Original Article

Prevalence of Depression Among Health Sciences Students: Findings From a Public University in Malaysia

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ABSTRACT

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Background: High rates of psychological problems including depression among university students have been reported in various studies around the world. The objectives of this study were to explore the prevalence of depressive disorder, as well as the associated sociodemographic factors (gender, origin, school, and year of study) among health sciences students. Materials and Methods: This cross-sectional study was conducted among 425 students from 5 different schools of health sciences at International Islamic University Malaysia, using the Patient Health Questionaire-9 (PHQ-9). Results: With a response rate of 85.9% (n = 365), the results showed a depressive disorder prevalence of 36.4%. The mean PHQ-9 score of the respondents was 8.10 (SD = 4.9), indicating mild depression severity. A statistically significant association was revealed between gender and severity of depression (P = 0.03), as well as between students’ origin and severity of depression (P = 0.02). Conclusion: The findings indicated high prevalence of depression among undergraduate health sciences students. While providing significant information to students’ affairs department, the study findings suggest the necessity to address depressive disorder in health sciences university students in Malaysia. Future research is needed to confirm these results in larger samples.

Keywords: Cross-sectional study, depression prevalence, health sciences, university students

INTRODUCTION

Depression is a mental disorder characterized by a low mood state, with significant impaired mental and physical features,[1] causing substantial burden to the society through limiting productivity and everyday activity.[2] Ranked as the 11th greatest source of morbidity in the world,[3] depression impact is unquestionably apparent. In 2015, the World Health Organization estimated a 4.4% global prevalence of depression, which translates into more than 300 million people being affected worldwide,[4] and university students are no exception.

Exploring depressive disorders among university students had riveted the attention of several scholars for few decades.[5-8] Unfortunately, high rates of depressive disorders had been reported, with an increasing prevalence.[9] It has been reported that the most challenging time that individuals face in life is college life time,[10] as it is considered a critical transitional period; i.e., from adolescence to adulthood, where a lot of pivotal life decisions usually taken during this era.[9]

In addition to depressive disorders, university students, compared to their nonstudying peers, often have higher rates of anxiety and stress disorders, as well as poorer health status.[5-7] All these factors would in turn negatively affect students’ academic performance and impose additional burden to the students’ general health.[11]

On the other hand, a number of studies had reported apparently high rates of depressive disorders among...
health sciences students,

The first onset of most of the lifetime mental disorders occurs during university age, thus supporting the importance of conducting this study. In fact, the prevalence of depression has been reported to be higher in rural and urban areas compared to metropolitan areas. Many previous studies in Malaysia among university students were conducted in metropolitan cities, of which findings were not able to be generalized to the urban area. Therefore, this study investigated the prevalence of depression among health sciences students in an urban area in Malaysia.

This study was conducted with two objectives: (1) to explore the prevalence of depression symptoms among health sciences students of a Malaysian university in an urban area and (2) to examine the sociodemographic factors associated with these symptoms.

**Materials and Methods**

**Design and participants**

This was a cross-sectional questionnaire-based study that was conducted at International Islamic University Malaysia (IIUM), Kuantan health campus between October and December 2015. Our target population was all students from five different schools; i.e., School of Medicine (SOM), School of Pharmacy (SOP), School of Dentistry, School of Nursing, and School of Allied Health Sciences. On the basis of the total number of students at these schools, the estimated minimum required sample size was 347 students. However, 425 participants were recruited to allow for the dropout during data collection. The study protocol was approved by the Department of Pharmacy Practice, SOP, IIUM. In addition, all enrolled participants were provided a written informed consent form after the study had been fully explained to them.

**Study instrument**

In this study, the Patient Health Questionnaire-9 (PHQ-9) was adopted to evaluate the presence of depression among our subjects. The PHQ-9 is an easy tool to administer self-report instrument used to determine the presence of depression based on the *Diagnostic and Statistical Manual of Mental Disorder*, Fourth edition, criteria. The tool consists of nine items, each is based on a four-point scale, ranging from zero to three (i.e., zero: absence of the symptom, one: presence of the symptom over several days, two: presence of the symptom over more than half of the days, and three: presence of the symptom nearly every day).

The overall score results range from 0 to 27, in which score of 0–4 represents absence of depression, whereas scores of 5–9, 10–14, 15–19, and 20–27 indicate mild, moderate, moderately severe, and severe depression, respectively. Using a cutoff point of ≥10, the PHQ-9 demonstrated a sensitivity of 88% and a specificity of 88% for the detection of major depression. In this study, we utilized the translated and validated Malay version of PHQ-9. The Malay PHQ-9 was reported to have good sensitivity and specificity for the purpose of research or clinical studies. In addition, the following sociodemographic characteristics were collected: gender, origin, year of study, and type of school.

**Statistics**

All analyses were performed using the Statistical Package for Social Sciences version 22.0. To address our research objectives, we ran descriptive and inferential analyses. Frequencies and percentages were provided for description of the study data. Independent sample *t* test and one-way analysis of variance (ANOVA) test were run for differences testing, whereas Fisher exact test was run for relationship analysis. When *P* value is <0.05, a statistical analysis was considered significant.

**Results**

Of the 425 students who received the questionnaire, 365 (85.9%) responded. Most of the respondents were females (57.3%) and were from urban areas (75.1%). Students’ proportions from different study years were almost equal. The distribution of the respondents was almost the same over the selected schools, except for SOM (16.2%), which was the least. More details on students’ sociodemographics are shown in Table 1.

In Table 2, frequencies and percentages of the intensity of depression among the study participants are shown. Only 133 participants reported moderate, moderately severe, or severe depression symptoms, which accounted for a prevalence of depression of 36.4%.

The mean PHQ-9 score of the study sample was (8.10 ± 4.9). As shown in Table 3, there were no significant differences among different sociodemographic characteristics (genders, origins, year of study, and schools). Nevertheless, males had higher mean PHQ-9 score, as well as students of rural origin (independent sample *t* tests). One-way ANOVA tests showed that
Table 1: Sociodemographic characteristics of the study sample (N = 365)

| Characteristic | Category | Frequency | % |
|---------------|----------|-----------|---|
| Gender        | Male     | 156       | 42.7 |
|               | Female   | 209       | 57.3 |
| Marital status| Single   | 357       | 97.8 |
|               | Married  | 8         | 2.2  |
| Origin        | Urban    | 274       | 75.1 |
|               | Rural    | 91        | 24.9 |
| Year of study | First    | 88        | 24.1 |
|               | Second   | 94        | 25.8 |
|               | Third    | 98        | 26.8 |
|               | Fourth   | 85        | 23.3 |
| School        | SOM      | 59        | 16.2 |
|               | SOP      | 78        | 21.4 |
|               | SOD      | 77        | 21.1 |
|               | SON      | 77        | 21.1 |
|               | SOAHS    | 74        | 20.3 |

SOM = School of Medicine, SOP = School of Pharmacy, SOD = School of Dentistry, SON = School of Nursing, SOAHS = School of Allied Health Sciences

Table 2: Frequencies and percentages of the intensity of depression among the study participants (N = 365)

| Severity of depression | Frequency | % |
|------------------------|-----------|---|
| None/minimal           | 91        | 24.9 |
| Mild                   | 141       | 38.6 |
| Moderate               | 95        | 26.0 |
| Moderately severe      | 30        | 8.2  |
| Severe                 | 8         | 2.2  |
| Total                  | 365       | 100  |

*Accounts for the prevalence of depression

second year students and SOM students had the highest mean PHQ-9 scores.

Table 4 provides results of relationship tests using Fisher exact test. There was significant association between gender and severity of depression ($\chi^2 = 10.62, P = 0.03$). Similarly, a significant association between students’ origin and severity of depression was revealed ($\chi^2 = 11.07, P = 0.02$). Both the year of study and type of school had no statistically significant association with the severity of depression ($P > 0.05$).

Discussion

This study focused on the prevalence of depression and the severity of its symptoms of undergraduate health sciences students. The mean PHQ-9 score was in the mild severity range (8.10 ± 4.9). We also found that the respondents predominately reported mild depression (38.6%), followed by moderate depression (26.0%). Our findings concurred with those reported in previous studies, which found that depression mean score was of mild severity in their samples of university students.

On the other hand, we reported a considerably high prevalence of depression (36.4%) that was higher than a study in Malaysia conducted by Islam et al., in which 30% of their sample ($N = 1017$) from metropolitan university had depression. It is worth mentioning that PHQ-9 is not a diagnostic tool; however, it is important to note that depression of moderate severity or more needs attention from concerned health authorities.

Two preceding studies reported much higher depression prevalence rates as they were run among medical students, who are known to have more complex and heavy-loaded curriculum. Our study included students from medical and other health sciences; this might in part explain the lower prevalence of depression in our sample, yet the highest mean PHQ-9 score was reported by medical students (8.97 ± 5.6), although it was not significant.

We revealed that males had higher mean PHQ-9 score compared to females, although it was not significant. The same findings were obtained from various studies using other survey tools among university students, in which no significant difference in depression mean scores according to gender was revealed.

In contrast,
Bayram and Bilgel\[8\] reported several studies that found higher depression rates among females compared to males. In our study, females had higher rates of severe level of depression. Previous studies reported an increased prevalence of depression among females owing to, for instance, the more sensitivity to interpersonal relationships, as well as hormonal changes.\[31\]

No significant difference in mean PHQ-9 score according to the year of study was reported. However, second year students had the highest mean score. Similar results were obtained in other few studies,\[32-34\] where fresh entrant students reported a higher score of depression compared to seniors. In the contrary, Bostanci et al. found that depression severity correlated with the year of study.\[30\]

We found that most of our sample with a severe level of depression was from year four. It might be that as medical students approach the graduation, more concerns arise regarding their future career,\[35\] especially if one accounts for the high rate of youth unemployment (10.8\%) compared to headline unemployment (3.4\%) as reported by Malaysian authorities in 2017.\[36\]

In our study, we found a significant relationship between students’ origin and severity of symptoms. Most of students from urban areas were more likely to report depressive symptoms of various severities. These results are corroborated in two previous studies.\[37,38\] Urbanization is known to affect individuals’ lifestyle with its reduced sunlight exposure and time spent with family, in addition to lesser exercising resulting in higher rates of obesity. All these aspects might increase the risk for stress and depression.\[39\] In contrast, Probst et al. documented a higher prevalence of depression in residents of rural areas compared to urban areas in the United States, possibly due to different population characteristics.\[21\]

Although our study showed no significant difference in the mean PHQ-9 score among different schools, medical students reported the highest mean PHQ-9 score. It is known that medical schools are stressful environments for their students.\[40,41\] Indeed, the prolonged study hours, emotional challenges of becoming health carers, as well as the high workload impose a substantial burden on those group of students.\[40,41\] This in turn would increase their risk to confront depression at certain point in their academic life.

Unlike previous studies in Malaysia, this study was focusing on students of health sciences in urban area. However, findings from our study should be comprehended while considering its limitations. First, as the study sample represented only IIUM students, this findings from our study cannot be generalized to other universities in Malaysia. Second, because depression is perceived as being a stigma,\[42\] it could be underreported by respondents.
CONCLUSIONS
More than one-third of IIUM health sciences students accounted for the prevalence of depression in our study. This provides credence that university students of health sciences are at increased risk for depression. Therefore, there is a need to develop efficient screening, counselling, and prevention programs, in addition to treatment services to control this disorder among these future health care providers.

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Conflicts of interest
There are no conflicts of interest.

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