

Comparison Of Depression Anxiety Stress Scale (Dass) Scores Among University Students In Cyberjaya: An Online Survey

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ABSTRACT

There is a growing concern of mental health of university students worldwide. Studies have shown that students' performance in university may be influenced by the symptoms of depression, anxiety and stress. These could lead to difficulties in concentrating, lack of motivation and interest and poor physical health. This study aims to determine the frequency of depression, anxiety and stress among the university students in Cyberjaya. It also aims to compare DASS score between health science and non-health science students as well as between medical and pharmacy students using Mann-Whitney test. Correlation between the DASS score and the cumulative grade point average (CGPA) among the students is measured using Spearman correlation. Overall, there were 263 out of 412 (63.8%) students responded to the online survey. Students who participated in the study were mostly health science students from University of Cyberjaya (UOC) (67.0%, 176/263) with mean age of 22.4 (± 2.7) years old. This study found that majority of the students were normal based on DASS score. Of those reported above normal score, most of the respondents had anxiety (33.1%, 87/263), followed by depression (19.4%, 51/273) and stress (4.9%, 13/263). Non-health science students reported higher frequency of depression (29.9% vs 14.2%), anxiety (40.2% vs 29.6%) and stress (6.9% vs 4.0%) compared to health science students. However, "severe" depression, "extremely severe" anxiety and "moderate" stress only found in health science students. This study also found that pharmacy students had higher frequency of depression (19.2% vs 10.2%), anxiety (42.5% vs 20.4%) and stress (5.5% vs 3.1%) compared to medical students. This study found that DASS score of students are negatively correlated with their CGPA. Majority of the students were aware of the counselling resources in their university. The main source of support for students comes from their family with highest mean score of 3.2 (± 0.8). In conclusion, only minority of students in Cyberjaya had depression, anxiety and stress. These problems need to be eliminated during their study years. Future similar online surveys on bigger number of students in Malaysia are required to confirm and to provide better curriculum for the students.

Keywords: depression, anxiety, stress, university students, health science, non-health science

1.0 Introduction

Mental illness is prevalent, in all strata across all countries and societies (World

Health Organization [WHO], 2015). Disorders such as depression, anxiety and other related disorders are some of the main reasons individuals live with disability (Andrews, 2001). The rate of university students diagnosed with depression increased from 10% in 2000 to 15% in 2006 (American College Health Association [ACHA], 2008). Approximately 40 million American adults suffer from anxiety and 75% of them experience their first episode by age 22 (Anxiety Disorder Association of America [ADAA], 2010).

University students face not only challenges related to independent living, but also academic challenges. This predisposes them to depression, anxiety and stress, which are fairly common. Many studies have been conducted that looked into the risk factors, common symptoms, severity and complications, non-pharmacological managements of depression, anxiety and stress in university students. Anxiety is the top presenting concern among university students (41.6%), followed by depression (36.4%) (APA, 2014). Some studies also show that some undergraduate students significantly experience stress (Murphy et al., 2009; Elias et al., 2011).

First-year university students were found to be particularly prone to stress (Towbes & Cohen, 1996; Pancer et al., 2000; Wintre & Yaffe, 2000) and experience high level of stress (Wintre & Yaffe, 2000) due to the university life transition (Dyrbye et al. 2006). Many of them experienced cultural shock as university life is different from school life.

Many studies were conducted to address this issue and it was found that psychological problems, for example, depression, anxiety, and stress do have influence on the academic achievement of the students. As an example, a study reported that stressful life events are significantly elevated in anxious and depressed youths, it could lead to low

performance in academic achievement (Williamson et al., 2005). A study by Yasin and Dzulkifli (2011) also indicated the same results. They found that depression, anxiety, and stress were negatively correlated with academic achievement. The study concluded that the higher the depression, anxiety, and stress, the lower the academic achievement among students (Yasin & Dzulkifli, 2011).

Results from prior studies found that students of healthcare professions such as medical, dental, nursing, and pharmacy students report higher, more harmful levels of distress than do other students (Dutta et al., 2005; Henning et al., 1998; Murphy et al., 2009). There was a study reported that anxiety and depression among medical students especially in their first academic year as they are going to suffer from academic stressors such as information input overload, lack of leisure time and academic evaluation such as exams and continuous assessments (Ibrahim et al., 2014). Other than healthcare profession students, stress also affects students from other course, for example engineering students. The potential sources of stress identified as the most stressful among engineering students are curricular issues (Schneider, 2005).

There was a review article reported that there were lack of studies looking into the depression among subgroups in Malaysia (Ng, 2014). Thus, by identifying which groups are more prone to develop these conditions, further assessment and proper management can be undertaken to prevent future problems such as drop-outs and unnecessary cost.

1.1 Objectives

- I) To determine the frequency of depression, anxiety and stress among the respondents of university students in Cyberjaya.

- II) To compare the difference of DASS score between respondents studying health science and non-health science courses.
- III) To compare the difference of DASS score between respondents studying medicine and pharmacy.
- IV) To correlate between the DASS score and the Cumulative Grade Point Average (CGPA) among the respondents.

2.0 Method

2.1 Study Design

This was a cross-sectional online survey done on all undergraduate students in all universities in Cyberjaya using Depression Anxiety Stress Scale (DASS)-21 questionnaire from June to August 2015. This study was ethically approved by those universities.

2.2 Study Sample

Participant consent was taken before participants proceed to answer the questionnaire. The participants were requested to respond to all parts of the questionnaire with no time limit imposed. Calculated sample size was 412.

2.3 Data Collection

The full set of questionnaire consisted 3 parts, which were participants' demographic data, DASS-21 questionnaire and lastly the level of group support. DASS-21 is a psychometric test that

measures levels of depression, anxiety and stress in the previous week. The scoring for each question is from 0 to 3 whereby 0 – 'did not apply to me at all', 1 – 'applied to me to some degree or some of the time', 2 – 'applied to me to a considerable degree or a good part of the time', and 3 - 'applied to me very much or most of the time'. DASS-21 is a shorter version of the original 42-item DASS score. Thus, the final score of each item groups (Depression, Anxiety and Stress) were multiplied by 2.

2.4 Data Analysis

All data were compiled using Microsoft Excel 2010 and was analyzed using Statistical Packaged for Social Sciences (SPSS) software version 24.0 for Windows. The descriptive analysis was used to determine the frequency of depression, anxiety and stress among university students in Cyberjaya. The comparison of DASS score between health science students and non-health science students as well as between pharmacy students and medical students were analyzed using Mann-Whitney test. The correlation between DASS score and CGPA of all respondents was identified using Spearman correlation.

3.0 Results

A total of 263 respondents answered the questionnaire with response rate of 63.8% (263/412). Majority of the respondents were health science students (67.0%, 176/263) from UOC, female (60.8%, 160/263) with mean age of 23.0 ± 1.7 years old.

Table 3.1 Distribution of demographic data

	Health Science Students N=176 (66.9%) N (%)	Non-health sciences N=87 (33.1%) N (%)	Total N=263 (100%) N (%)
1) Current university			
UOC	176 (100)	-	176 (67.0)
MMU	-	64 (73.6)	64 (24.3)
Limkokwing	-	23 (26.4)	23 (8.7)
2) *Age	23.0 (\pm 1.7)	21.3 (\pm 3.9)	22.4 (\pm 2.7)
3) Current academic year			
Year 1	23 (13.1)	15 (17.2)	38 (14.4)
Year 2	16 (9.1)	23 (26.4)	39 (14.8)
Year 3	50 (28.4)	30 (34.5)	80 (30.4)
Year 4	22 (12.5)	15 (17.2)	37 (14.1)
°Year 5	65 (36.9)	4 (4.6)	69 (26.2)
4) Gender			
Male	59 (33.5)	44 (50.6)	103 (39.2)
Female	117 (66.5)	43 (49.4)	160 (60.8)
5) Current CGPA	3.1 (\pm 0.4)	3.3 (\pm 0.5)	3.2 (\pm 0.4)
6) Average hour of self-study	2.5 (\pm 1.6)	2.2 (\pm 1.6)	2.4 (\pm 1.6)
7) Living companion			
Family	36 (19.3)	15 (17.2)	49 (18.6)
Friends	122 (69.3)	48 (55.2)	170 (64.6)
Alone	18 (10.2)	24 (27.6)	42 (16.0)
8) Average family monthly income			
\leq RM 3000	48 (27.3)	32 (36.8)	80 (30.4)
$>$ RM 3000	128 (72.7)	55 (63.2)	183 (69.6)

Table 3.2 below showed the distribution of depression, anxiety and stress among all respondents. Among those who scored

higher than normal level, most of them had anxiety (87/263), followed by depression (19.4%, 51/273) and stress (4.9%, 13/263).

Table 3.2 Distribution of depression, anxiety and stress among all respondents

	Depression (N=51)		
	Mild (10 – 13)	Moderate (14 – 20)	Severe (21 – 27)
N	30	20	1

Percentage (%)	58.8	39.2	2.0	
	Anxiety (N=87)			
	Mild (8 – 9)	Moderate (10 – 14)	Severe (15 – 19)	Extremely severe (≥ 20)
N	36	38	10	3
Percentage (%)	41.4	43.7	11.5	3.5
	Stress (N=13)			
	Mild (15 – 18)		Moderate (19 – 25)	
N	9		4	
Percentage (%)	69.2		30.8	

Among those who had anxiety, most of them had moderate level of anxiety (43.7%, 38/87). Only 3 students had “extremely severe” level of anxiety. There was 1 student who was found to have “severe” level of depression. The student is a male and staying alone. He reported that

no one can provide any form of support to him. Overall, only 13 (4.9%) respondents had stress. Of these, majority were found to have “moderate” stress. They were health science students with short self-study period, do not exercise regularly, staying away from family and in their clinical year.

Table 3.3 Distribution of median score with IQR among health science students and non-health science students

Variable	Health Science Students (n=176) Median (±IQR)	Non-health science students (n=87) Median (±IQR)	p value*
Depression			
Overall	4 (5)	7 (7)	<0.001
Mild (10-13)	12 (1)	11 (2.5)	0.56
Moderate (14-20)	15 (5)	15 (2.5)	0.94
Severe (21-27)	21 (0)	-	-
Anxiety			
Overall	5 (5)	6 (5)	<0.001
Mild (8-9)	8 (1)	8 (1)	0.72
Moderate (10-14)	11.5 (3)	12 (3.3)	0.52
Severe (15-19)	15 (2.5)	17 (1.5)	0.31
Extremely severe	21 (0)	-	-

(20+)			
Stress			
Overall	4 (5)	7 (7)	<0.001
Mild (15-18)	15.0 (0)	15.5 (2)	0.26
Moderate (19-25)	19.5 (1.75)	-	-

Note:^a Mann-Whitney test

* p< 0.05 for level of significance

In Table 3.3 above, Mann-Whitney analysis showed that there was a statistically significant difference in overall median depression, anxiety and stress score between health science students and non-health science students, $p < 0.001$ (Table 3.4). Non-health science students reported higher median depression (7 vs 4), anxiety (6 vs 5) and stress (7 vs 4) score compared

to health science students. The median score in both groups of students fall in the normal range of depression, anxiety and stress. Although collectively the depression, anxiety and stress median score in non-health science students appeared to be statistically more severe than health science students, individually, the more severe ones were reported in health science students.

Table 3.4 Distribution of median score with IQR among pharmacy students and medical students

Variable	Pharmacy students (n=73) Median (IQR)	Medical students (n=98) Median (IQR)	p value*
Depression			
Overall	5 (4.5)	3 (5)	<0.001
Mild (10-13)	11.5 (2)	12 (1.25)	0.31
Moderate (14-20)	14 (1)	17 (5.5)	0.23
Severe (21-27)	21 (0)	-	-
Anxiety			
Overall	6 (6)	4 (5)	<0.001
Mild (8-9)	8 (0.75)	8 (1)	0.70
Moderate (10-14)	12 (2)	11.5 (2)	0.27
Severe (15-19)	16 (0)	15 (0)	0.40
Extremely severe (20+)	21 (0)	20.5 (0)	0.48
Stress			
Overall	5 (4.5)	3 (5)	<0.001
Mild (15-18)	15 (0)	15 (0)	1.00
Moderate (19-25)	20 (0)	19.5 (0)	0.67

Note:^a Mann-Whitney test

* p< 0.05 for level of significance

In Table 3.4 above, Mann-Whitney analysis had shown that there was statistically significant difference of median score between pharmacy students and medical

students in depression (5 vs 3), anxiety (6 vs 4) and stress (5 vs 3), $p < 0.001$. The more severe score also observed in pharmacy students.

Table 3.5 Correlation between DASS score and CGPA of all respondents (N=263)

	Correlation coefficient ^a	p value*
Depression	-0.086	0.164
Anxiety	-0.107	0.083
Stress	-0.086	0.164

Note:

^a Spearman correlation coefficient (2-tailed)

* $p < 0.05$ for level of significance

In Table 3.5 above, the Spearman correlation showed that there was not statistically significant ($p > 0.05$) between DASS score and CGPA of all respondents. However, their relationship was negatively

correlated. This negative correlation suggested that the higher the scores of depression, anxiety and stress, the lower the CGPA of the students.

Table 3.6 Awareness of respondents towards of counselling resources

	Health science students N=176 N (%)	Non-health science students N=87 N (%)
YES	95 (54.0)	45 (51.7)
NO	81 (46.0)	42 (48.3)

Table 3.6 above showed that more than half of all respondents were aware of the counselling facilities in university. Health science students showed higher awareness towards counselling resources than non-health science students. In this study, family appeared to be the highest level of support among other sources.

4.0 Discussion

In this study, the 3 students had “extremely severe” level of anxiety were having similar demographic backgrounds such as health science students, final year students, lack of awareness of counselling resources, staying away from family and having

trouble to sleep when under stress. There was a study reported that living in a hostel may expose students to lack of close parental support on a day-to-day basis, hence contribute to more frequent anxiety (Al-Dabal & Makki, 2010). The student who had “severe” level of depression is a male and staying alone. He reported that no one can provide any form of support to him. According to Teoh and Rose (2001), lower level of social support was one of the predictors of psychological problems. There was another study reported that deficits in social support have been shown to be related to many psychological problems such as depression, loneliness,

and anxiety (Eskin, 2003). Those have “moderate” stress were health science students with short self-study period, do not exercise regularly, staying away from family and in their clinical year. Final year students had higher score of depression and anxiety. This may be due to their consideration about their job opportunities as they graduate (Wang, 2005). Seeking for internships or job are the identified stressors among the students (Fan & Wang, 2001; Li & Lin, 2003).

With regard to severity of depression, anxiety and stress, “severe” depression, “extremely severe” anxiety and “moderate” stress were only found in health science students. This finding is consistent with the study done by Tjia et al. by surveying students at a private medical school and found moderate and severe depression in medical students using Beck Depression Inventory (BDI) (Tjia et al., 2005). There was systematic review reported that medical students had higher scores of depression, anxiety and stress (Dyrbye et al., 2006). Another study by Elias et al. reported that studying medicine and health sciences had the highest mean stress score (Elias et al., 2011). The similar findings were probably due to similar characteristics of each medical school and its students and lecturers.

Mann-Whitney analysis had shown that there was statistically significant difference of median score between pharmacy students and medical students in depression. This means that pharmacy students were more depressed, anxious and stressed than medical students. This finding was consistent with a study done by Henning & Shaw (1998) which reported that pharmacy students were at the greatest risk for psychological distress, with half of the students reported distress levels as compared to medical, dental and nursing students. According to the researchers, some students even displayed distress levels that were similar to psychiatric

patients. The similarities of such findings may be due to gender match population sample, because both studies involved more female students than male.

In this study, DASS score is negatively correlated with their CGPA. This suggested that the higher the scores of depression, anxiety and stress, the lower the CGPA of the students. Bennett reported a similar finding which was, stress was significantly correlated with poor academic performance in his study of business undergraduates (Bennett, 2003). According to previous study, students who had high depression tend to perform poorly in academic performance compared to those with low depression (Fine & Carlson, 1994).

Oh emphasized that student support from guidance and counselling services may stabilize students learning effectiveness (Oh, 2006). Therefore, psychological disturbance related to academics can be managed properly with the assistance of trained counsellor in university. University also should be more active in planning programmes with counselling support service to help students cope with depression, anxiety and stress better.

Family was ranked as the highest level of support because students usually feel more comfortable sharing problems with their own family. This further supports the results in this study. Inadequate support from the parents will likely increase the chance of getting depression among adolescents (Stice et al., 2004).

5.0 Conclusion

Majority of the respondents were normal based on the DASS score. This study found that non-health science students have higher frequency and higher median DASS score than health science students. However, the most severe ones were found among health science students. Pharmacy students showed higher frequency and higher median DASS score than medical

students. This study also found that DASS score was negatively correlated with their CGPA. More than half of the respondents were aware of counselling services in the university. The highest source of support is from family.

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