocial attitude, self-control, autonomy, problem-solving and self-actualization and interpersonal relationship skills. The secondary outcomes assessed in this study were psychological vulnerability, measured with the Psychological Vulnerability Scale (PVS), and mental health literacy, measured with the Mental Health Knowledge Questionnaire (MHKQ). The psychometric instruments are detailed below.

PMHQ

The PMHQ consists of 39 items [4]. The scores in this scale go from 39 (minimum score) to 156 (maximum score). The higher the score obtained, the higher the positive mental health level. Therefore, we can categorize different levels of Positive Mental Health as low or languishing (results from 39 to 78), intermediate (results from 79 to 117) and high or flourishing (results from 118 to 156) [12]. The responses to each item are presented on a 4-point Likert scale (1 to 4) concerning the frequency of each individual's life statement. Thus, each person must respond according to the frequency that best characterizes his/her case: "Always or almost always", "Most of the time", "Sometimes" and "Rarely or never". Of the 39 items, 19 appear positively formulated, and 20 are negatively formulated. The items positively stated are: 4, 5, 11, 15, 16, 17, 18, 20, 21, 22, 23, 25, 26, 27, 28, 29, 32, 35, 36, 37. Therefore, according to the wording of the item (positive or negative statement), the answers presented on the Likert scale will have different scores or values [4,13].

The PMHQ has proven to be an instrument with very good internal consistency (Cronbach $\alpha=0.92$), with each of the factors having internal consistency ranging from 0.60 to 0.84. In addition, the instrument also presents a good test-retest reliability – 0.98 [13].

PVS

The psychological vulnerability scale developed in the United States was designed to identify vulnerable individuals in adult chronically ill populations. However, in Europe, studies were carried out in general populations revealing good internal consistency [11]. The PVS is a self-administered instrument to obtain information about the psychological vulnerability of an individual. It is designed to screen for maladaptive cognitive patterns, such as dependence, perfectionism, need for external sources of approval, and generalized negative attributions. The PVS is a six-item scale. Each item is measured in a Likert five-point frequency scale (1–5), where a higher score corresponds to greater frequency (does not describe me at all = 1, to describes me very well = 5). Possible total scores range from 6 to 30, with higher scores indicating greater psychological vulnerability. In the original version, Cronbach's α coefficient ranged from 0.71 to 0.87. In Portugal, the reliability of this scale was verified through the assessment of internal consistency, evidencing positive outcomes (Cronbach's $\alpha = 0.73$) in a sample of higher education students [11].

MHKQ

The MHKQ questionnaire was developed by Chaves, Sequeira, Duarte & Gonçalves [10] using a 5-point Likert scale. Higher scores correspond to a greater frequency (strongly disagree = 1, to strongly agree = 5). It is divided into three parts. The first part has 16 items that assess mental health knowledge. The second part consists of 4 items that evaluate mental health promotion activities. Finally, the third part has 10 items that assess what is important for good mental health (resources).

2.5. Data analysis

The SPSS® software version 24.0 was used for statistical analysis. Descriptive statistics were employed for the students' characterization. Absolute and relative frequencies were used to describe qualitative variables and mean and standard deviation (SD) were used to describe quantitative variables. The independent samples *t*-test was used to assess the differences between the variables gender, scholarship, and displacement from the habitual place of home in relation to positive mental health. Pearson's correlation coefficient was used to determine the correlation between the PMHQ, the PVS and the MHKQ. A significance level of 0.05 was considered.

2.6. Ethical considerations

The study was approved by the Ethics Committee from Escola Superior de Enfermagem do Porto, on the 12th of May 2019 (CE-ESEP - document 2019_1945) and authorized by the executive committee of the institutions involved. Informed consent was obtained

from all participants. All information provided by the participants was collected in a de-identifiable form.

3. Results

The sample was composed of 3189 participants, 2503 female students and 669 (21.1%) male students. Table 1 shows the predominance of female students (78.9%). The average age of the students was 24 years, with a minimum age of 17 years, maximum age of 62 years, and a standard deviation of 7 years. Most of the students were single (89.6%), enrolled in the first year of their programme of studies (31.2%), living in their habitual home (57.7%), and 62.4% did not hold any scholarship. Regarding the parents' schooling, most of the students had a father with basic level education – grades 5 to 9 (36.5%) and a mother with a higher academic level (33.0%).

Table 1. Students' characterization.

	n	%	Mean	Median	Min	Max	SD
Gender							
Male	669	21.1					
Female	2,503	78.9					
Age	3,189		23	24.00	17	62	7
Marital Status							
Single	2,843	89.6					
Married/Cohabiting	291	9.2					
Divorced	34	1.1					
Widow(er)	5	0.2					
Father's academic background							
Basic education:							
1 st cycle (grades 1 to 4)	563	1.1					
2 nd and 3 rd cycles (grades 5 to 9)	1,154	36.5					
Upper secondary education	964	30.5					
Bachelor's degree	362	11.5					
Master's degree	91	2.9					
Doctorate	27	0.9					
Mother's academic background							
Basic education:							
1 st cycle (grades 1 to 4)	429	13.5					
2 nd and 3 rd cycles (grades 5 to 9)	1,003	31.6					
Upper secondary education	1,048	33.0					
Bachelor's degree	547	17.2					
Master's degree	117	3.7					
Doctorate							
Enrolment year							
1 st year	977	31.2					
2 nd year	782	25.0					
3 rd year	740	23.6					
4 th year	520	16.6					
5 th year	74	2.4					
6 th year	38	1.2					
Is the student displaced from his/her home to go university?							
Yes	1,342	42.3					
No	1,830	57.7					
Does the student hold a scholarship?							
Yes	1,177	37.6					
No	1,952	62.4					

As shown in Table 2, positive mental health was good in 67.8% (scores 118 to 156), moderate in 31.6% (scores 79 to 117), and low in 0.6% (scores 39 to 78) of the students.

Table 2. Levels of positive mental health.

Positive mental health (n=3,405)		N	%
Good	[118-156]	2,307	67.8
Moderate	[79-117]	1,077	31.6
Low	[39-78]	21	0.6

H1: Positive mental health is positively associated with mental health literacy

As shown in Table 3, we found a weak positive association between the global score of Positive Mental Health and Literacy – mental health knowledge $r = 0.101$, $p < 0.01$, and Literacy – mental health resources $r = 0.150$, $p < 0.01$. The association among the factors goes from strong to weak.

Table 3. Correlation between PMH and MHKQ.

	F1 PM H	F2 PMH	F3 PMH	F4 PMH	F5 PMH	F6 PMH	PMH Global	Literacy - mental health knowledge	Literacy - mental health activities	Literacy - mental health re- sources
F1 PMH	1	0,222* *	0,586* *	0,594* *	0,556* *	0,446* *	0,827**	0,033	-0,016	0,092**
F2 PMH		1	0,247* *	0,195* *	0,414* *	0,501* *	0,506**	0,176**	-0,186	0,142**
F3 PMH			1	0,459* *	0,614* *	0,372* *	0,762**	0,012	0,002	0,066**
F4 PMH				1	0,465* *	0,358* *	0,703**	0,005	-0,014	0,082**
F5 PMH					1	0,495* *	0,832**	0,140**	-0,097	0,141**
F6 PMH						1	0,704**	0,126**	-0,096	0,156**
PMH Global							1	0,101**	-0,078	0,150**
Literacy - mental health knowledg e								1	-0,417	0,104**
Literacy - mental health activities									1	-0,072**
Literacy - mental health resources										1

**Correlation significant $p < 0,01$ (2-tailed).

*Correlation significant $p < 0,05$ (2-tailed).

H2: Positive mental health is negatively associated with psychological vulnerability

Observing Table 4, we realized that there is a moderate negative correlation between the PMH global and PVS ($r = -0.629$, $p < 0.01$). Therefore, university students with high PMH results have low PVS results.

Table 4. Correlation between PMH and PVS.

	F1 PMH	F2 PMH	F3 PMH	F4 PMH	F5 PMH	F6 PMH	PMH Global	PVS
F1 PMH	1	0,222**	0,586**	0,594**	0,556**	0,446**	0,827**	-0,637**
F2 PMH		1	0,247**	0,195**	0,414**	0,501**	0,506**	-0,120**
F3 PMH			1	0,459**	0,614**	0,372**	0,762**	-0,549**
F4 PMH				1	0,465**	0,358**	0,703**	-0,562**
F5 PMH					1	0,495**	0,832**	-0,464**
F6 PMH						1	0,704**	-0,294**
PMH Global							1	-0,629**
PVS								1

**Correlation significant p <0,01 (2-tailed).

*Correlation significant p <0,05 (2-tailed).

H3: Mental health literacy is negatively associated with psychological vulnerability

A weak positive correlation was found between mental health literacy (mental health knowledge) and psychological vulnerability ($r = 0.037$, $p < 0.05$), meaning that students with higher mental health literacy knowledge had a higher psychological vulnerability.

We found a moderate negative correlation between Literacy-mental health resources and PVS ($r = -0,063$, $p < 0.01$) (Table 5).

Table 5. Correlation between MHKQ and PVS.

	Literacy -mental health knowledge	Literacy -mental health activities	Literacy - mental health resources	PVS
Literacy -mental health knowledge	1	-0,417**	0,104**	0,037*
Literacy -mental health ac- tivities		1	0,247**	0,018
Literacy -mental health re- sources			1	-0,063**
PVS				1

**Correlation significant p <0,01 (2-tailed).

*Correlation significant p <0,05 (2-tailed).

The relationships between levels of positive mental health (good, moderate, and low) and gender of university students, displacement from home and holding a scholarship were explored in Table 6.

Table 6. Positive mental health levels with variables such as gender, home and scholarship.

Positive Mental Health (n=3,390)	Male, n (%)	Female, n (%)
Good	498 (69.7)	1,796 (67.1)
Moderate	214 (30.0)	861 (32.2)
Low	2 (0.3)	19 (0.7)

Positive Mental Health (n= 3,390)	Living out of home to go to university, n (%)	Living in the habitual home while going to university, n (%)
Good	960 (66.6)	1,336 (68.6)
Moderate	471 (32.7)	602 (30.9)
Low	11 (0.8)	10 (0.5)

Positive Mental Health (n= 3,341)	With a scholarship, n (%)	Without a scholarship, n (%)
Good	836 (66.3)	1,425 (68.5)
Moderate	419 (33.2)	640 (30.8)
Low	6 (0.5)	15 (0.7)

H4: There are significant differences between men and women in the level of positive mental health

According to the analysis shown in Table 7, statistically significant differences were found between students' gender and the score in the Personal Satisfaction factor of the PMHQ ($t(3170) = -2.39, p=0.017$). On average, male students reported higher personal satisfaction ($M=3.2685; SD=0.61073$) compared to female students ($M=3.2065; SD=0.59370$).

Furthermore, statistically significant differences were found between students' gender and scores in the Autonomy factor of the PMHQ ($t(3,170) = -3.33, p=0.001$). On average, men reported greater autonomy ($M= 3.1733; SD=0.59978$) compared to women ($M= 3.0883; SD=0.58132$). Regarding the global score of PMH, no statistically significant differences were found between men and women.

Table 7. Student's *t*-test to assess gender and PMH.

Variable	Gender	n	M	SD	t (df) p
Factor 1 – Personal Satisfaction	Female	2,503	3.21	0.59	-2.39 (3170) 0.017
	Male	669	3.27	0.61	
Factor 2 – Prosocial Attitude	Female	2,503	3.61	0.35	7.86 (3170) 0,000
	Male	669	3.48	0.41	
Factor 3 – Self-control	Female	2,503	2.72	0.63	-10.85 (3170) 0,000
	Male	669	3.01	0.59	
Factor 4 – Autonomy	Female	2,503	3.09	0.58	-3.33 (3170) 0.001
	Male	669	3.17	0.59	
Factor 5 - Problem-solving and Self-actualization	Female	2,503	3.15	0.48	-0.35 (3170) 0.724
	Male	669	3.16	0.49	
Factor 6 – Interpersonal Relationship Skills	Female	2,503	3.21	0.48	3.60 (3170) 0,000
	Male	669	3.13	0.49	
PMH Global	Female	2,503	3.17	0.39	-1.95 (3170) 0,052
	Male	669	3.20	0.39	

H5: There are significant differences between having and not having a scholarship in the level of positive mental health

Students without a scholarship ($M=3.1862; SD=0.38834$) scored significantly higher ($t(3,127)= -2.04, p=0.042$) in positive mental health than students who held a scholarship ($M=3.1564; SD=0.40167$). Moreover, students without a scholarship scored significantly higher for the Self-Control factor ($t(3127)= -2.92, p=0.004$), Autonomy factor ($t(3127)= -2.30, p=0.02$), and Interpersonal Relationship Skills factor ($t(3,127)= -2.53, p=0.01$), compared to students who held a scholarship (Table 8).

Table 8. Student's *t*-test for scholarship and PMH.

Variable	Scholarship	n	M	SD	t (df) p
Factor 1 – Personal Satisfaction	Yes	1,177	3.21	0.58	-7.34 (3127) 0,463
	No	1,952	3.23	0.61	
Factor 2 – Prosocial Attitude	Yes	1,177	3.57	0.38	-1.15 (3127) 0,250
	No	1,952	3.58	0.37	
Factor 3 – Self-control	Yes	1,177	2.74	0.62	-2.92 (3127) 0.004
	No	1,952	2.81	0.65	
Factor 4 – Autonomy	Yes	1,177	3.07	0.59	-2.30 (3127) 0.022
	No	1,952	3.12	0.59	
Factor 5 - Problem-solving and Self-actualization	Yes	1,177	3.15	0.49	-0.27 (3127) 0,788
	No	1,952	3.16	0.49	
Factor 6 – Interpersonal Relationship Skills	Yes	1,177	3.16	0.48	-2.53 (3127) 0.012
	No	1,952	3.21	0.49	
PMH Global	Yes	1,177	3.16	0.39	-2.04 (3127) 0.042
	No	1,952	3.19	0.40	

H6: There are significant differences between being and not being displaced from home in the level of positive mental health

The students who were not displaced from their habitual home ($M=2.7995$; $SD=0.63635$) reported significantly higher self-control than those displaced from their home ($t(3170) = -1.99$, $p=0.047$) (Table 9). Regarding the global PMH score, no statistically significant differences were found between university students displaced from their homes and those who were not.

Table 9. Student's *t*-test for home and PMH.

Variable	Out of home to go to university	N	M	SD	t (df) p
Factor 1 – Personal Satisfaction	Yes	1,342	3.20	0.63	-1.56 (3170) 0,120
	No	1,830	3.23	0.57	
Factor 2 – Prosocial Attitude	Yes	1,342	3.58	0.36	0.15 (3170) 0,881
	No	1,830	3.57	0.38	
Factor 3 – Self-control	Yes	1,342	2.75	0.64	-1.99 (3170) 0.047
	No	1,830	2.80	0.63	
Factor 4 – Autonomy	Yes	1,342	3.	0.61	-0.81 (3170) 0,416
	No	1,830	3.11	0.57	
Factor 5 - Problem-solving and Self-actualization	Yes	1,342	3.16	0.50	0.36 (3170) 0,972
	No	1,830	3.16	0.49	
Factor 6 – Interpersonal Relationship Skills	Yes	1,342	3.17	0.50	-1.77 (3170) 0,077
	No	1,830	3.21	0.47	
PMH Global	Yes	1,342	3.16	0.41	-1.41 (3170) 0,160
	No	1,830	3.18	0.39	

4. Discussion

Several notable findings of positive mental health in Portuguese students were obtained with this research.

Most of the students showed high levels of positive mental health. Our results are in agreement with a study conducted with Portuguese and Spanish nursing students, in which 41.1% of the participants reported a good level of PMH, 58.4% a moderate level, and only 0.5% indicated a low level [14]. Young people with higher levels of PMH tend to reach higher education levels and express a greater competence at the adult age [15]. Assessing and monitoring students' positive mental health is becoming increasingly important as the evidence shows that positive mental health complements mental disorder screening in mental health surveillance, prediction of suicidal behaviour, and impairment of academic performance [16]. In addition, other studies with medical students suggest that positive mental health also attenuates some of the adverse consequences of burnout [17].

University students with higher scores of PMH also scored higher in mental health literacy. These data are in accordance with previous studies [15, 16, 18, 19] that linked knowledge to the possibility of taking action to benefit one's health and the health of other persons, which in turn showed that mental health literacy has several components [10]. As stated in the definition of Positive Mental Health, this possibility of knowledge leads to action and enhances a person's capacity to optimize PMH factors that require more attention and/or maintain optimum levels of PMH [1].

Negative associations between PMH and PMH factors with PVS were also found. Students with good PMH have a low psychological vulnerability. This association may indicate that having good positive mental health and being aware of their vulnerability can discriminate the interpretation of students' psychological vulnerability in clinical samples [11].

The students who reported more knowledge about PMH were more psychologically vulnerable. This association might be explained by the awareness these students have of PMH and the demystification of the stigma that mental health still entails. Some studies addressing students' perception of stigma as a barrier to mental health treatment have reported increased knowledge, awareness, and consciousness about resources as factors that affect students' behaviour making them more compassionate and understanding towards persons experiencing mental health problems, which resulted in a significant reduction of stigma-related attitudes [20]. In addition, greater knowledge about resources to mobilize when addressing mental health are associated with a lower psychological vulnerability. Therefore, university students with greater knowledge about mental health are more prepared to deal with transitions throughout the life cycle, which allows them not to become so psychologically vulnerable [21].

Our findings showed no significant differences in the levels of PMH Global between men and women. However, most of the students with a low level of PMH were female. These findings are in line with existing research [14]. Notwithstanding, the significant differences in personal satisfaction and autonomy between male and female students should be further explored. Male students reported greater personal satisfaction and autonomy than females. Women have been described in the literature as having less access to power than men, decision-making positions, work opportunities, and leisure time [22]. Therefore, this may be reflected in the lower perceived autonomy. Despite less favourable objective conditions for women worldwide, in other studies, women were found to be more satisfied with their lives [23].

Students without a scholarship reported greater PMH, self-control, autonomy, and interpersonal relationship skills. This finding demonstrates that good social support is a protective and essential factor in enhancing the positive mental health of university students [18].

Students living in their homes reported higher levels of PMH, specifically self-control. In addition, students who continue residing in their homes while attending university are familiar with the resources in their area of residence and have access to family support. These factors can help minimize conflict and stress situations. On the other hand, students living in a new city may not know the resources available and lack an effective family support network. Other studies suggest that emotional stability is a constant and positive aspect of personality in predicting happiness among young people [24].

Although we achieved high levels of PMH global, further intervention in vulnerable groups should be carefully considered. In this way, pathological outbreaks can be avoided when people experience ineffective transitions or daily setbacks. Programmes that promote PMH can be found in the literature [1], and free smartphone apps that improve PMH levels already exist [19]. In addition, schools are privileged environments to equip students with strategies to promote positive mental health [25].

4.1. Limitations

Replicating this study with undifferentiated working groups and within different contexts in Portugal and the European Community would allow the generalisability of the results.

One of the limitations identified concerns the type of study carried out – cross-sectional, which hinders determining cause-and-effect relationships between variables. Also, since the research involved the participants' self-report, the risk of response bias should be considered. In addition, the wide age range of the sample can influence the interpretation of the results since university students in their twenties have different family, social and cultural experiences than, for instance, university students in their sixties.

Finally, part of our data collection took place during the COVID-19 pandemic. Thus, our study included pre-pandemic data and data that were collected after the beginning of the COVID-19 pandemic, which may have influenced some of our findings.

5. Conclusions

Our results are in line with previous studies that suggest the need to invest in strategies to promote university students' mental health by providing training and enabling them to balance work situations and raising awareness about the importance of care.

We show that it is necessary to intervene in the prevention and promotion of positive mental health by implementing properly validated and structured programmes. Thus, the implementation and evaluation of mental health promotion strategies and practices are essential tools to promote and support action for positive mental health.

Moreover, our study identified vulnerable groups that need intervention and attention from health professionals, namely mental health nurses, psychologists, psychiatrists and other mental health professionals.

Author Contributions: Conceptualization, S.T. and C.S.; methodology, S.T. and C.S.; software, S.T. and J.C.C.; formal analysis, C.S., J.C.C., F.S. and T.F.O.C.; investigation, R.P. and I.R.; resources, C.S. and J.C.C.; writing—original draft preparation, S.T. and C.S.; writing—review and editing, S.T., J.C.C., A.C.S., T. R., F.S. and T.F.O.C.; visualization, R.P. and I.R.; supervision, C.F.G and T.L.C.; project administration, C.S. and J.C.C.; funding acquisition, C.S. All authors have read and agreed to the published version of the manuscript.

Funding: This research was funded by the “Portuguese Society of Mental Health Nursing (ASPESM)” and CINTESIS, R&D Unit (reference UID/IC/4255/2019).

Informed Consent Statement: Informed consent was obtained from all participants involved in the study.

Conflicts of Interest: The authors declare no competing interests.

References

1. Teixeira, S.; Coelho J.; Sequeira C.; Lluch I Canut M. T; Ferré-Grau C. The effectiveness of positive mental health programs in adults: A systematic review. *Health Soc Care Community* **2019**, 00, 1-9.
2. Jahoda, M. Current concepts of positive mental health. New York: Basic Books, 1958; pp. 93-110.
3. Lluch, M.T. Concepto de Salud Mental Positiva: factores relacionados. In *Recursos y programas para la salud mental. Enfermería Psicossocial II*, J. Fornés, J. Gómez., Eds.; Madrid: Fuden, Colección líneas de especialización para Enfermería, Spain, 2008, pp.37-68.
4. Lluch, M.T. Construcción y análisis psicométrico de un cuestionario para evaluar la salud mental positiva. *Psicología Conductual. Revista internacional de psicología clínica y de la salud* **2003**, 11, 61-78.
5. Mushonga, D.; Henneberger A. Protective factors associated with positive mental health in traditional and nontraditional Black students. *Am J Orthopsychiatry* **2020**, 90, 147–160.
6. Hurtado, B., Lluch, M., Casas, I., Sequeira, C., Puig, M., Roldan, J.F. Evaluación de la fiabilidad y validez del cuestionario de salud mental positiva en profesores universitarios de enfermería en Cataluña. *Revista Enfermería y Salud Mental* **2018**, 9, 5-17.
7. Mantas-Jiménez, S., Juvinyà i Canal, D., Bertran i Noguer, C., Roldán-Merino, J., Sequeira, C., Lluch Canut, M. Evaluation of positive mental health and sense of coherence in mental health professionals. *Revista Portuguesa de Enfermagem de Saúde Mental* **2015**, 13, 34-42.
8. Lluch-Canut, T.; Puig-Llobet, M.; Sánchez-Ortega, A.; Roldán-Merino, J.; Ferré-Grau, C. Assessing positive mental health in people with chronic physical health problems: correlations with sociodemographic variables and physical health status. *BMC Public Health* **2013**, 13, 1-11.
9. Guo, C., Tomson, G., Keller, C., Söderqvist, F. Prevalence and correlates of positive mental health in Chinese adolescents. *BMC Public Health* **2018**, 18, 1-11.
10. Chaves, C.B; Sequeira, C; Duarte, J, Gonçalves, a. Literacia em Saúde Mental na Comunidade. In *Enfermagem em Saúde Mental: Diagnósticos e Intervenções*, C. Sequeira, F. Sampaio., Eds.; Lisboa: LIDEL Edições Técnicas Lda, Portugal, 2020, pp.42-48.
11. Nogueira, M. J; Barros, L.; Sequeira, C. Psychometric Properties of the Psychological Vulnerability Scale in Higher Education Students, *Journal of the American Psychiatric Nurses Association* **2017**, 23, 215-222.
12. Garcia, I. R. Saúde mental positiva em adolescentes. Master's Thesis, High Nurse School of Porto, Porto, 2016.

13. Sequeira C.; Carvalho, J.; Sampaio, F.; Sá, L.; Canut-Lluch T.; Roldán-Merino J. Avaliação das propriedades psicométricas do questionário de saúde mental positiva em estudantes portugueses do ensino superior. *Revista Portuguesa de Enfermagem de Saúde Mental* **2014**, 11, 45-53.
14. Sequeira, C.; Carvalho, José C.; Gonçalves, A.; Nogueira, M. J.; Lluch-Canut, T.; Roldán-Merino, J. Levels of Positive Mental Health in Portuguese and Spanish Nursing Students. *Journal of the American Psychiatric Nurses Association* **2019**, 00, 1-10.
15. O'Connor, M.; Sanson, A. V.; Toumbourou, J. W.; Norrish, J.; Olsson, C. A. Does positive mental health in adolescence longitudinally predict healthy transitions in young adulthood? *Journal of Happiness Studies* **2017**, 5, 322–336.
16. Keyes, C.; Eisenberg, D.; Perry, G.S.; Dube, S.R.; Kroenke, K.; Dhingra, S. S. The Relationship of Level of Positive Mental Health with Current Mental Disorders in Predicting Suicidal Behavior and Academic Impairment in College Students. *Journal of American College Health* **2012**, 60, 126–133.
17. Dyrbye, L.N.; Harper, W.; Moutier, C.; Durning, Steven J.; Power, D.V.; Massie, F.S.; Eacker, A.; Thomas, M.R.; Satele, D.; Sloan, J. A.; Shanafelt, T.D. A Multi-institutional Study Exploring the Impact of Positive Mental Health on Medical Students' Professionalism in an Era of High Burnout. *Academic Medicine* **2012**, 87, 1024–1031.
18. Hu, S.; Cai, D.; Zhang, X. C.; Margraf, J. Relationship between social support and positive mental health: A three-wave longitudinal study on college students. *Current Psychology* **2020**, 1-10.
19. Ferré-Grau, C.; Raigal-Aran, L.; Lorca-Cabrera, J.; Ferré-Bergadá, M.; Lleixà-Fortuño, M.; Lluch-Canut, M. T.; Puig-Llobet, M.; Albacar-Riobóo, N. (2019). A multi-centre, randomized, 3-month study to evaluate the efficacy of a smartphone app to increase caregiver's positive mental health. *BMC Public Health* **2019**, 19, 888.
20. Vidourek, R. A.; Burbage, M. Positive mental health and mental health stigma: A qualitative study assessing student attitudes. *Mental Health & Prevention* **2019**, 13, 1–6.
21. Meleis, A. *Transitions theory: Middle range and situation specific theories in nursing research and practice*; Springer Publishing Company: New York, U.S.A., 2010. ISBN 978-082-610-534-9
22. Eckermann, E. *The quality of life of adults*. In Handbook of social indicators and quality of life research; Land, K.C., Michalos, A.C., Sirgy, M.J., Eds.; Springer: New York, U.S.A., 2012; pp. 373–380. ISBN 978-940-072-420-4
23. Joshanloo, M.; Jovanović, V. The relationship between gender and life satisfaction: analysis across demographic groups and global regions. *Arch Womens Ment Health*, **2020**, 23, 331-338.
24. Marino, C.; Vieno, A.; Lenzi, M.; Fernie, B. A.; Nikčević, A. V.; Spada, M. M. Personality Traits and Metacognitions as Predictors of Positive Mental Health in College Students. *Journal of Happiness Studies* **2016**, 1-15.
25. Ferreira, M., Cortez, E., Silva, J., Ferreira, M. Avaliação da saúde mental positiva de discentes de enfermagem. *Revista Portuguesa de Enfermagem de Saúde Mental* **2016**, 4, 57-62.