

Research Article

Psychological Assessment of Postgraduate Students in One of the Academic Institutions of Alexandria University, Egypt

Medhat S. Attia[¥], Zeinab N. Shata[¥]

Family Health (Mental Health) Department, High Institute of Public Health, Alexandria University, Egypt

ABSTRACT

Background: Several researches indicated an increase in the frequency of depression, anxiety and stress in postgraduate students, stressing the need to improve their mental resilience and the academic climate.

Objective(s): This study aimed to determine the frequency of depression, anxiety, and stress symptoms as well as some of their correlates among postgraduate students in the High Institute of Public Health (HIPH).

Methods: A cross-sectional study was conducted in the HIPH targeting postgraduate students over three consecutive academic years. The sample constituted 35% of the enrolled students (n=155) and were subjected to psychological testing using the Arabic Version of Depression Anxiety Stress Scales (DASS). In addition, a pre-designed structured self-administered questionnaire was used to collect socio-demographic, personal, and academic data, as well as stressful life events.

Results: Severe to extremely severe symptoms among students were highest for stress (26.4%), followed by anxiety (20.7%) and least for depression (18%). Results of logistic regression analysis revealed that being a female, an Egyptian citizen or having a study decision imposed by others were significant predictors of depression symptoms (Model $X^2=15.690$, $p=0.001$). Practicing less than two hobbies or being a caregiver were significant predictors of anxiety (Model $X^2=12.541$, $p=0.002$), while, the presence of life stressors in past 6 months was the only predictor for stress symptoms (Model $X^2=9.546$, $p=0.002$).

Conclusion: Observable levels of depression, anxiety, and stress symptoms were recorded among postgraduate students in the HIPH. Providing supportive and counseling services deemed essential to achieve sustained sound mental health for the students.

Key words: Anxiety, DASS, depression Egypt, Postgraduate students, psychological profile, stress

Available on line at:
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¥Correspondence:

Email: mattia22@hotmail.com
Tel: 002 01001634421

Email: zeinab.shata@yahoo.com
Tel: 002 01007978715

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INTRODUCTION

Mental health of university students represents an important and growing public health concern for which epidemiological data are needed. Several researches have documented increase in the prevalence rates of depression, anxiety and

stress among undergraduate and postgraduate university students.⁽¹⁻³⁾

Postgraduate education in particular is highly challenging and often places heavy demands on the mental resources of its students, stretching their psychological resilience and making them vulnerable to high levels of negative affective states.^(4,5)

Depression, stress, and anxiety are common emotional problems encountered among students that were found to be highly interrelated to each other. The overlapping symptoms of these problems can lead to all sorts of academic problems among students. It has been found that students' performance in the university is influenced by core symptoms of depression, stress, and anxiety that commonly result in concentration difficulties, lack of motivation and interest, poor attendance, and ill-physical health.^(6,7)

The risk factors of emotional problems among university students are numerous and variable. For foreign students, environmental factors were indicated namely; adjusting to life in a new environment, studying in English, cultural shock, homesickness, loneliness or isolation.^(9,10) Several academic factors were documented including increased academic workload, assignment papers, mid-term tests, projects and final examinations, revising for tests, sitting for examinations, poor time management in meeting deadlines for coursework assessments, and public speaking. In addition, the pressure of financial problems and combining paid work with study, procrastinating, excessive workload, and students' unrealistic expectations were included.⁽⁸⁻¹²⁾

Performance in academic life demands all aspects of human well-being, including physical, social, emotional, spiritual, and psychological aspects. Accordingly, students who are experiencing psychological problems, such as depression, anxiety and stress, may face problems in managing their academic performance. Hence, it is very much crucial to review and examine the psychological well-being of the students.^(6,7)

This study aimed to determine frequency of depression, anxiety, and stress symptoms as well as some of their correlates among postgraduate students in the High Institute of Public Health (HIPH), Alexandria, Egypt.

METHODS

A cross sectional study was conducted in the HIPH affiliated to Alexandria University, Egypt. The HIPH is an institute for postgraduate studies related to public health; including variable specialties. Postgraduate students over three consecutive academic years (from September 2010 to January 2013) were invited to participate in the

study. The study participants constituted 35% of the enrolled students (n=159). After exclusion of questionnaires with missing data, full participants totaled 155 students.

Data Collection tools and techniques:

All sampled students participated in the study were subjected to the following:

- A pre-designed self-administered questionnaire to collect socio-demographic, personal, medical, psychiatric, academic, and life stressors data.
- Psychological testing using the Arabic Version of Depression Anxiety Stress Scales (DASS).⁽¹³⁾ It is a set of three self-report scales designed to measure the negative emotional states of depression, anxiety and stress. The short form (DASS-21) was used and its scores were multiplied by 2 to obtain the final scores. Each of the three DASS scales contains 7 items.⁽¹⁴⁾ Items were scaled on a 4-point severity/frequency scale to express severity state over the past week. The Arabic version of DASS have been shown to have high internal consistency and to yield meaningful discriminations in a variety of settings.⁽¹³⁾

Statistical Analysis:

The Statistical Package for Social Sciences (SPSS version 16.0) was used for data analysis. Chi square (X^2), and Fisher's exact test were used as tests of significance.

Stepwise logistic regression analysis was used to control for confounding factors and to investigate important predictors of depression, anxiety, and stress symptoms among sampled students. Analysis was based on variables that may contribute to the occurrence of the three negative emotional states rather than variables that reflect severity of these states. Accordingly, the burden of study stress and burden of life stressors were not included. Sex, nationality and study decision were introduced for logistic regression as determinants for depression symptoms.

As for anxiety, number of hobbies, being a caregiver, and presence of life stressors in past 6 months were entered in the regression. Two variables were included as determinants of stress symptoms; perceiving study as a stressor and presence of life stressors in past 6 months. For all statistical analyses, p-values ≤ 0.05 were considered significant.

Ethical considerations:

The study was approved by the High Institute of Public Health Ethics Committee. Oral consent of the students was obtained. Objectives of the study were explained to students before obtaining their oral consent to participate.

RESULTS

The mean age of sampled students was $32.18 \pm$

6.85 years. The younger age categories constituted the highest percentages. The majority of students were Egyptians (91.6%), females (73.5%), and living in Alexandria (82.6%). Most of them were married (65.2%), having children (94.2%), and having just adequate total monthly income (65.8%). Regarding their current working status, the highest percentage of them were out of work during study period (35.5%) and 71% of them were medical professionals (table 1).

Table 1: Distribution of sampled students by socio-demographic characteristics

Socio-demographic characteristics	No. Total (n =155)	%
Age in years (n = 132)^a		
22-	73	55.30
32-	43	32.60
42-52	16	12.10
Mean \pm SD	32.18 \pm 6.85	
Sex		
Male	41	26.50
Female	114	73.50
Nationality		
Egyptian	142	91.60
Non-Egyptian ^b	13	8.40
Residence		
Alexandria	128	82.60
Outside Alexandria	27	17.40
Marital status		
Single	50	32.20
Married	101	65.20
Divorced	4	2.60
Having children (n=105)^c		
No	9	5.80
Yes	96	94.20
Occupation		
Medicals	110	71.00
Para-medicals	21	13.50
Non-medicals	24	15.50
Working status		
Unemployed	22	14.20
Out of work during study	55	35.50
Part time work	42	27.10
Full time work	36	23.20
Total monthly income		
Not adequate	21	13.50
Just adequate	102	65.80
Adequate and save	32	20.70

^a 23 students did not respond to age question

^b Non Egyptians included students from: Libya, Sudan, Yemen, Kuwait

^c % calculated among married and divorced students

Figure 1 illustrates that nearly half of the students were having variable degrees of depression, anxiety, and stress symptoms (58.1%, 52.3%, and 58.7%, respectively) ranging from mild to extremely

severe according to their scores on DASS. Severe to extremely severe symptoms among students were highest for stress (26.4%), followed by anxiety (20.7%) and least for depression (18%).

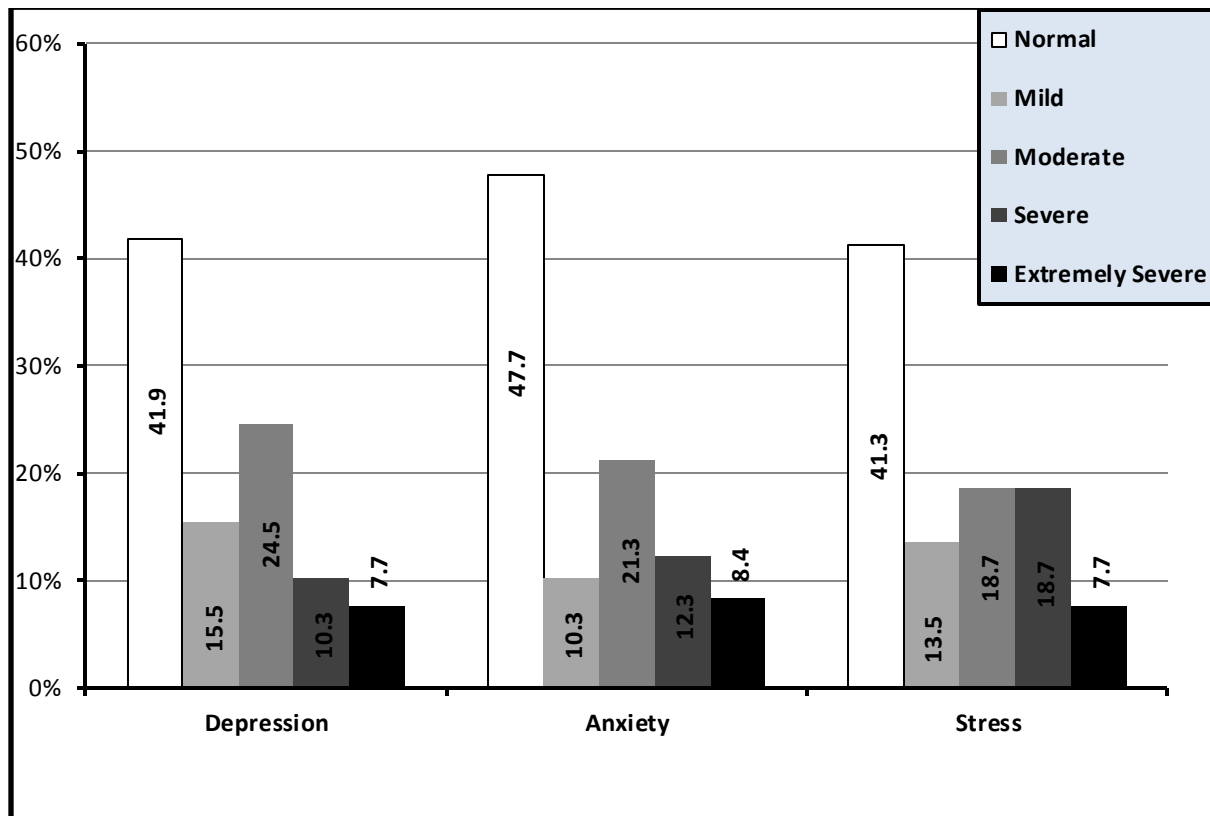


Figure 1: Frequency and level of depression, anxiety, and stress symptoms among sampled students according to their scores on DASS

Table 2 indicates that recorded depression symptoms were significantly associated with female gender (63.2% females vs. 43.9% males, $X^2 = 4.592$, $p < 0.05$), and Egyptian citizenship (60.6% Egyptians vs. 30.8% non-Egyptians, $X^2 = 4.342$, $p < 0.05$). The percent of anxiety was higher among students who were practicing one hobby compared to those who were practicing two or more hobbies (57.1% one vs. 28% two or more, $X^2 = 6.546$, $p < 0.05$).

As shown in table 3, students whose study decision was initiated by work supervisors, friends or family members had significantly higher depression symptoms than those whose study was a self decision (72.1% vs. 52.7%, $X^2 = 4.810$, $p < 0.05$). Presence of anxiety symptoms were significantly associated with being a care giver (66% among care-givers vs. 45.7% among non-care-givers, $X^2 = 5.587$, $p < 0.05$).

Stress symptoms were significantly higher among students who were perceiving study as a stressor compared to those who were not (62.7% vs. 41.4%, $X^2 = 4.420$, $p < 0.05$). Meanwhile,

students who reported high burden of study stress on them had significantly higher anxiety and stress symptoms compared to those who reported moderate burden (68.4% vs. 48.9%, $X^2 = 4.098$, $p < 0.05$ for anxiety and 76.3% vs. 56.8%, $X^2 = 4.314$, $p < 0.05$ for stress).

Presence of two or more life stressors in the past 6 months was significantly associated with presence of anxiety and stress symptoms compared to absence or presence of one life stressor (70% two or more, 36.1% one, and 31.7% none, $X^2 = 17.031$, $p < 0.05$ for anxiety and 80% two or more, 63.1% one, and 43.3% none, $X^2 = 11.973$, $p < 0.05$ for stress). In addition, the percentage of students who reported severe burden of these life stressors on them had significantly higher depression and stress symptoms than those who reported minimal or moderate burden (86.8% severe vs. 40% minimal, 48.1% moderate, $FET = 16.240$, $p < 0.05$ for depression and 84.2% severe vs. 40% minimal, 59.6% moderate, $FET = 8.329$, $p < 0.05$ for stress).

Table 2: Distribution of participants who reported depression, anxiety and stress symptoms according to their socio-demographic and personal characteristics

Socio-demographic and personal determinants	Depression symptoms (n=90)		Anxiety symptoms (n=81)		Stress symptoms (n=91)	
	No.	%	No.	%	No.	%
	(n= 75)		(n= 69)		(n= 76)	
Age in years (n= 132)^a						
22-	43	58.90	35	47.90	43	58.90
32-	24	55.80	23	53.50	24	55.80
42-52	8	50.00	11	68.80	9	56.20
	$X^2= 0.450$		$X^2= 2.315$		$X^2= 0.119$	
Sex						
Male	18	43.90	21	51.20	21	51.20
Female	72	63.20	60	52.60	70	61.40
	$X^2= 4.592^*$		$X^2= 0.024$		$X^2= 1.290$	
Nationality						
Egyptian	86	60.60	75	52.80	86	60.60
Non-Egyptian	4	30.80	6	46.20	5	38.50
	$X^2= 4.342^*$		$X^2= 0.212$		$X^2= 2.400$	
Marital status						
Single	33	66.00	27	54.00	30	60.00
Married	55	54.50	53	52.50	60	59.40
Divorced	2	50.00	1	25.00	1	25.00
	$FET = 2.064$		$FET = 1.196$		$FET= 1.845$	
Occupation						
Medicals	64	58.20	58	52.70	66	60.00
Para-medicals	13	61.90	10	47.60	11	52.40
Non-medicals	13	54.20	13	54.20	14	58.30
	$X^2= 0.278$		$X^2= 0.226$		$X^2= 0.424$	
Current working status						
Not working currently	43	55.80	37	48.10	44	57.10
Part time work	23	63.90	22	61.10	24	66.70
Full time work	24	57.10	22	52.40	23	54.80
	$X^2= 0.672$		$X^2= 1.677$		$X^2= 1.288$	
Having hobbies						
No	28	60.90	26	56.50	30	65.20
Yes	62	56.90	55	50.50	61	56.00
	$X^2= 0.211$		$X^2= 0.477$		$X^2= 1.143$	
Number of hobbies (n=109)^b	(n= 62)		(n= 55)		(n= 61)	
One						
Two or more	49	58.30	48	57.10	47	56.00
	13	52.00	7	28.00	14	56.00
	$X^2= 0.315$		$X^2= 6.546^*$		$X^2= 0.000$	

* $p<0.05$, FET, Fisher's Exact Test^a 23 students did not respond to age question^c % calculated among those who reported having hobbies

Table 3: Distribution of participants who reported depression, anxiety and stress symptoms according to health-related and life stressors

Life stressors & health determinants	Depression symptoms (n=90)		Anxiety symptoms (n=81)		Stress symptoms (n=91)	
	No.	%	No.	%	No.	%
Current physical illness	70	55.60	65	51.60	73	57.90
No	20	69.00	16	55.20	18	62.10
Yes	$X^2= 1.741$		$X^2= 0.121$		$X^2= 0.166$	
Current psychiatric illness	84	57.10	75	51.00	85	57.80
No	6	75.00	6	75.00	6	75.00
Yes	FET, $p= 0.469$		FET, $p= 0.280$		FET, $p= 0.471$	
Being a care giver	57	54.30	48	45.70	57	54.30
No	33	66.00	33	66.00	34	68.00
Yes	$X^2= 1.909$		$X^2= 5.587^*$		$X^2= 2.628$	
Study decision	59	52.70	55	49.10	62	55.40
Self decision	31	72.10	26	60.50	29	67.40
Initiated by work supervisors or friends/family	$X^2= 4.810^*$		$X^2= 1.607$		$X^2= 1.872$	
Perceiving study as a stressor	14	48.30	12	41.40	12	41.40
No	76	60.30	69	54.80	79	62.70
Yes	$X^2= 1.404$		$X^2= 1.692$		$X^2= 4.420^*$	
Burden of study stress	(n= 76)		(n= 69)		(n= 79)	
Moderate	50	56.80	43	48.90	50	56.80
High	26	68.40	26	68.40	29	76.30
	$X^2= 1.493$		$X^2= 4.098^*$		$X^2= 4.314^*$	
Life stressors in past 6 months	30	50.00	19	31.70	26	43.30
	37	56.90	41	36.10	41	63.10
None	23	76.70	21	70.00	24	80.00
One	$X^2= 5.901$		$X^2= 17.031^*$		$X^2= 11.973^*$	
Two or more	(n= 60)		(n= 62)		(n= 65)	
Burden of life stressors	2	40.00	2	40.00	2	40.00
Minimal	25	48.10	33	63.50	31	59.60
Moderate	33	86.80	27	71.10	32	84.20
Severe	FET= 16.240*		FET= 2.082		FET= 8.329*	

* $p<0.05$, FET, Fisher's Exact Test

Table 4 shows the results of stepwise logistic regression analysis of significant variables associated with depression, anxiety, and stress symptoms among sampled students. Results revealed that being a female, an Egyptian citizen or having a study decision not self-initiated were significant predictors of depression symptoms

(Model $X^2= 15.690$, $p= 0.001$). Regarding anxiety symptoms, practicing less than two hobbies or being a care-giver were significant predictors of anxiety (Model $X^2= 12.541$, $p= 0.002$), while, the presence of life stressors in past 6 months was the only predictor for stress symptoms (Model $X^2= 9.546$, $p= 0.002$).

Table 4: Stepwise logistic regression analysis of significant determinants

Dependent variables	Independent variables	B Coefficient	Standard error	P-value	Model X^2
Depression symptoms	Sex(Female)	0.922	0.400	0.021	15.690
	Nationality (Egyptians)	- 1.309	0.670	0.051	$P= 0.001$
	Study decision (Initiated by supervisor or friends/family)	1.123	0.423	0.008	
Anxiety symptoms	Number of hobbies (One only)	1.364	0.519	0.009	12.541
	Being a caregiver	1.057	0.451	0.019	$P= 0.002$
Stress symptoms	Presence of life stressors in past 6 months	1.041	0.341	0.002	9.546
					$P= 0.002$

DISCUSSION

College students' mental health represents a growing concern as a public health issue. According to several worldwide sources, mental health problems are highly prevalent among college students including both undergraduate and graduate students. However, the vast majority of researches were targeting undergraduate students.⁽¹⁻⁵⁾ The current work tackles one of the underestimated aspects of such issue; namely postgraduate students' mental health.

The present study showed that nearly half of students were having variable degrees of depression, anxiety, and stress symptoms ranging from mild to extremely severe symptoms. Severe to extremely severe symptoms of stress ranked the first (26.4%) followed by anxiety (20.7%), while depression was the least (18%).

The American College Health Association Survey conducted in 2011,⁽¹⁵⁾ showed that 30% of students reported feeling so depressed within the last 12 months that it was difficult to function, 50% felt overwhelming anxiety, and 53% reported above average and tremendous stress. In another more recent survey,⁽¹⁶⁾ anxiety was the top presenting concern among American college students (41.6%), followed by depression (36.4%). These results show higher rates than those obtained in our study which may be attributed to the differences in sampling and methods used. Nevertheless, both results indicate the presence of existing mental health problems among college students.

Another study conducted in Brunei,⁽⁴⁾ depression, anxiety and stress symptoms were assessed among postgraduate students using DASS. Results revealed that students were having variable degrees of depression (37%), anxiety (75%), and stress (49%) symptoms ranging from mild to extremely severe symptoms. Severe to extremely severe symptoms were represented 4% for depression or stress, and 20% for anxiety symptoms.

Although assessment was carried out using the same tool (DASS), some differences were found in the results. Anxiety symptoms ranked first in Brunei study both in frequency and severity, while severe to extremely severe symptoms of depression and stress showed low frequency compared to our results. These differences may be

attributed to number and nature of the sample in Brunei study as all of them were teachers and the sample size was only 51 which was much less than the sample in the present study. Also, the nature of our participants being mainly medicals and paramedical may reflect some differences between both samples.

In consistency with our results, an Indian study⁽⁵⁾ assessed the mental health of postgraduate orthodontic students using DASS and revealed frequency and severity rates similar to the present study. Severe to extremely severe symptoms represented 10% for depression, 12.7% for anxiety and 22.4% for stress symptoms.

On univariate analysis, several correlates were significantly associated with the presence of depression, anxiety, and stress symptoms. Presence of depression symptoms was significantly associated with being a female or an Egyptian citizen. Several studies supported the association between depression and female gender in the general population as well as among college students.^(2,17,18) In contrast to our finding that Egyptian students were having significantly higher depression symptoms compared to non-Egyptians, other research⁽¹⁹⁾ showed that international students reported experiencing greater academic distress than non-international students. Unexpected higher rates of depression among Egyptians may be attributed to the violent acts and conflicts they were exposed to over three years following 25th January Revolution.

Participants whose study decision was a self choice had significantly lower depression symptoms than those whose study decision had been initiated by work, friends or family. Similar to this finding, studies found that students who entered dentistry by their own choice perceived less stress in the college climate and more satisfaction than those who were forced by parental decisions.^(20,21) Although the previous studies highlighted the correlation between study decision and stress symptoms and not depression symptoms as showed in our study, yet both stress and depression are sometimes overlapping in symptoms and both of them are manifesting negative psychological states.

The present study showed that the more hobbies participants practiced, the lesser the anxiety symptoms experienced by them. This finding stresses the importance of the relaxation

methods in improving the mental health of students. In agreement with other studies^(22,23) which indicated that greater caregiver burden was correlated with higher anxiety symptoms, presence of anxiety symptoms in our sample was significantly associated with being a care giver.

Presence of two or more life stressors in the past 6 months was significantly associated with anxiety and stress symptoms. Reporting severe impact of these life stressors was significantly associated with presence of depression, and stress symptoms. Perceiving study as a stressor was significantly associated with the presence of stress symptoms. Anxiety, and stress symptoms were significantly associated with reporting high impact of study stress. The association between presence of symptoms and reporting high impact for either perceiving study as a stressor or for having more than one stressor in the past six months are mainly reflecting high severity of these stressors and may predict having mental disorders rather than just symptoms of depression, anxiety, or stress.

CONCLUSION AND RECOMMENDATIONS

Postgraduate students in the HIPH experience observable levels of depression, anxiety, and stress symptoms. Predictors of depression symptoms included being a female, an Egyptian citizen or having a study decision not self-initiated. Practicing less than two hobbies or being a caregiver were significant predictors of anxiety, while, the presence of life stressors in past 6 months was the only predictor for stress symptoms.

Accordingly, routine screening for mental health problems among university students at the beginning of the academic year, followed by another screening in the second term are highly recommended. In addition, referral services should be established in case of students who need specialized psychiatric services. Moreover, providing supportive and counseling services to the postgraduate students in the HIPH, as well as encouraging students' hobbies and providing recreational services are highly needed.

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