Sociodemographic and Academic Burden Factors Associated with Anxiety and Depression Among Final-Year Health Sciences Undergraduates in Malaysia

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A B S T R A C T

Introduction: Academic burden is a situation where students feel overwhelmed by the requirements of time and energy to attain certain academic goals, which can potentially contribute to mental disorders such as anxiety and depression. This study aims to assess the level of anxiety and depression and its associated factors with anxiety and depression among final-year health sciences undergraduates in Malaysia.

Methods: This cross-sectional study was conducted at a public a university in Malaysia. Mental disorders in this study, which refer to anxiety and depression were measured using the General Anxiety Disorder-7 (GAD-7) and Patient Health Questionnaire-9 (PHQ-9). The Perceptions of Academic Stress (PAS) scale was used to measure academic burden.

Results: Findings revealed that 42.9% of final-year health sciences undergraduates experienced minimal anxiety and 32.8% experienced mild depression. Time constraints and study program were significantly associated with anxiety and depression, while pressures to perform were significantly associated with depression.

Conclusion: The majority of final-year health sciences undergraduates have a minimal and mild level of anxiety and depression and it's associated with time constraints, study program and pressures to perform. Therefore, university authorities need to enhance and improve mental disorders of final-year health sciences undergraduates.

Keywords: Anxiety, Depression, Academic Burden, Sociodemographic Characteristics**,** Final-year health sciences undergraduates

A R T I C L E   I N F O

INTRODUCTION

Anxiety and depression are prevalent mental disorders in the general population.[1] Besides that, mental health disorders including anxiety, and depression were increased among university students.[2] In Malaysia, the prevalence of anxiety was 29%[3] and prevalence of depression was between 29% to 36% among university students.[4-6] Additionally, the level of anxiety and depression among undergraduates in health sciences students has been on the rise due to the intensity of the course[7], fatigue and frequent headaches[8], academic achievements[9] and low-grade[8,10]. Consequently, anxiety and depression have effects on their well-being and academic achievements.

Additionally, growing concern about the frequency of mental health disorders among university health sciences students serves as the rationale for the effects of academic burden. The academic burden is described as how much of work students must do to maintain their academic performance.[11] They are under a great deal of stress due to the high standards for academic achievement and the pressure to succeed, which can cause anxiety, depression, and other psychological illnesses. Students who are under academic pressure may have several negative consequences, where an academic load has a negative, direct effect on students' emotions and psychology, which is reflected in higher depression rates like gloominess, melancholy, and pessimistic views about things are symptoms of the mental illness known as depression. Besides that, students may experience tremendous amounts of stress and a possible deterioration in their physical and mental health due to the increasing pressure they are under, both from inside and from people around them.

Throughout time, Malaysian undergraduate students' academic load has grown, which has had an impact on their mental health. According to the Majlis Keselamatan Negara (MKN) mental health issues, particularly among students are becoming increasingly of concern, in which mental illness is currently Malaysia's second most common health concern. Previous research revealed that the majority of cases of mental health problems were reported by Malaysian students.[12] Students who are under academic pressure may have several negative consequences. Among the various issues observed in students who are under a lot of academic stress are depression, anxiety, behavioral issues, and impatience.[8] The strain of academics might cause students to display physical or mental health. They have an excessively demanding academic; load lack adequate time for relaxation and exercise. Furthermore, high academic pressure, which is characterized by intense workloads and extended learning hours, limits people's time for socializing and playing sports, which results in social skills inadequacies. Moreover, inadequate rest and exercise can result in poor functional capacity, a quick decline in vision, and quick changes in body mass. Indeed, academic pressure might impede a student's general growth. As a result, it can affect the lifelong growth of a person's physical, cognitive, social, and emotional aspects, which is referred to as comprehensive development. Thus, academic pressure impedes people's ability to develop fully. It's critical for educational institutions and parents to acknowledge the negative impacts of academic burden and pressure on students' mental health and academic performance, and to make efforts to create a helpful and less stressful learning environment.

To secure the well-being and overall development of undergraduate students, it is urgently necessary to pinpoint the causes of the academic burden and its effects on mental disorders, as well as the most effective solutions to address this problem. Therefore, this study aimed to assess the level of anxiety and depression and its associated factors among final-year health sciences undergraduates in a public university, Malaysia. The results of this study offer significant perspectives for creating focused treatments aimed at improving undergraduate health sciences students' overall welfare. The goal is to suggest preventive initiatives for mental disorders issues arising from academic burden, contributing to the well-being of university students. The results of this study may improve knowledge among university's administration, lecturers, family and students about how academic burden might contribute to mental disorders issues. This discovery can also give the responsible parties ideas on how to address these obstacles.

METHODOLOGY

Study Design, Study Location and Sampling: This was a cross-sectional study conducted among final-year health sciences undergraduates at the Faculty of Medicine and Health Sciences, Universiti Putra Malaysia. Purposive sampling was used involving five programmes including Bachelor of Science Dietetics, Bachelor of Science Nursing, Bachelor of Biomedical Sciences, Bachelor of Science Nutrition and Community Health, and Bachelor of Science Environmental and Occupational Health. Doctor of medicine and those diagnosed with mental health problems were excluded from this study. Previous study reported that health sciences students more severe symptoms of stress, anxiety and depression compare to non-health sciences students.[13] Moreover, final-year students demonstrated lower well-being compared to other students in other years.[14]

Ethic approval: This study was approved by the Universiti Putra Malaysia (UPM) Ethics Committee for Research Involving Human Subjects (Reference No: JKEUPM-2023-406).

Sample Size: The sample size was calculated using the one proportional formula:
$$n = Z^2(P)(1-P)/d^2$$
Where, n is Sample size, Z is Standard error associated with confidence intervals, P is Prevalence of men-

tal health, and *d* is Desired precision. The calculated sample size was 202.

The assumption P was adapted from[15] where depression prevalence among university students is 13.9%.

Questionnaire: The questionnaire was modified from a previous study and divided into three parts, namely Parts A, B, and C. Part A was the socio-demographic background including gender, race, study program, and history of mental illness. The questions in section B pertain to the causes of academic burden among undergraduate students. It consisted of 18 questions, where respondents were required to select their responses using a five-point Likert scale ranging from 1 (Strongly Disagree), 2 (Disagree), 3 (Neutral), 4 (Agree) and 5 (Strongly Agree). This comes from the "Perceptions of Academic Stress (PAS) Scale," which was utilized in a prior study to identify the elements that undergraduate students experience when it comes to academic burden.[16] Students' impressions of their own academic stress are measured using this 18-item scale, which also looks at the main source of the stress. The following three factors were identified as the origins of academic stress: self-perceptions perceptions of workload and examinations, pressures to perform and time constraints. "The unrealistic expectations of my parents stress me out" is an example item for this source's Pressures to Perform category. "I believe that the amount of work assignment is too much," is an example item from Perceptions of Workload and Examinations. "I am confident that I will be a successful student" is one of the items from the Self-Perceptions source. Finally, the phrase "The time allocated to classes and academic work is enough" is an example item taken from the Time Constraints' source. The respondents reported three different levels of academic burden: low, moderate, and high. Scores from 1 to 2.33 were regarded as low, 2.34 to 3.67 as moderate, and 3.68 to 5.00 as high.

Part C includes the General Anxiety Disorder-7 (GAD-7) (Anxiety Test Questionnaire) and Patient Health Questionnaire-9 (PHQ-9) (Depression Test Questionnaire) that were used to evaluate the respondent's mental disorders.[17,18] The level of anxiety was measured using the GAD-7 questionnaire, which demonstrated good internal consistency with a Cronbach's alpha of 0.74. Participants were asked how frequently they had experienced issues like "feeling worried, anxious, or on edge" and "not being able to stop or control worrying" during the previous two weeks when completing the GAD-7 anxiety questionnaire. Each item was rated on a four-point scale, where 0 (Not at all), 1 (A few days), 2 (More than half the days), and 3 (Almost every day). The scoring procedure involves computing the combined score from all scales (0, 1, 2, and 3), which will fall between 0 and 21. The entire score can be interpreted as follows: Severe anxiety (15-21), Moderate (10-14), Mild (5-9) and Minimal (0-4). Meanwhile, the PHQ-9 Malay Version employed in this study has strong inter-

nal reliability, with a Cronbach's alpha of 0.70 and an 87% sensitivity. The PHQ-9 Depression Questionnaire asked individuals to rate their level of depression based on how frequently over the past two weeks, they experienced symptoms such as "feeling sad, dejected, or hopeless," "low interest or pleasure in doing 28 activities," and seven other items. The participants responded to all nine questions using the same format as the GAD-7, choosing from a range of alternatives on a scale from 0 to 3, with 0 denoting "not at all" and 1, "a few days," 2, and 3 denoting "more than half the days" and "almost every day," respectively. The score was obtained by adding together the totals of the numbers in the circles (0, 1, 2, and 3), which range from 1 to 27. The interpretation of the score was then categorized into five categories: Severe depression (20-27), Moderate severe (15-19), Moderate (10-14), Mild (5-9) and Minimal (1-4).

Before the research was conducted, a pilot test was carried out to ascertain the reliability of the questionnaire. Internal consistency was measured using Cronbach's Alpha from SPSS to assess reliability. The test result indicated that the alpha index is 0.813. The acceptable values of alpha range from 0.70 to 0.90.[19]

Statistical analysis: Data was analyzed using Statistical Package for the Social Sciences (SPSS) Version 29.0. Descriptive and inferential statistics were employed to ascertain the respondents' mental disorders status, academic burden, and sociodemographic characteristics with mental disorders were examined using the Pearson-chi-square. For frequencies of less than 20% in the 2× 2 cell, Fisher's exact test was used. The significance level is accepted if $p < 0.05$.

RESULTS

Sociodemographic characteristics of respondents: Out of 244 final-year health sciences undergraduates, 175 final-year health sciences undergraduates participated.

Table 1: Socio-Demographic Characteristics of Respondents (N=175)

Variables	Respondent (%)
Gender	
Male	40 (22.9)
Female	135 (77.1)
Race	
Malay	132 (75.4)
Chinese	38 (21.7)
Others	5 (2.9)
Study Program	
Bachelor of Biomedical Sciences	38 (21.7)
Bachelor of Science Dietetics	9 (5.1)
Bachelor of Science Nutrition	50 (28.6)
Bachelor of Nursing	25 (14.3)
Bachelor of Science Environmental and Occupational Health	53 (30.3)
Clinically diagnosed with mental illness	7 (4.0)

Table 2: Level of anxiety among respondents

Variables	Respondent (%)
Anxiety	
Minimal anxiety	72 (42.9)
Mild anxiety	59 (35.1)
Moderate anxiety	25 (15)
Severe anxiety	12 (7.2)
Score (Mean ± SD)	6.11±4.857
Depression	
Minimal depression	41 (24.5)
Mild depression	55 (32.8)
Moderate depression	49 (29.2)
Moderately severe depression	15 (9)
Severe depression	8 (4.8)
Score (Mean ± SD)	8.98±5.608

Table 3: The association between socio-demographic characteristics with anxiety

Socio-demographic characteristics	Anxiety		p-value
	Yes (%)	No (%)	
Gender			
Male	8(22.2)	28(77.8)	0.309[a]
Female	42(31.8)	90(68.2)	
Race			
Malay	41(32.8)	84(67.2)	0.192[b]
Chinese	7(18.4)	31(81.6)	
Others	2(40.0)	3(60.0)	
Study Program			
Bachelor of Biomedical Sci.	17(44.7)	21(55.3)	0.014[b]*
Bachelor of Science Dietetics	2(25.0)	6(75.0)	
Bachelor of Science Nutrition	17(34.0)	33(66.0)	
Bachelor of Science Environmental & Occupational Health	13(27.1)	35(72.9)	
Bachelor of Nursing	1(4.2)	23(95.8)	

[a] = Pearson Chi-Square, *p-value is significant at p < 0.05
[b] = Fisher's Exact Test, *p-value is significant at p < 0.05

Table 4: The association between socio-demographic characteristics with depression

Socio-demographic characteristics	Depression		p-value
	Yes(%)	No(%)	
Gender			
Male	15(41.7)	21(58.3)	0.9999[a]
Female	57(43.2)	75(56.8)	
Race			
Malay	54(43.2)	71(56.8)	0.999[b]
Chinese	16(42.1)	22(57.9)	
Others	2(42.9)	3(60.0)	
Study Program			
Bachelor of Biomedical Sc	22(57.9)	16(42.1)	0.001[b]*
Bachelor of Science Dietetics	4(50.0)	4(50.0)	
Bachelor of Science Nutrition	28(56.0)	22(44.0)	
Bachelor of Science Environmental & Occupational Health	14(29.2)	34(70.8)	
Bachelor of Nursing	4(16.7)	20(83.3)	

[a] = Pearson Chi-Square, *p-value is significant at p < 0.05
[b] = Fisher's Exact Test, *p-value is significant at p < 0.05

Out of the 175 respondents 135 (77.1%) were female and 40 (22.9%) male. Most students (75.4%) were Malay, followed by Chinese (21.7%), and others (2.9%) respectively. Regarding the clinically diagnosed with mental illnesses, (96.0%) reported no clinical diagnosis with mental illnesses and (4.0%) had been clinically diagnosed with mental illnesses

(Table 1).

Level of anxiety and depression among respondents: A total of 42.9% of respondents had minimal anxiety, followed by 35.1% mild anxiety, 15.0% moderate and 7.2% of respondents had severe respectively. Meanwhile, a total of 32.8% of the respondents had mild depression, 29.2% moderate depression, 24.5% minimal depression, 9.0% and 4.8% of respondents had moderately severe and severe depression respectively (Table 2).

Association between socio-demographic characteristics with anxiety: Regarding the association between socio-demographic characteristics with anxiety. There was a significant association between study program and anxiety (p = 0.014), while other socio-demographic characteristics showed no significant association (Table 3). Among the socio-demographic characteristics, only study program showed a significant association with depression (p = 0.001) (Table 4)

The association between academic burden with anxiety: There was a significant association between time constraints with anxiety (p = 0.03), while pressures to perform, self-perception and perceptions of workload and examinations had no significant association with anxiety (Table 5).

The association between academic burden with depression: Pressures to perform was significantly associated with depression (p = 0.05), while time constraints was significantly associated with depression (p = 0.04). Self-perception and perceptions of workload and examinations showed no significant association with depression (Table 6).

DISCUSSION

This study aims to identify the level of anxiety and depression and its associated factors with anxiety and depression among final-year health sciences undergraduates in a public university, Malaysia. These results showed that 42.9% and 32.8% of final-year health sciences undergraduates had minimal anxiety and mild depression. Among 175 final-year health sciences undergraduates, 7.2% expressed severe anxiety, 15% reported moderate anxiety, and 35.1% reported mild anxiety. Meanwhile, there were 4.8% of the respondents with severe depression, 9% with moderately severe depression, 24.5% with minimal depression, and 29.2% with moderate depression. Overall, the majority of final-year health sciences undergraduates experienced psychological distress of anxiety and depression. This finding implies that final-year health sciences undergraduates struggle with anxiety and depression. These results are in line with those of prior research that found that 53.9% and 66.2%, of university students in Selangor, Malaysia, had moderate to severe depression and anxiety respectively.[20] It seems that a small percentage of students struggle with mental health issues, which the institution must take this issue seriously.

Table 5: The association between factors of academic burden with anxiety

Factors	Anxiety		P value
	Yes (%)	No (%)	
Pressures to perform			
Low	3 (16.7)	15 (83.3)	0.26[a]
Moderate	41 (30.1)	95 (69.9)	
High	6 (42.9)	8 (57.1)	
Self-perceptions			
Low	0 (0.0)	1 (100.0)	0.26[b]
Moderate	14 (23.0)	47 (77.0)	
High	36 (34.0)	70 (66.0)	
Perceptions of workload and examinations			
Low	3 (14.3)	18 (85.7)	0.08[a]
Moderate	33 (28.9)	81 (71.1)	
High	14 (42.4)	19 (57.6)	
Time constraints			
Low	8 (57.1)	6 (42.9)	0.03[a]*
Moderate	30 (31.3)	66 (68.8)	
High	12 (20.7)	46 (79.3)	

[a] = Pearson Chi-Square, *p-value is significant at $p < 0.05$
[b] = Fisher's Exact Test, *p-value is significant at $p < 0.05$

Table 6: The association between factors of academic burden with depression

Factors	Depression		P value
	Yes (%)	No (%)	
Pressures to perform			
Low	3 (16.7)	15 (83.3)	
Moderate	62 (45.6)	74 (54.4)	0.05[a]*
High	7 (50.0)	7 (50.0)	
Self-perceptions			
Low	1 (100.0)	0 (0.0)	
Moderate	24 (39.3)	37 (60.7)	0.49[b]
High	47 (44.3)	59 (55.7)	
Perceptions of workload and examinations			
Low	5 (23.8))	16 (76.2)	
Moderate	51 (44.7)	63 (55.3)	0.17[a]
High	16 (48.5)	17 (51.5)	
Time constraints			
Low	9 (64.3)	5 (35.7)	
Moderate	45 (46.9)	51 (53.1)	0.04[a]*
High	18 (31.0)	40 (69.0)	

[a] = Pearson Chi-Square, *p-value is significant at $p < 0.05$
[b] = Fisher's Exact Test, *p-value is significant at $p < 0.05$

In the present study, study program was significantly associated with anxiety and depression. The probable reason for this finding due to the number of academic years increased, making study program and workload harder, which in turn increased anxiety and depression among health sciences students. According to Limone and Toto[21], the subject of the degree is one of the most prominent criteria. For instance, nursing, medical, and health-related students had higher rates of anxiety and depression than their peers who were not in the health sciences field. Meanwhile, undergraduate students in the medical or health sciences are affected by anxiety, depression and feeling suicidal.[22,23] However, gender and race were not significantly associated with anxiety and depression. Therefore, gender and race might not be associated with anxiety and depression among final-year health sciences undergraduates. This finding was inconsistent with those of a prior study, where gender was shown to be substantially correlated with mental health. In contrast to their male peers, female students showed a positive association with mental health.[24] Moreover, Lipson et al.[25] showed that throughout their investigation, mental health declined across all racial/ethnic groups. Notably, students from racial or ethnic minority groups showed the greatest increases in prevalence rates for symptoms of depression, anxiety, suicidal thoughts, and having one or more mental health issues.

The present study also found that anxiety was significantly associated with time constraints. Previous studies consistently reported that the issue raised by students was the lack of time allocated to focusing on mental health.[26] The possible reason for this could be that they did not have enough time for their mental health, given how many hours they worked and participated in extracurricular activities. It is possible that students need to adjust need to work while studying because of their socioeconomic status, so here it might be that they are facing mental illness, where combining these two activities requires a lot of organization, schedule changes, and spending time.[1] Therefore, students should have self-management, which includes making time management decisions, setting aside personal time, and getting enough sleep. It is important for students to have a good time management strategy to plan time for assignments or other activities without affecting their work-life balance.

The findings of the present study were indicative of a significant association between pressures to perform and time constraints with depression. Previous studies found that university students experienced depression and anxiety due to a shortage of time during the semester, workload and parental pressure for good performance in exams and social expectations such as achievements and career advancement have increased their anxiety and depression.[27,28] In fact, students' expectations for academic success could cause stress.[29] According to Sangma et al.[30], parents' expectations are the main source of these pressures, but instructors' expectations can also have an impact on students. Moreover, students have demands on themselves and demands from parents could impact their mental disorders. This finding suggests social support, which includes help from friends, family and lecturers as a vital strategy for overcoming mental disorders. Furthermore, preventive action strategies should be considered by the university to reduce mental health problems of university students by creating a conducive learning environment, promoting activities and training programs. For instance, flexible class schedules, reducing workload of students, regular seminars and training sessions on stress management, anxiety and depression, and organizing student clubs.[31]

CONCLUSION

In conclusion, the majority of final-year health sciences undergraduates are experiencing minimal anxiety and mild depression. Study program was significantly associated with anxiety and depression, while time constraints was significantly associated with anxiety and depression and pressures to perform were significantly associated with depression. The mental disorders issues among final-year health sciences undergraduates need to be addressed to prevent them from having more severe anxiety and depression. In order to overcome the academic burden and mental disorders, university authorities should prioritize mental health support, accessibility services and promote programs such as creation of a conducive learning environment (flexible class schedule and reduce workload), providing counseling services, peer support programs, seminars and training sessions. In addition, social support (i.e., friends, family and lecturers) helps health sciences undergraduates deal with academic burden and mental disorders. Among the limitations of this study is the small number of respondents to participated. Another limitation is that the present study was conducted in only one public university, which does not represent the Malaysian health sciences undergraduates at large.

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