DASS SCORES AMONG STUDENTS OF ALLIED HEALTH SCIENCES AT IIUM

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ABSTRACT

Introduction: Depression, anxiety, and stress disorders are prevalent among university students, with healthcare students being more susceptible. The challenges specific to their field contribute significantly to the overall burden of mental health issues. As these students progress through clinical training, their predisposition to mental health issues increases, making it critical to address their well-being proactively. **Aim:** The purpose of this study was to explore the mental health conditions of allied health sciences students, and to compare the differences in Depression Anxiety Stress Scale (DASS)-21 scores between gender, year of study, and different departments among Kulliyyah of Allied Health Sciences (KAHS) students. **Methodology:** This was a cross-sectional questionnaire-based study conducted at the International Islamic University Malaysia (IIUM) Kuantan Campus. The completed DASS-21 questionnaire has been completed for a total of 534 allied health sciences students from six different departments at KAHS. **Results:** The prevalence of depression, anxiety and stress among allied health sciences students using DASS-21 was found to be 47%, 65.5%, and 33.3%, respectively. There were no significant differences in DASS-21 scores between gender and year of study. A statistically significant difference in DASS-21 scores between departments was found for symptoms of depression and anxiety. **Conclusion:** The student's mental health issues are concerning, with a significant level of severe anxiety reflecting psychological disorders among university students. Hence, the university should be aware of this and provide necessary aid for the student's mental well-being.

KEYWORDS: mental health, DASS-21, allied health sciences students

INTRODUCTION

For the past five years, especially after the pandemic, the prevalence of mental disorders has risen dramatically. According to the World Health Organization (WHO) (2022), nearly one billion people globally, or one out of every eight people suffer from various mental disorders. Anxiety and depressive disorders have been identified as the most prevalent mental health conditions in 2019, and the outbreak of the COVID-19 pandemic in 2020 further exacerbated the prevalence of these disorders. While mental health issues have been a major concern across various demographics, the alarming rates among university students have drawn particular attention in recent years. During their transition to higher education, university students were exposed to a variety of stressors and challenges, which could have a negative impact on their mental health.

The prevalence of mental health conditions among university students has been extensively researched, with a particular focus on depression, anxiety, and stress. It is found that the rates of depressive disorders, as well as anxiety and stress disorders are higher among Malaysian university students (Kotera et al., 2020; Kumaran et al., 2022; Nahas et al., 2019; Wong et al., 2023). Numerous studies have been conducted to investigate the risk factors, typical symptoms, and severity of these conditions in university students. A study revealed a notable increase in the prevalence of depression, anxiety, and stress as students' progress through their clinical training (Almhdawi et al., 2018). Moreover, another study demonstrated that health sciences students exhibited more severe symptoms of depression, anxiety, and stress compared to non-health science students (Thing et el., 2022).

These findings suggest that undergraduate university students, especially those pursuing healthcare degrees, are particularly susceptible to mental health issues. The clinical training phase exposes students to high workloads and clinical requirements to be fulfilled such as continuous assessment, long teaching hours, and the expectation of professionalism, which have been identified as significant stressors for students in this field (Turnbull et al., 2021). The study highlights the distinct challenges that clinical students face, which contribute to the overall burden of mental health issues.

Mental health issues can adversely affect various aspects of a student's life, including academic performance (Zada et al., 2021), overall quality of life, physical well-being, and relationships with friends and family members (Consequences of Student Mental Health Issues – Suicide Prevention Resource Center, 2015). Such concerns may have lasting impacts on students' futures. Having good mental health is crucial for students, especially those pursuing allied health sciences, as it enables them to effectively handle the intense demands of their clinical coursework.

Therefore, the purpose of this research is to explore the mental health conditions of allied health sciences students from the IIUM Kuantan Campus. This study also aims to compare the differences in DASS-21 scores between gender, year of study, and different departments among KAHS students. Hopefully, this study could raise the awareness and measures to tackle the issues at earliest stage as possible to prevent unpleasant event.

MATERIALS AND METHOD

Study design and population

This was a cross-sectional questionnaire-based study conducted among allied health sciences students at IIUM Kuantan Campus using the DASS-21 questionnaire. The target population are undergraduate students from KAHS for the 2022/2023 academic session from year one to year four of six departments (Department of Audiology and Speech-Language Pathology (DASLP), Department of Biomedical Science (DBMS), Department of Nutrition Sciences (DNS), Department of Diagnostic Imaging and Radiology (DDIR), Department of Optometry and Visual Sciences (DOVS), and Department of Physical and Rehabilitation Sciences (DPRS).

Data collection

The recruitment of participants began in November 2022 and ended in April 2023. Students were given self-administered sociodemographic and DASS-21 questionnaires to fill out with no time limit. Prior to administering the questionnaire, the study protocols and objectives were explained. Completed questionnaires indicate participants' consent to participate. This was completed during the first five weeks of the semester as it was the most convenient time without any exams.

Questionnaire

A two-section questionnaire was used: i) Information on the sociodemographic data (gender, age, year of study, department), and ii) DASS-21 questionnaire. DASS-21 was utilised since the

instrument is a well-established screening tool for depression, anxiety, and stress symptoms. It was widely used due to its reliability, accessibility, and ease of administration (Fauzi et al., 2021). DASS-21 was also reported to have high internal consistency and yield meaningful discriminations; hence this scale is suitable for the purpose of research (Beaufort et al., 2017).

DASS-21 is the short form of the DASS-42 that consists of 21 items, 7 items per subscale: depression, anxiety, and stress. This instrument can measure all the psychometric characteristics required for depression, anxiety, and stress. Depression subscale assesses depressed mood, low self-esteem, and a pessimistic perspective on the future, anxiety subscale includes psychological arousal and the fear response, while stress subscale corresponds to constant stimulation and tension. Each item will be rated by participants on a scale of 0 (did not apply to me at all) to 3 (applied to me very much). Sum scores are calculated by adding the scores from each subscale item and multiplying them by a factor of two. The results are then classified into five levels of severity based on specific score values, as shown in Table 1. Mild to extremely severe outcomes are classified as abnormal, implying depression, anxiety, and stress.

Table 1. Severity scores of depressions, anxiety and stress.

	Depression	Anxiety	Stress
Normal	0 - 9	0 - 7	0 - 14
Mild	10 - 13	8 - 9	15 - 18
Moderate	14 - 20	10 - 14	19 - 25
Severe	21 - 27	15 - 19	26 - 33
Extremely severe	28+	20+	34+

Data analysis

The Statistical Package for the Social Sciences (SPSS) version 20 software was used for the entire statistical analysis of the study. Descriptive statistics on median, interquartile range (IQR), frequency, and percentage were provided to present the demographic characteristics, as well as the depression, anxiety, and stress scores. For differences testing, the nonparametric test was used since the data is not normally distributed. Mann-Whitney U test was used to compare DASS-21 scores with gender, and Kruskal-Wallis H was used to compare DASS-21 scores with the year of study and departments.

RESULTS

Demographic Characteristics of the Participants

A total of 534 out of the 626 invited participants had completed the questionnaire, representing an 85.3% response rate. Participants ranged from the first to the fourth study year, with females accounting for most respondents (83.3%). Table 2 shows more details on the demographic characteristics of the studied participants.

Table 2. Demographic characteristics of the studied participants (n = 534).

Characteristics	Category	Frequency	%
Gender	Male	89	16.7
	Female	445	83.3
Year of Study	Year 1	177	33.1
	Year 2	133	24.9
	Year 3	126	23.6
	Year 4	98	18.4

Department / Course of Study	DASLP	86	16.1
	DBMS	149	27.9
	DDIR	63	11.8
	DNS	105	19.7
	DOVS	79	14.8
	DPRS	52	9.7

Overall severity of depression, anxiety, and stress

Anxiety (65.5%) was the most common type of mental disorder among participants, followed by depression (47%), and stress (33.3%). Frequencies and percentages of the intensity of DASS scores among the participants are shown in Table 3. More than half of the respondents (56.4%) reported moderate to extremely severe anxiety, and the remaining 233 (43.6%) participants were under the 'normal-mild' category. About three-fourths of the respondents (71.9%) were under the 'normal-mild' category of depression. The remaining 150 (28.1%) respondents fell under the 'moderate-extremely severe' category. For stress, majority of the respondents (81.1%) belonged to the 'normal-mild' category while the rest fell under 'moderate-extremely severe' (18.9%) categories.

Table 3. Frequencies and percentages of DASS-21 severity scales.

	Depression 8 (4 - 14)		Anxiety 10 (6 - 16)		Stress 12 (6 - 18)	
Severity	Frequency	%	Frequency	%	Frequency	%
Normal	283	53.0	184	34.5	356	66.7
Mild	101	18.9	49	9.2	77	14.4
Moderate	105	19.7	140	26.2	73	13.7
Severe	24	4.5	84	15.7	20	3.7
Extremely severe	21	3.9	77	14.4	8	1.5

Associations between depression with different demographic characteristics

Mann-Whitney U test showed that the p-values were >0.05 (U = 17499, p = 0.082), indicating no significant difference in depression scores between male and female participants (Table 4). A Kruskal-Wallis H test revealed no statistically significant difference between the year of study, $X^2(3)$ = 2.951, p = 0.399, with a mean rank of 261.19 for Year 1, 254.01 for Year 2, 281.87 for Year 3, and 278.73 for Year 4. When comparing the depression score between departments, the Kruskal-Wallis H test revealed there was a statistically significant difference, $X^2(5)$ = 13.123, p = 0.022, with a mean rank of 238.00 for DASLP, 257.99 for DBMS, 275.27 for DDIR, 252.77 for DNS, 309.58 for DOVS, and 299.95 for DPRS. Further analysis was done to determine the significant pairs between the departments. Dunn-Bonferroni post hoc test revealed that there was statistically significant difference between DOVS and DASLP (p = 0.042).

Table 4. Distribution of median score with IQR for depression score.

Characteristics	Median (IQR)	p-value
Gender		0.082
Male	10.0 (5.0 – 16.0)	
Female	8.0 (4.0 – 14.0)	

Year of Study			
	Year 1	8.0 (4.0 -12.0)	
	Year 2	6.0 (4.0 – 16.0)	0.339
	Year 3	10.0 (4.0 - 14.5)	
	Year 4	10.0 (4.0 – 14.0)	
Department			0.022
	DASLP	7.0 (4.0 – 12.0)	
	DBMS	8.0 (4.0 – 14.0)	
	DDIR	8.0 (4.0 – 16.0)	
	DNS	8.0 (4.0 – 12.0)	
	DOVS	12.0 (6.0 – 16.0)	
	DPRS	10.0 (4.5 – 16.0)	

Associations between anxiety with different demographic characteristics

Table 5 presented the distribution of the median score with IQR for anxiety score. Mann-Whitney U test showed that the p-values were >0.05 (U = 19764, p = 0.977), indicating no significant difference in anxiety scores between male and female participants. There was no statistically significant difference in anxiety score between the year of study when compared using the Kruskal-Wallis H test, $X^2(3) = 1.743$, p = 0.627, with a mean rank of 274.10 for Year 1, 259.62 for Year 2, 276.31 for Year 3, and 254.94 for Year 4. On the other hand, the Kruskal-Wallis H test revealed there was a statistically significant difference in anxiety scores between departments, $X^2(5) = 18.452$, p = 0.002, with a mean rank of 216.55 for DASLP, 287.61 for DBMS, 300.89 for DDIR, 252.57 for DNS, 290.38 for DOVS, and 249.08 for DPRS. Further analysis was done to determine the significant pairs between the departments. Dunn-Bonferroni post hoc test revealed that there was statistically significant difference between DASLP and DDIR (p = 0.014).

Table 5. Distribution of median score with IQR for anxiety score.

Characteristics		Median (IQR)	p-value
Gender			0.997
	Male	10.0 (6.0 – 16.0)	
	Female	10.0 (5.0 – 16.0)	
Year of Study			0.627
	Year 1	10.0 (6.0 – 16.0)	
	Year 2	10.0 (4.0 -16.0)	
	Year 3	10.0 (5.5 – 16.0)	
	Year 4	10.0 (4.0 – 16.0)	
Department			0.002
	DASLP	8.0 (4.0 – 14.0)	
	DBMS	12.0 (6.0 – 18.0)	
	DDIR	10.0 (6.0 – 18.0)	
	DNS	10.0 (4.0 – 16.0)	
	DOVS	10.0 (8.0 – 18.0)	
	DPRS	10.0 (4.0 – 16.0)	

Associations between stress with different demographic characteristics

Mann-Whitney U test showed that the p-values were >0.05 (U = 19351, p = 0.733), indicating that there was no significant difference in stress scores between male and female participants. When comparing the stress score between the year of study, the Kruskal-Wallis H test showed no significant difference, $X^2(3) = 2.094$, p = 0.553, with a mean rank of 266.35 for Year 1, 259.11 for Year 2, 283.96 for

Year 3, and 259.81 for Year 4. The same test also revealed that there was no significant difference in stress scores between departments ($X^2(5) = 9.568$, $p = 0.088$), as shown in Table 6.

Table 6. Distribution of median score with IQR for stress score.

Characteristics	Median (IQR)	p-value
Gender		0.733
Male	12.0 (6.0 – 17.0)	
Female	12.0 (6.0 – 18.0)	
Year of Study		0.553
Year 1	12.0 (6.0 – 17.0)	
Year 2	10.0 (6.0 – 16.0)	
Year 3	12.0 (6.0 – 18.0)	
Year 4	12.0 (6.0 – 16.0)	
Department		0.088
DASLP	10.0 (6.0 – 14.0)	
DBMS	12.0 (8.0 – 18.0)	
DDIR	12.0 (6.0 – 18.0)	
DNS	12.0 (6.0 – 17.0)	
DOVS	14.0 (10.0 – 18.0)	
DPRS	12.0 (6.0 – 18.0)	

DISCUSSION

Undergraduate education is a critical and complex developmental stage in which many undergraduate students struggle with mental health issues that affect both their health and academic performance (Wyatt & Oswalt, 2013; Fauzi et al., 2021; Liew et al.,2021). This study focused on the prevalence of depression, anxiety, and stress, as well as the severity of the symptoms among undergraduate allied health sciences students in KAHS, IIUM. Among the three subscales, stress was the least severe, and depression exhibited a similar pattern to the stress category. However, the anxiety subscale raised more concern, as more than half of the respondents (56.4%) were classified as 'psychologically distressed'. In detail, this study found the prevalence of depression, anxiety and stress among allied health sciences students using DASS-21 as 47%, 65.5%, and 33.3%, respectively, which is consistent with previous studies (Nahas et al., 2019; Meim et al., 2021; Thing et al., 2022). As definition, anxiety is defined as an unpleasant feeling of fear or discomfort particularly due to something unknown or triggered by strange event or uncertainty (Allen et al., 1995; Lopes et al., 2020). In general, the possibility of having anxiety among young adults do exist especially during the transition into higher education with different environments of teaching and learning as well as social routine in campus life. According to the World health Organization (WHO), anxiety is also considered one of the symptoms of depression, and when it reaches an extreme level, it may contribute to feelings of suicidality.

No significant difference in DASS score between male and female students was found (Rahman et al., 2019; Muhammad et al., 2019; Wong et al., 2023), though male students show slightly higher median score of depression (Rahman et al., 2019). However, Hamaideh et al., (2021) reported that Jordanian female university students had higher scores in depression, stress, and anxiety than male students. Previous studies stated that females were more likely to experience mental health problems due to different coping and adaptation strategies that did not help them control their psychological disturbances, attributed to hormonal changes and increased sensitivity to interpersonal relationships (Hamaideh et al., 2021; Rahman et al., 2019). However, individuals' coping responses to the changes in the life cycle stages are reliant on their capacity to adapt, and this may not be solely attributed to gender.

Further analysis has been conducted comparing DASS scores between pre-clinical and clinical year students. Though the is no specific definition on the term used, this study classify as year 1 and year 2 as pre-clinical years and year 3 and year 4 as clinical years. DASS score does not shows any significant effect between year of study in this study. However, anxiety consistently shows higher median value. Depending on factors that affects the scores, Muhammad et al., (2019) mentioned that even though there is no significant effect on level of study, but pre-clinical students are more likely to have some stress on inter- and intrapersonal related which might relate to anxiety. Chan et al., (1994) reported that anxiety might be due to the transition of level of study from theory to practical. Meanwhile, Rahman et al., (2019) reported that the symptoms of depression are more likely in final-year students (clinical year) since they concern about their future career pathway after graduating from university. Plexico et al., (2017) found that anxiety levels decreased as students advanced through the year of study (pre-clinical to clinical year) due to higher confidence in their clinical skills.

Next, the result of this study revealed that there is a significant of depression and anxiety level between the department within KAHS. Optometry students significantly shows higher depression score as compared to Audiology students, and Radiography students significantly shows higher anxiety score as compared to Audiology students. Remarkably, Audiology students consistently exhibit lower DASS scores. Vorster et al. (2022) concluded that almost half of their participants i.e., optometry students were identified with depressive symptoms, and this finding was similar to that study conducted by Turnbull et al. (2021). Based on the evidence currently available, it seems fair to suggest that optometry students reported a high amount of depression. On the other hand, Radiography students shows significant more anxiety feeling as compared to Audiology students. There are several factors that might contribute to an emotional challenge more likely in transition from theory to practical, first clinical placement, clinical placement rotation which identify as stressful situation among diagnostic radiographer students elsewhere (Emma, 2015; Girn, Punch & Jimenez, 2022; Jeyandrabalan et al.,2022). It was predicted that perhaps due to the differences of academic related matters such as clinical hours involving in clinical training and clinical placement or perhaps higher academic workload stipulated in curriculum, mode of assessments and professional examination across the department would contribute to the results. Besides, preparedness of the students facing any academic related challenge also might contribute to better wellbeing.

CONCLUSION

This study revealed that, in general, KAHS students had a moderate level of depression, anxiety and stress (based on DASS-21 questionnaires). A substantial number of students showed abnormal DASS scores, particularly anxiety. This study found a significant level of depression in Optometry students and a significant level of anxiety in Radiography students. Although the current study did not investigate why this pattern occurs, previous studies had indicated that these could be due to the difference in the academic related matters. While the DASS-21 is not intended for diagnostic purposes, the presence of moderate to severe symptoms of depression, anxiety or stress signals the necessity for proactive strategies and support from the department or kulliyyah. This assistance is vital to address these issues effectively, promoting the student's mental well-being and in turn enhancing their academic performance.

ETHICAL APPROVAL

There is no conflict of interest in this study, and we did not receive any specific grant or funding. The study adhered to the tenets of the Helsinki Declaration involving human subjects and received ethical approval from the IIUM Research Ethics Committee (IREC), with ethical approval number IREC 2022 KAHS/DOVS/9.

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