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RESEARCH ARTICLE

Gender differences in mental health, academic life satisfaction and psychological vulnerability in a sample of college freshmen: a cross-sectional study

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ABSTRACT

Gender differences among undergraduates are mainly found in the prevalence of common mental disorders such as depression, anxiety, somatic complaints, and sexual violence. However, there is a lack of information in the literature about gender differences in academic life satisfaction and psychological vulnerability among freshmen. Thus, this study aimed to identify gender differences in demographics, mental health, academic life satisfaction, and psychological vulnerability of freshmen. A cross-sectional study was conducted on a sample of 560 Portuguese freshmen. An online survey was used to collect data in all 29 Lisbon District colleges. Data were collected through a demographic and academic data questionnaire, the Mental Health Inventory (MHI-38), the Academic Life Satisfaction Scale (ALLS), the Psychological Vulnerability Scale (PVS), and a question to assess students' perception of their vulnerability. We found significant gender-related differences ($p < .05$) in all subscales of MHI-38, the ALLS-Personal Satisfaction subscale, and the self-perception of vulnerability. Overall, freshmen women presented worse scores in all subscales of MHI-38, in ALLS-Personal Satisfaction subscale, and a higher self-perception of vulnerability. These findings emphasize the need to design and implement mental health promotion activities, mainly focused on the needs of freshmen women, in colleges.

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Academic life satisfaction; freshmen; gender; mental health; vulnerability

Introduction

Mental health plays a significant positive role in the overall health, harmonious functioning, personal achievement, and academic success of undergraduates. Student's positive functioning and well-being are particularly crucial to living a meaningful life and achieving personal and academic goals (Nogueira 2017).

The prevalence and severity of poor mental and psychological distress in students are higher on campuses, and poor mental health is strongly associated with developmental and academic difficulties, academic failure, and dropout (Chow, 2010). The Healthy Minds Study 2016–2017 (Fortney et al., 2017) revealed that 14% of students screened for major depression, 31% for overall depression (including major and moderate), and 31% for a high level of generalized anxiety. Bruffaerts et al. (2018), using data obtained in the Leuven College Surveys, part of the

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International College Student (WMH-ICS) of the WHO World Mental Health Surveys (Cuijpers et al., 2019), found that freshmen with mental health problems have significantly lower academic functioning than other students.

Gender differences among students are mainly depression, anxiety, somatic complaints, and sexual violence (American College Health Association [ACHA], 2018; Reetz, Bershad, LeViness, & Whitlock, 2016). Overall, evident gender disparities are found in the patterns of mental illness, and women are more prone to silent symptoms, while men are more prone to act out mental suffering (Van Droogenbroeck, Spruyt, & Keppens, 2018). Prevalence of depression, anxiety (ACHA, 2018), and psychological distress (Nogueira & Sequeira, 2018) are higher in female than in males students. Depressive disorders are significantly more common in female students than in male students, as well as low self-esteem, fatigue, and lack of energy (Barajas, Ochoa, Obiols, & Lalucat-Jo, 2015), homesickness (Moeini, Abasi, Afshari, Haji Hosseini, & Ghaleiha, 2018), and they are more likely to be heavy drinkers than colleagues with no mental problems (Pedrelli, Borsari, Ketchen Lipson, Heinze, & Eisenberg, 2016).

On the other hand, male students are twice more likely to be diagnosed with alcohol dependence than females (National Center for Injury Prevention and Control, 2016). Additionally, male students show higher rates of vulnerability coping strategies (use sleeping pills, alcohol abuse, ignoring the symptoms), as well as negative attitudes (refusal or reluctance) regarding professional help-seeking or mental health counselling (DeBate, Gatto, & Rafal, 2018).

In literature, there is a lack of information regarding gender differences in undergraduates related to academic life satisfaction (ALS). ALS is a relevant variable since comprises students' characteristics and their wide life experiences on campus (personal, social, and vocational tasks), as well as comprises the academic environment and features of the campus. It is a predictor of students' welfare, adjustment, and a key indicator of students' positive self-esteem, personal achievement, and academic performance (Reysen, Degges-White, & Reysen, 2017).

Students seek out and engage in situations or activities that provide opportunities to achieve success and avoid failure (Crocker, 2002). Self-perception of failure to function effectively without others' help, dissatisfaction, and powerlessness leads to a sense of vulnerability and dependence (Nogueira, 2017; Nogueira, Antunes & Sequeira 2019; Satici & Uysal, 2016). Self-worth serves an important self-regulatory role (Crocker, 2010), that shapes how students spend their time, mainly appearance; aggression, stress; drugs and alcohol use; and eating disordered.

Feeling vulnerable is a negative predictor of students´ mental health, which comprises the awareness and the unique experience of feeling emotional discomfort (Author 1, 2017). Psychological vulnerability (PV) is a maladaptive cognitive structure pattern, a negative thinking disposition about inner attributes, independence, and the need for external sources of approval (Sinclair & Wallston, 1999).

Female students are more likely to need external sources of approval than male students (Satici & Uysal, 2016). Dependence on others' approval to feel self-worth is a negative predictor of students´ satisfaction, flourishing, and happiness (Satici & Uysal, 2016). PV and satisfaction with academic life which are relevant are relevant positive and negative correlates of students' mental health, but they have scarcely been studied in college freshmen (Nogueira, 2017). Moreover, there is a lack of information in the literature about gender differences related to freshmen' demographics, mental health, particularly related to ALS and PV.

In Northern Ireland, since September 2015, a large longitudinal study has been conducted in freshmen at Ulster University and Letterkenny Institute of Technology (LYIT) to monitor students' mental health and wellbeing, part of the WHO World Mental Health International College Student Initiative (Cuijpers et al., 2019), funded by Cross-border Healthcare Intervention Trials in Ireland Network (CHITIN). Results show that more than half of new undergraduate students reported any lifetime disorder and co-morbidity (19.1% reported experiencing three or more disorders). Also, females, students over 21, non-heterosexual students, and those from a lower socioeconomic status

background were more likely to have a range of mental health and behavioural problems. Overall, 10% received treatment for emotional problems in the previous year; however, 22.3% of students with problems said they would not seek help (McLafferty et al., 2017).

Despite the relevance of these results, the study did not examine relevant variables, such as ALS and PV. Information about gender differences related to these variables seems to be quite pertinent for mental health promotion interventions and to produce more robust and suitable gender-based recommendations to freshmen.

Taking into account this knowledge gap, this study aimed to identify gender differences in demographics, mental health, academic life satisfaction, and psychological vulnerability of freshmen.

Materials and methods

Design

This cross-sectional study took place during the first three months of the first semester of 2018 with the institutions' collaboration. We asked all institutions from Lisbon District to send an invitation letter, by email, to all freshmen enrolled in undergraduate degrees to participate in the study. All students provided written consent to participate before the start of the study, using a link to access and fill out an online self-report questionnaire containing all variables and instruments of the study. The participants were informed about the research purposes, implications, privacy, confidentiality, and procedures of the study and the right to withdraw from the study without any consequences. Additionally, an email was provided for further information or confidential clinical support, if requested. The study complied with all ethical principles of the Helsinki Declaration (World Medical Association, 2013) and Human Subjects Protection. Approval was granted by the Research Ethics Board of the affiliation institution of the first author (CE-ESEL- Flow 2018_45). All data were coded and processed confidentially.

Participants

A sample of Portuguese freshmen students was recruited from all the 29 colleges of the Lisbon District. All the colleges accepted to participate in the study and sent the data collection tool to freshmen. The inclusion criteria in the study were: (1) to be a freshman; (2) to be aged over 18; and (3) to have agreed to participate in the study. We decided to only include freshmen in this study as they are living a transition process and, according to previous studies, this transition process seems to have consequences on their mental health. For instance, in a study conducted in Leuven (Belgium) part of the WHO World Mental Health Surveys, approximately one in three freshmen reported mental health problems (Bruffaerts et al., 2018).

Variables and instruments

The students completed an online survey designed to measure all the variables presented in the following order: demographic items; perception of vulnerability; the Mental Health Inventory (MHI-38); the Academic Life Satisfaction Scale (ALSS); and the Psychological Vulnerability Scale (PVS).

Demographic items were gender, age, relationship/dating, displaced from home, student worker (with a 'yes/no' answer), and academic information (course, type of institution, academic performance).

After demographic items, there was a single question about the perception of vulnerability to measure students' perception of vulnerability about their mental health status (*'Do you feel vulnerable regarding your mental health?'*), rated on a 5-point Likert-type scale, ranging from 1 = very low to 5 = excellent.

After that, the MHI-38 (Pais-Ribeiro, 2001) to was used to assess psychological distress and well-being. The instrument comprises 38 self-report items which are distributed by two factors: Psychological Distress (subscales: anxiety, depression, and loss of emotional control – 22 items) and Psychological Well-being (subscales: positive affection and emotional ties – 16 items). The MHI-38 is rated on a 6-point Likert-type scale (from 1 = all the time to 6 = none of the time). The total score for Psychological Distress ranges from 22 to 132, while for Psychological Well-being ranges from 16 to 96. High scores on total MHI-38 reflect better mental health. The reliability (Cronbach's alpha) of MHI-38 is .92, and subscales range from .69 to .87, with most of the subscales being over .80 (Pais-Ribeiro, 2001).

The ALSS (Nogueira et al., 2019) was used to measure students' academic life satisfaction (ALS). The instrument comprises eight self-report items grouped into two factors: Personal Satisfaction (internal: students' skills and abilities, perception of academic performance and relationships with colleagues and teachers – items 5, 6, 7, 8) and Satisfaction with the Academic Environment (external: physical and pedagogical environment, commitment to the course, extracurricular activities on campus, study conditions – items 1, 2, 3, 4). The ALSS is rated on a 5-point Likert-type scale (from 1 = strongly disagree to 5 = totally agree) and the total score is the sum of all items, varying between 8 and 40, with higher scores reflecting better ALS, The reliability (Cronbach's alpha) of the ALSS is .80 (Nogueira et al., 2019).

Finally, the PVS – Portuguese version (Author 1, 2017) was used to screen psychological vulnerability. The PVS is a six-item self-administered instrument, which is rated in a 5-point Likert-scale (from 1 = do not describe me at all to 5 = describes me very well). The total score is the sum of all items, varying between 6 and 30. Higher scores indicate greater psychological vulnerability. The reliability (Cronbach's alpha) of the PVS is .73.

Data analysis

Data were exported to a Microsoft® Excel file and analysed using IBM SPSS Statistics 25 for Windows. The descriptive analysis addressed the central tendency and dispersion measures (mean, standard deviation, minimum and maximum), as well as frequency analysis. Parametric *t*-tests for comparing two independent samples (men *vs*. women) were carried out and differences were considered statistically significant at $p < .05$ as the trustworthiness level (*p-value*). A non-parametric Chi-Square test was applied to compare nominal variables. Cramer's *V* was subsequently used to measure the strength of association between nominal variables.

Results

Characteristics of the sample

The sample was comprised of 560 college freshmen who answered all the questions of the data collection tool. The majority of the participants were women (79.6%), with a mean age of 19.6 years (SD = 1.6) ranging from 18 to 24 years. The most common fields of study were degrees in the health domain, in public colleges, and they tended to classify their academic performance as good. Forty-three percent (43%) of the participants had a satisfactory relationship (dating), approximately one-third were displaced from home, and 13.2% of the participants worked (average hours per week = 21; SD = 13.3). The participants' demographics are summarized in Table 1.

Gender and mental health

The participants' mental health was generally good (total MHI-38: $\bar{x}$ = 158.9; SD = 29.5). Overall, freshmen were satisfied with their academic life (total ALSS: $\bar{x}$= 29.2; SD = 5.3), but revealed a high level of psychological vulnerability (PVS: $\bar{x}$ = 16.6; SD = 5.3); however, they tended not to feel

Table 1. Demographic characteristics of the sample (N = 560).

Variable	n	%	$\bar{x}$ (SD)
Age			19.6 (1.6)
Gender			
Female	446	79.6	
Male	114	20.4	
Degree			
Health domain	343	61.3	
Other	217	38.8	
Type of instituin			
Public	416	74.2	
Private	120	20.3	
Military/Police	24	3.5	
Academic performance			
Poor	15	2.7	
Fair	123	22.0	
Good	341	60.9	
Very good	74	13.2	
Excellent	7	1.3	
Displaced from home			
Yes	184	32.9	
No	376	67.1	
Part-time work			
Yes	74	13.2	
No	486	86.7	
Satisfatory dating/relationship			
Yes	294	43.0	
No	266	47.5	
Other	53	9.4	

Table 2. Results of MHI-38, PVS, ALSS, SPV and by gender.

		Female (N = 446)		Male (N = 114)	
Variables			$\bar{x}$ (SD)		$\bar{x}$ (SD)
MHI-38	Psychological Distress [a]		105.9 (19.4)		113.2 (18.3)
	Anxiety		41.0 (8.9)		44.2 (8.4)
	Depression		22.1 (4.6)		23.2 (4.3)
	Loss of Behavioural Control		41.8 (7.4)		44.8 (7.0)
	Psychological Well-being[b]		51.9 (11.9)		54.8 (11.1)
	General Affect		39.6 (9.4)		42.2 (9.4)
	Positive Emotional Ties		12.3 (3.4)		12.6 (3.0)
Psychological Vulnerability (PVS)		N = 410	16.7 (5.3)	N = 102	16.5 (5.0)
ALSS	Personal Satisfaction (PS)	N = 398	14.6 (2.9)	N = 102	15.2 (2.8)
	Satisfaction with Campus Environment (SCE)	N = 398	14.5 (3.2)	N = 102	14.8 (3.2)
Self-Perception of Vulnerability (SPV)		N = 384	2.1 (1.0)	N = 97	1.7 (.8)

N = 560; MHI-38 = 38 items [38; 228]; [a]24 items [24; 144]; [b]14 items [14; 84];
ALSS = 8 items [8; 40]; (PS) 4 items [4; 20]; (SCE) 4 items [4; 20];
EVP = 6 items [6; 30];
SPV = 1 item [1; 5];

vulnerable ($\bar{x}$= 2; SD = 1). The male participants presented better results in the MHI-38 ($\bar{x}$ = 167.0; SD = 27.6) when compared with females ($\bar{x}$= 156.8; SD = 29.6). Overall, the findings showed that male participants presented better results than females. Descriptive details are summarized in Table 2.

The results of parametric *t*-tests (Table 3) showed significant differences between genders in all subscales of MHI-38 except for Positive Emotional Ties (p >.05). For all MHI −38 subscales, male participants showed a tendency to present better scores than females. There were significant

Table 3. Comparison between gender and MHI-38, ALSS, PVS, and perception of vulnerability.

	Variables	*t* test	df	*p* (bilateral)
Gender	Psychological Distress[a]	−3.6	558	.001**
	Anxiety	−3.5	558	.001**
	Depression	−2.3	558	.03*
	Loss of Behavioural Control	−3.9	558	.001**
	Psychological Well-being	−2.4	558	.02*
	General Affect	−2.7	558	.007**
	Positive Emotional Ties	−.7	558	.5
	Total MHI-38	−3.3	558	.001**
	ALSS Personal Satisfaction (PS)	−2.3	498	.02*
	ALSS Satisfaction with Campus Environment (SCE)	−.8	498	.4
	Total ALSS	−1.8	498	.08
	PVS	1.0	510	.33
	Self-Perception of Vulnerability (SPV)	13,186.0[(a)]	–	.001**

*$p < .05$ (bilateral); **$p < .01$ (bilateral).
[a]Mann-Whitney U.

differences between genders in the ALSS-Personal Satisfaction (p <.05), but not in the ALSS-Campus Environment (p >.05) and the total ALSS (p >.05). Male students reported more Personal Satisfaction ($\bar{x}$= 15.2; SD = 2.8) than females ($\bar{x}$= 14.6; SD = 2.9). Significant differences were found between genders and self-perception of vulnerability (p <.01). Female students perceive themselves as being more vulnerable ($\bar{x}$ = 2.1: SD = 1.0) than males ($\bar{x}$= 1.7; SD = .8). No significant differences were found between genders at PVS (p > .05) or demographic variables.

Discussion

This paper examined the gender-related differences in demographics, mental health, academic life satisfaction, and psychological vulnerability in a sample of college freshmen. As expected, the sample was mostly comprised of women, in line with the distribution of undergraduates reported in Europe (Hauschildt et al., 2015) and the USA (ACHA, 2018). The mean age of the sample is younger when compared with the average age of undergraduates in the USA (< 22-year old) (ACHA, 2018; Eisenberg & Lipson, 2019) and in Europe (< 23-year-old) (Hauschildt et al., 2015), which is understandable as we only assessed freshmen.

Our results showed that male undergraduates generally presented significantly better mental health than female students, and those differences are in line with the reported patterns by ACHA (2018). These findings emphasize the need to be aware of freshmen women, and this knowledge is significant to educators and healthcare workers since poor mental health decreases the resilience to cope and deal with the daily life challenges in college (Macaskill, 2018).

Overall, freshmen are satisfied with their academic life and academic performance, but freshmen women presented lower personal satisfaction with academic life. This finding can be explained by the fact that ALSS – Personal Satisfaction embodies positive skills and perceptions of academic performance, relationships with colleagues and teachers, and female students are more prone to show personal inadequacy and negative thinking (feelings of inferiority, hostility, and lack of self-worth). These results highlight the importance to improve awareness, feeling positive self-esteem, self-confidence, and being well-functioning in female undergraduates because these variables are protective competencies (Satici & Uysal, 2016). These mind dispositions reflect students' competence to solve problems, decision-making capacity in everyday life on campus, which in turn contributes to academic success (Pedrelli et al., 2016). Some authors argue that given the unique nature of academic environments, campuses are in a privileged position to screen at-risk students (e.g. routine screening for potential mental health problems) (Harrer et al., 2019; Pedrelli et al., 2016) to promote mental health education (e.g. by increasing students literacy, awareness, at-risk behaviours, and fight mental illness stigma) (DeBate et al., 2018), as well as to facilitate treatment (Sontag-Padilla, Seelam, Kase, Woodbridge, & Stein, 2018).

Overall, freshmen presented a high score of psychological vulnerability (16.6), even though the sample tend not to perceive themselves as being vulnerable freshmen women, however, presented more self-perception of vulnerability when compared to male undergraduates. These findings are quite interesting because 'not feeling vulnerable' may point out a distorted perception of the mental status among male students. Yet, the study design does not allow us to establish a relationship between these variables. Considering this, the interpretation of the findings related to the mental health status and the self-perception of vulnerability, collected through a self-report questionnaire, might be cautious. Among other things, these results may be explained based on freshmen not being aware of emotional disturbance, gender stereotypes, and lack of mental health literacy. These circumstances limit the seek for help if needed (DeBate et al., 2018), so it seems to be important to increase students' mental health literacy, promote coherent coping strategies, self-awareness about mind dispositions and needs, and endorse positive help-seeking behaviours for professional help (Demirci, Ekşi, Ekşi, & Kaya, 2019; Parent, Hammer, Bradstreet, Schwartz, & Jobe, 2018; Reetz, Krylowicz, Bershad, Lawrence, & Mistler, 2015).

Considering the reluctance to help-seeking behaviours among students, mainly due to embarrassment, fear of stigma, or lack of awareness of their problems, so it could be helpful to offer offices and online helplines to develop psychological flexibility, biopsychosocial spiritual, and economic support. Finally, to improve their mental health literacy, it is also relevant to offer gender-specific informative video clips and podcasts displayed round-the-clock in key places (e.g. lunchrooms, corridors, information boards, intranet, or email), include contents related to mental health in courses (e.g. first aid and positive mental health), offer courses/forums to cultivate students' well-being using a variety of optional settings (e.g. women only, men only, and mixed).

McLafferty et al. (2017) found that 10% of the students received treatment for emotional problems in the previous year. However, 22.3% of students with problems said they would not seek help. Therefore, it is important to carry out web-based interventions, such as the Student Psychological Intervention Trial (SPIT) in the Ireland Network (CHITIN), as well as to determine its effectiveness in alleviating the students' symptoms, as is already happening at Ulster University campuses. It is also important to consider that symptom expressions are different in men and women having into account their awareness of dominant societal expectations according to gender. Thus, performances of gender (Butler, 1990; West & Zimmerman, 1987) and symptom expressions usually lead men to demonstrate emotional restraint, stoicism, control and not wanting to be viewed as 'vulnerable' (Bergin, Wells, & Owen, 2016).

Mental health is highly gender-related (e.g. is associated with inequalities between female and male students, such as demographic, economic variables and stereotyped roles, specific mental health problems, satisfaction with academic life, beliefs about treatment effectiveness, preference for self-management, and psychological vulnerability). Girls often take care of their parents or grandparents, live alone, have to cook, society does not see them as 'intellectually competent', judges the way they dress, etc., while male students present higher rates of unhealthy coping strategies (using sleeping pills, alcohol abuse, ignoring the symptoms), negative attitudes (refusal or reluctance) regarding professional help-seeking, and towards mental health counselling (DeBate et al., 2018). Furthermore, they are more likely to leave therapy than female students (Parent et al., 2018; Reetz et al., 2016), so recommendations should address gender-specific needs and risks (socioeconomic status, sexual orientation, stigma and shame, lack of perceived need, gender-role stereotyping, gender-based violence, social network, spiritual issues, decrease the level of fear of negative evaluation and life skills).

Limitations

One of the constraints is due to the type of study involved, a cross-sectional study, which hinders determining the cause-and-effect relationships between variables. Taking into account that the research involved participant self-report, we must consider the risk of response bias. The findings

may have been somewhat limited by the bias of the self-report instruments, which can have led the participants to under-or over-report certain types of behaviour, depending on whether they consider it socially acceptable or not (social desirability).

Other potential limitations are related to the proportion of males and females in the sample, as well as the sampling method itself, as only freshmen who were studying in Lisbon District colleges were asked to participate in the study. Lisbon is the biggest city in Portugal and is mostly an urban area, so the generalization of the findings to rural areas must be tentative.

Conclusion

This study indicates that freshmen´s mental health is good, they tend to be satisfied with their academic life, they have a high score of psychological vulnerability, but they do not feel vulnerable. Overall, male undergraduates presented better results than females. Females show poor results in all subscales of MHI-38, ALLS-Personal Satisfaction, and report a higher perception of vulnerability. Current findings provide important data to discuss gender differences as powerful determinants to promote mental health and well-being among freshmen.

Notwithstanding the limitations of this study, we believe the results provide information that can be used by educators and healthcare workers, both in research and in practice, to explore gender-specific risk factors and to design more suitable gender-specific activities for mental health promotion in colleges. Considering gender-specific risks, these strategies cannot be gender-neutral, but gender-sensitive focusing on improving the knowledge and awareness about psychological suffering and reducing the specific risk factors. Mental health promotion activities in colleges must focus on counselling, inclusive assistance to strengthen resiliency, decrease stigma attitudes, increase mental health literacy and help-seeking behaviours. Since poor mental health weakens the freshmen's adjustment to life in college, it is important to get ahead of students' needs. Therefore, we suggest that further research should explore freshmen' perception of vulnerability or feel vulnerable.

Disclosure statement

No potential conflict of interest was reported by the author(s).

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Data availability statement (nogueira.mjc@gmail.com)

The data that support the findings of this study are available from the corresponding author, upon reasonable request.

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