Prevalence and Characterization of Symptoms of Depression Among College Students Attending Sultan Qaboos University, Muscat, Oman

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Abstract

Objectives: This study aimed to investigate the prevalence and characteristics of depression among college students enrolled at a prominent public university in Muscat, Oman, with the intention of aiding in the management of this condition through the identification of root causes and influencing factors.

Methods: This cross-sectional study was carried over a three-month period at Sultan Qaboos University (SQU) in Muscat, Oman. 1,036 students attending various SQU colleges were surveyed from September 1, 2023 to November 20, 2023. Data were collected using a self-report questionnaire, with frequency of depressive symptoms assessed using the Patient Health Questionnaire-9 screening tool.

Results: 349 were found to have depression, revealing a prevalence rate of 33.7%. The majority of depressed students were female (74.8%) and lived on campus (60.2%). Depressed students were most frequently enrolled in the College of Science (24.4%), followed by the College of Medicine and Health Sciences (15.8%) and the College of Education (15.2%). Concerning academic performance, only 8.3% of depressed students had a grade point average of <two. Gender and residency status were the only variables found to be significantly associated with depression (P <0.001 and 0.028, respectively).

Conclusions: Depression was prevalent among college students at SQU, with over one-third of surveyed students being affected. The frequency of depression was higher for female students and those residing on campus. Investigation is recommended, in addition to collaborative efforts with other institutions to comprehensively assess the nationwide prevalence of this issue. Furthermore, initiatives aimed at offering effective treatment options should be prioritized.

Keywords: Depression; Students; University; Young Adults; Surveys and Questionnaires; Prevalence; Oman.

Introduction

Depressive disorder is a prevalent mental health issue characterized by persistent feelings of sadness or a lack of joy and interest in activities.[1] It is widely recognized as a major contributor to disability globally, adversely affecting the affected individual's emotions, cognition, and actions, as well as their personal and familial relationships. It is worth noting that over half of all suicide incidents are directly linked to depression.[2] In 2015, approximately 4.4% of the global population, totaling over 320 million individuals, experienced depression.[3] However, the prevalence of depression increased by 27.6% as of 2020 due to the widespread impact of the coronavirus disease 2019 (COVID-19) worldwide pandemic, making it the second most severe community health condition worldwide.[4]

Depression can be influenced by various demographic factors, such as family structure, loss of close family members, smoking habits, education, and employment status. Females, especially in the post-adolescent stage, are more prone to depression compared to males.[5,6] Indeed, except for Finland and Croatia, the vast majority of European countries report considerably higher incidence rates of depression in women compared to men.[7] Another study found that marital status can impact the likelihood of developing depression in both men and women.[8] In other research, physically active individuals exhibited lower levels of depression compared to those who did not exercise, regardless of marital status.[9]

In particular, depressive symptoms are more prevalent among university students compared to the general population, with up to 33% of college students reporting depression.[10] More recent studies conducted among university students in Spain, Turkey, the United Arab Emirates, and Canada have revealed similar rates (18.4–34.2%).[11-15] Numerous factors have been linked to the development of depression among college students. Academic performance has been linked to depression, with students' emotional difficulties found to adversely impact their grade point average (GPA).[13,16] Another study found that college students with moderate-to-severe fatigue demonstrated significantly more severe depressive symptoms compared to those who were only slightly fatigued or not fatigued at all.[17] Additionally, medical students more frequently exhibit symptoms of depression compared to age-matched individuals in the general population or their peers enrolled in different education programs.[18]

Prior research from Oman revealed that 27.7% of students enrolled at the Sultan Qaboos University (SQU), the largest public university in the country, were affected by depression.[19] The objective of the present research was to present updated data concerning the prevalence and characteristics of symptoms of depression among students at SQU, particularly in the aftermath of the COVID-19 pandemic, which has been associated with increased mental health challenges in Omani children and adolescents.[20] Specifically, this study aimed to ascertain the prevalence of symptoms of depression among SQU students, identify the characteristics of affected students, and investigate any correlations between symptoms of depression and academic achievement. Findings from this research will hopefully aid policymakers in offering timely support and implementing suitable interventions for depressed students, a critical consideration given that many students experiencing depressive symptoms do not actively seek medical or psychological assistance.[21]

Methods

This cross-sectional study was conducted at SQU from September 1, 2023, to November 20, 2023. The target population consisted of all SQU students from different colleges; however, students with chronic health conditions were excluded, as well as students currently prescribed medication for any purpose. The latter two groups of respondents were excluded as such factors can introduce confounding variables, making it challenging to isolate the effects of symptoms of depression or accurately assess its prevalence and characteristics among Omani college students. The required sample size for this study was calculated to be 377 students out of a total population of 15,000 at SQU, based on a 95% confidence level and a 5% margin of error. To account for potential attrition and dropout, an additional 123 participants were included, resulting in a minimum target sample size of 500.

Data were gathered using a self-reported questionnaire. The first part of the questionnaire assessed general demographic information, including age, gender, academic year, college, residential status (i.e., living alone, with family, with friends, etc.) and GPA. The second part consisted of the Patient Health Questionnaire-9 (PHQ-9), a self-administered tool designed to screen for depressive symptoms based on the Primary Care Evaluation of Mental

Disorders diagnostic instrument.[22] The PHQ-9 is utilized in primary care settings to identify symptoms of prevalent mental disorders and is considered dependable and accurate in assessing and tracking symptoms of depression of varying severity.[23] The PHQ-9 has been applied in various settings and populations, including in Oman, and is considered comparable to lengthier assessments administered by healthcare professionals.[19,24,25]

The PHQ-9 tool evaluates nine symptom criteria of depression as indicated in the Diagnostic and Statistical Manual of Mental Disorders, Fifth Edition, including low mood/hopelessness, loss of interest/pleasure, loss of energy, sleeping difficulties, feelings of worthlessness/guilt, changes in appetite, feelings of being restless/slow, difficulties concentrating, and the existence of thoughts about suicide.[23] Each symptom is scored on a 4-point Likert scale in terms of frequency from 0 (not at all) to 3 (almost daily), with total scores ranging from 0 to 27.[23] For the purposes of the present study, a total PHQ-9 score of ≥12 was considered to indicate symptoms of depression. Students with high PHQ-9 scores indicative of depressive symptoms were referred to the SQU Student Clinic for follow-up, further mental health evaluation, and access to appropriate resources.

Data entry and analysis were conducted using the Statistical Package for the Social Sciences (SPSS), Version 23.0 (IBM Corp., Armonk, NY) and Excel (Microsoft Corp., Redmond, WA) programs. The sociodemographic characteristics of the study sample were presented using descriptive statistics. Categorical variables were represented by frequencies and percentages, while continuous variables were represented by means and standard deviations. Either Pearson's Chi-squared (χ^2) test or Fisher's exact test (for cells with <5) was employed to assess the relationships between independent variables and the outcome variable. A significance level of $P \leq 0.050$ was used to determine if associations were statistically significant in two-tailed tests. All respondents provided written informed consent prior to completing the survey.

Results

A total of 1,036 SQU students participated in the survey, comprising 701 (67.7%) female and 335 (32.3%) male students, with a mean age of 20.4 ± 1.7 years (range: 18–25 years). Based on PHQ-9 cut-off scores, a total of 349 students had total PHQ-9 scores of ≥12, yielding an overall prevalence rate of 33.7%. Table 1 presents associations between the frequency of symptoms of depression and various demographic and academic factors.

Table 1: Associations between depression and selected demographic and academic characteristics among students attending Sultan Qaboos University, Muscat, Oman (N = 1,036)

Characteristic	n (%)		P value
	Students with depression (n = 349)	Students without depression (n = 687)	
Gender			<0.001
Male	88 (25.2)	247 (35.9)	
Female	261 (74.8)	440 (64.1)	
Marital status			0.434
Single	340 (97.4)	675 (98.3)	
Married	9 (2.6)	11 (1.6)	
Divorced	0 (0.0)	1 (0.1)	
Widowed	0 (0.0)	0 (0.0)	
Residence			0.028
On campus	210 (60.2)	346 (50.4)	
With family	75 (21.5)	182 (26.5)	
With friends	53 (15.2)	135 (19.7)	
Alone	11 (3.2)	24 (3.5)	
Year of study			0.511
1–2	120 (34.4)	218 (31.7)	
3–4	143 (41.0)	307 (44.7)	
≥5	86 (24.6)	162 (23.6)	
College			0.104

Agriculture and Marine Sciences	28 (8.0)	48 (7.0)	
Arts and Social Sciences	34 (9.7)	65 (9.5)	
Economics and Political Science	21 (6.0)	49 (7.1)	
Education	53 (15.2)	100 (14.6)	
Engineering	37 (10.6)	59 (8.6)	
Law	11 (3.2)	30 (4.4)	
Medicine and Health Sciences	55 (15.8)	162 (23.6)	
Nursing	25 (7.2)	46 (6.7)	
Science	85 (24.4)	128 (18.6)	
GPA			0.462
<2	29 (8.3)	45 (6.6)	
2–3	172 (49.3)	360 (52.4)	
>3	148 (42.4)	282 (41.1)	

Abbreviations: GPA, grade point average.

The majority of students who had symptoms of depression were female rather than male (74.8% vs. 25.2%), with a significant association between symptoms of depression and gender (P <0.001). Although the majority of students with symptoms of depression were single rather than married (97.4% vs. 2.3%), no significant correlation was found between these variables (P = 0.434). Regarding residency status, students with symptoms of depression predominantly lived on campus (60.2%) rather than with their families (21.5%), with friends (15.2%), or alone (3.2%). Indeed, compared to students without symptoms of depression, symptomatic students were significantly more like likely to live on campus (60.2% vs. 50.4%; P = 0.028), suggesting a significant relationship between symptoms of depression and place of residence.

In terms of academic factors, students with symptoms of depression were most commonly enrolled in the College of Science (24.4%), followed by the College of Medicine and Health Sciences (15.8%), and the College of Education (15.2%). However, no significant relationship was found between symptoms of depression and choice of college (P = 0.104). Similarly, although students with symptoms of depression were most often in their third/fourth year of study compared to other academic years, the same was true for students without symptoms of depression (41.0% vs. 44.7%; P = 0.511). Overall, most students with symptoms of depression reported a GPA of 2 to 3 (49.3%), followed by a GPA of above 3 (42.4%), while only 8.3% had a GPA of below 2. Compared to students without symptoms of depression, there was no significant correlation between depression symptoms and GPA (P = 0.462).

Discussion

The main objective of this study was to investigate the prevalence of symptoms of depression among college students at SQU, as well as to examine specific features associated with symptoms of depression. Our research revealed that 33.7% of SQU students experience symptoms of depression, based on their responses to the self-report PHQ-9 screening tool. This rate is considerable compared to findings from a recent systematic review and meta-analysis, which revealed a combined prevalence of 24.4% among 76,608 university students in 20 low- and middle-income countries.[26] Compared to previous research, our findings suggest that the frequency of symptoms of depression among SQU college students has increased by 6% over the last 12-year period (27.7% vs. 33.7%).[19]

Several factors may have contributed to this heightened prevalence, such as increased awareness of mental health issues and reduced stigma, elevated academic pressures, and notably, the repercussions of the COVID-19 pandemic. In particular, the latter pandemic is noted to have caused significant disruptions to the daily lives of college students, with the necessity of remote learning, social distancing mandates, and economic hardships, while reducing opportunities for potential coping mechanisms like physical activity and social interaction, thus potentially intensifying stressors and exacerbating or precipitating symptoms of mental health conditions like depression.[27]

Based on our research, we found that the occurrence of symptoms of depression was significantly higher among female SQU students compared to their male counterparts. Specifically, 74.8% of students with symptoms of depression were female, with gender strongly linked to the occurrence of depression symptoms (P <0.001). This finding aligns with similar studies conducted in Iceland and Portugal, in which the prevalence of depression was found

to be twice as high in women compared to men.[7] However, the low prevalence of depressive symptoms in males may be related to underdetection by the PHQ-9.[28] Research suggests that men are less likely to report symptoms of depression, possibly due to cultural norms associated with masculinity or a reluctance to express emotions within the culture.[28,29] Furthermore, although 97.4% of students with symptoms of depression in our study were unmarried, this factor was not significant considering that only 20 students (1.9%) in the sample were married overall. A previous study suggests that unmarried young adults face greater psychological distress compared to those who are married.[30] Furthermore, our research found that the majority of unmarried students reported feeling isolated and lacking emotional support, which may contribute to higher rates of depression symptoms.

In our study, a close association was observed between symptoms of depression and residency status among SQU college students. Specifically, 60.2% of students with symptoms of depression resided on campus, compared to 50.4% of students who did not exhibit symptoms of depression. In a previous study conducted in India, individuals who resided alone had a 16% higher likelihood of experiencing depression in comparison to their counterparts.[31] Similarly, a study from Indonesia reported a high prevalence of depression (33.3%) among college students who lived alone during the COVID-19 pandemic.[32] The high percentage of students with symptoms of depression residing on campus in the present study indicates that the campus environment may play an important role in their mental well-being, suggesting that various factors such as academic pressure, social isolation, or lack of support systems within the campus community may contribute to their mental health struggles.

Conflicting results have been reported regarding the relationship between academic year of study and the prevalence of depression in college students. For example, a study in South Africa revealed that first-year university students exhibited elevated levels of depressive symptoms.[16] Conversely, other researchers have suggested that increased academic demands during later years of college contribute to higher levels of depression.[33,34] In our study, although students with symptoms of depression were more frequently in their third or fourth year of study compared to other academic years, this association was not significant as 43.4% of all respondents fell into this category irrespective of depression symptom status. Similarly, while students with symptoms of depression were most frequently enrolled in scientific and medical colleges, these colleges were also popular among respondents without symptoms of depression. Nonetheless, previous research has indicated a potential link between enrollment in medical programs and higher rates of depression.[18,21] This could be due to attributed to factors such as the number of credits taken per semester, which could constrain leisure time and contribute to increased workload, academic pressure, and overall stress levels.[35]

In this study, the vast majority of SQU students with symptoms of depression reported GPAs of 2 or higher (91.7%). This finding diverges from previous research indicating a correlation between heightened levels of depression and lower academic grades.[13] Such contrast may suggest the involvement of additional factors in the relationship between depression symptoms and academic performance. Another study observed that students experiencing depressive symptoms at the beginning of the academic year showed a detrimental impact on their GPA in the first semester of college and a subsequent positive correlation with college dropout rates two years later.[36] Nonetheless, it should be acknowledged that only a small percentage of respondents in the present study reported GPAs below 2 (6.4%); given the reliance on self-reported data, it is plausible that some students may not have been entirely truthful regarding their academic performance, especially considering the stigma associated with low grades.

It should be noted that the PHQ-9 is primarily a monitoring tool rather than a diagnostic instrument. It was designed to assess the severity of depression in individuals who have already received a diagnosis. While it may serve as an adjunct to diagnosing depression in a consultation setting with a trained clinician, it is not intended to be used as a self-administered diagnostic tool. Consequently, all results should be interpreted with this context in mind. Moreover, this study did not assess family financial income, which is a significant confounding factor that should be controlled for when evaluating symptoms of depression, as socioeconomic status may influence mental health outcomes.[37]

Conclusion

This study sheds light on the prevalence and characteristics of symptoms of depression among a large sample of college students in Oman. Our findings reveal a substantial rate, with 33.7% of SQU students experiencing depressive symptoms. This represents a notable increase compared to previous research, underscoring the urgency of addressing

mental health challenges among university students. Factors such as increased awareness of mental health issues, heightened academic pressures, and the disruptive effects of the COVID-19 pandemic likely contribute to this concerning trend. Additionally, while our study highlights associations between symptoms of depression and various factors, including gender and residency status, further longitudinal research is essential to fully understand the impact of symptoms of depression over time. These findings emphasize the importance of proactive interventions and support systems to address the mental well-being of college students, ultimately fostering a conducive environment for academic success and overall quality of life.

Recommendations

According to our findings, the prevalence of symptoms of depression among SQU college students is alarmingly high. This is especially concerning in light of the fact that most depressed college students do not actively seek medical help, potentially leading to severe repercussions across various domains of life.[21] Given the increasing global prevalence of depression, particularly in Oman, further investigation into this topic is warranted. As a result, we suggest the collection of additional data on various contributing factors among SQU students. Moreover, collaboration with other universities and colleges nationwide is advised to comprehensively understand the extent of the issue in Oman and to develop optimal treatment strategies. Additionally, more collaboration within SQU is recommended, such as partnering with student unions and university administration to address mental health challenges. Building quality improvement initiatives within existing student-facing health services could enhance the accessibility and effectiveness of mental health resources. Finally, it is imperative for universities to bolster their support services, providing readily accessible mental health resources and counseling to students grappling with depression.

Disclosure

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