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Prevalence of Mental Health Disorders among College Students in Saudi Arabia in 2019-2020

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Abstract

Objectives: To determine the prevalence of mental health disorders among college students in Saudi Arabia, to compare between medical students and non-medical students, to identify the factors that affect mental health and to assess the impact of students' academic performance in this population. To determine the prevalence of obsessive compulsive disorder among medical and non-medical students

Methods: A cross-sectional study that is carried out among college students of both medical and non-medical specialties in different Saudi colleges. Data was collected via filling an online questionnaire for the socio- demographic characteristics, several aspects of academic life, Depression Anxiety Stress Scale (DASS 21) and Arabic Scale of Obsession-Compulsion (ASOC) that was posted on social media and sent by E-mails

Results: The data revealed high levels of mental disorders among college student. Risk factors included: gender and GPA, females and lower GPA appeared to carry a greater risk of developing such illnesses. Specialty, academic year, age and marital status didn't have a significant impact. The data did not show linear regression between the ASOC score and health specialty.

Conclusion: We concluded that college students of all different specialties and demographics suffer from mental health disorders and have to deal with high levels of stress, anxiety and depression.

Introduction

"Mental illness refers to a wide range of mental health conditions-disorders that affect mood, thinking and behaviour like: anxiety, depression, stress and Obsessive Compulsive Disorder (OCD)". A lot of factors contribute to the development of such illnesses that may interfere with normal daily life. Many adolescents are striving toward substantially better education, life chances, and relationships. Although all of these contexts offer prospects for growth, they can lead to anxiety that may eventually starts psychiatric disorders [1]. From an outer perspective, university students are almost always regarded as privileged, even though they're vulnerable to the affliction of mental illness [2]. Students face a variety of factors that precipitate stress including academic requirements, time and social alterations [3]. The World Health Organization (WHO) has listed academic failure, which is caused by stress and burnout [4] as a risk factor for mental disorders. Studies showed that depression on the other hand influences cognition negatively; therefore symptoms of depression are associated with lower academic performance [5]. Comorbidity with other psychiatric diseases such as OCD is not uncommon [6]. In spite of the fact that mental health tends to vary across demographic and social factors, the modality of variations is more understood when we come to factors specific to college settings [2]. Medical students particularly, stand up to more obstacles such as packed schedules and clinical pressure making them more susceptible to such illnesses [3]. Our study aims to determine some of these factors and the prevalence of mental health disorder among a group considered at high risk (college students). So based on published literatures we hypothesized that medical students will have a higher prevalence of mental health disorders than non-medical students. All in perspective, most people who experience traumatic stress often experience temporary symptoms of mental illness, but most recover naturally soon after. In contrast, many college students, particularly medical students, suffer from psychological stress, burnout and poor academic performances that result in a serious mental health disorder and affect their quality of life. Our aim of the study, which is mainly concerned with college students, is to determine the prevalence of mental health disorders (anxiety, depression, stress and obsessive compulsive disorder) among this population. Both medical and non-medical students are at great risk of developing a mental health disorder and we strive to understand the cause and factors that may lead to develop such illnesses, to guide our society to better knowledge and deep understanding of what mental health disorder really means, therefore helping people to comfortably seek help whenever it's needed.

Literature Review

College years represent an important time in a person's life as they

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determine one's journey. Undoubtedly, a period as substantial as this make the college- age individuals fall on a spectrum of mental disorders – a general term defining any abnormality that may affect the human's behavior, emotions and thinking- that might be a transient anxiety, depression, etc. [1] When it comes to the tendency of having a mental disorder during college years, studies showed that it is majorly dependent upon the difficulty of the specialty one's striding, as it is the case when one's a medical student who worries and thinks a lot about the responsibility of dealing with other people's lives [2]. A study has been conducted in Brazil, reported that the 59 medical student participants had a high prevalence of mental health disorders compared to non-medical students [7]. A systemic review revealed that burnout -a term that describes the state of mental and physical exhaustion related to work- is prevalent during medical school, with major US multi- institutional studies estimating that at least half of all medical students may be affected by burnout during their medical education [8]. Depression, Anxiety and stress in our research, we are concerned with specific mental health disorders: depression, anxiety and stress, and their prevalence between medical students and non-medical students. A specialized measuring tool Depression Anxiety Stress Scales (DASS) beside other tools has been used in similar studies among medical and non-medical students and the relation to mental health disorders. Some studies came to a conclusion that there is a link between medical education and the incidence of psychological disorder [9]. A study in Africa estimated the prevalence of depressive symptoms among medical student and concluded that it affected around a quarter of medical student [9]. In Egypt a study used (DASS) and Pittsburgh Sleep Quality Index (PSQI) to estimate stress, depression and anxiety reported high frequencies of depression (65%), anxiety (73%) and stress (59.9%) [10]. A cross-sectional study in Syria also used (DASS-21) along with demographic and financial characteristics reported that the prevalence of depression, anxiety and stress was 60.6%, 35.1%, and 52.6%, respectively [11]. A medical college in Nepal did a study that showed the overall prevalence of depression was 29.9%, anxiety was 41.1% and stress was 27% among all medical student participants [12]. The huge amount of knowledge and relatively shortness of time -along with other factors that the medical student struggles with- made the psychosocial manifestations prominent compared to other specialties. Researchers in Portugal, who assessed the prevalence of anxiety and depressive symptoms in college age people, considered it true that medical students stand up to more obstacles and thereby more likely to suffer from mental illnesses. They compared total of 750 students; 512 medical students and 238 nonmedical students. The study proved that being a medical student is strongly associated with symptoms of anxiety ($p = 0.034$) as well as depressive symptoms [13]. Stress is a big challenge to any college student; it is also a serious problem which needs to be dealt with properly as many studies have shown that chronic stress may lead to suicidal thoughts [14]. In addition, there is some risk of comorbidity of other psychological disorders such as OCD. A study aimed in estimating the prevalence of OCD among medical student, 18 (3.8%) showed probable OCD. The investigation revealed that medical students tend to have higher probability than general population [15]. College years represent a fundamental phase in a person's life as one has to exceed expectation and become the best version of oneself. That huge responsibility subsequently manifests as a mental disorder starting from stress to poor sleep quality [16,17]. Medical specialties are very demanding; students have to put up with some very challengeable curricula, some cannot keep up with such challenges and can't help feeling disappointed. Depression may manifest as coincidence of disappointment and helplessness the student may feel. Anxiety and stress occur due to inability to manage the time [13]. Other factors including sex, economic factor, and years of studying play a considerable role when come to the odds of being diagnosed with a mental disorder, for example, previous studies showed that females tend to have depression, stress and anxiety more than males. Another study regarding gender and personal income reported that females with "intermediate or insufficient income" tend to have depression and anxiety more than others" [16]. In addition, a study mentioned that years of studying also play a role in incidence of mental disorders, first and second years' students are more likely to have depression, anxiety and stress, while the fifth-year and sixth-year students are having less stress [11].

Research Methods

A cross sectional study. The study is carried out among college students, both medical students and non-medical students, in multiple colleges in Saudi Arabia. Population involved medical students and non-medical students from different colleges in Saudi Arabia. Type of sampling: Convenience sampling (The survey is conducted through a specialized website link (SurveyMonkey.com). The link was shared with participants by email and social media.). We used a 95% confidence interval and an estimated prevalence of depression at 30% for Middle Eastern medical students based on scientific literature [1,2]. We estimated the minimum sample size required for this study was 323. We collected an additional 10% in order to account for the unexpected bias and missing data. This resulted in a sample size of 355. However, we have received a total of 666 valid responses.

We collected the data from colleges students in Saudi Arabia by filling the questionnaire attached in online form. Data was collected via an online questionnaire for the socio-demographic characteristics, several aspects of academic life, Depression Anxiety Stress Scale (DASS 21) and Arabic Scale of Obsession-Compulsion (ASOC)

Online questionnaire involve - Socio-demographic characteristics

Depression Anxiety Stress Scale (DASS 21): is a set of three self-report scales designed to measure the negative emotional states of depression, anxiety and stress. We used a short version (7 items per scale).

Arabic Scale of Obsession-Compulsion (ASOC): The 32 items of the original ASOC were shortened and the negative wording changed to positive to avoid the problem of double negatives. Five new items were added. The ASOC consists of 25 items but five of them are fillers and must be excluded from the computation of the total score.

Descriptive statistics was employed to summarize the data including frequencies for categorical variables and mean/standard deviation for continuous variables. DASS and ASOC scores were computed according to the validated protocol. Each score is made into a binary variable

(Those with symptoms *vs.* those without symptoms). We determined the proportion of the sample who has each of following diseases: depression, anxiety, stress, and obsessive-compulsive. We used a Chi-square test to determine whether there is a significant difference between

Medical and non-medical student in terms of proportion with mental health disorders. We used a logistic regression for each outcome, separately, to determine which factors are associated with the presence of a mental health disorder.

Ethical Approval:

An ethical approval from Deanship of Scientific Research in Qassim University has been obtained for this study before carrying on with it (Appendix 5). We also have sought the consent of participants before answering the questionnaire (Appendix 4).

Results

Data of 666 students with different mental diseases were analyzed. There were 597 (89.6%) females and 69 (10.4%) males' participants in our study. (The mean age of our study population was 23.5 years; SD = 2.87). Of these, 223 with health students and 443 with Non- health students.

The overall rate of psychiatric disorders was not different between health and non-health specialty students. However the non-health specialty students were significantly more likely to have depression. And to identify the risk factors for mental health disorders in Saudi Arabia and to assess the association between academic performance and mental health disorders: The odds of women are nearly twice as likely as men to be diagnosed with depression (95% confidence interval, 1.052- 3.674) given that females count for most of

contributors. The odds of students who have low GPA are more likely to get depressed than those with high GPA (95% confidence interval, .549 - .932). The odds of married students having depression are less than single students; however this didn't reach statistical significance (95% confidence interval, .174 - 1.106). The odds of women are nearly twice as likely as men to be diagnosed with anxiety (95% confidence interval, 1.146 - 3.786). The odds of students who have low GPA are more likely to get anxious than those with high GPA (95% confidence interval, .574 - .946). Gender: The odds of women are nearly twice as likely as men to be diagnosed with stress (95% confidence interval, 1.341 - 4.021). The odds of students who have low GPA are more likely to get stressed than those with high GPA (95% confidence interval, .646 - 1.010). And There is no linear regression between health specialty and the score of ASOC (P value=.544).

Table 1 Shows that were 597 (89.6%) females and 69 (10.4%) males' participants in our study. (The mean age of our study population was 23.5 years; SD=2.87). Of these, 223 health students and 443 are Non-health students.

Table 2 Shows that Stress is highly prevalent among college students (78.4%) but there is no significant differences between health and non-health specialty students (P. value= 0.966).

Table 3 Shows that Anxiety is highly prevalent among college students (82.9%) but there are no significant differences between health and non-health specialty students (P .value=0.137).

Table 4 Shows that depression is very highly prevalent among college students (84.7%) and there is a significant differences between health and non-health specialty, so the prevalence is higher among non-health specialty students (P. value=0.013).

Table 5 Identifying the risk factors for depression in Saudi Arabia and the association between academic performance and depression, for gander: The odds of women are nearly twice as likely as men to be diagnosed with depression (95% confidence interval, 1.052- 3.674). The odds of students who have low GPA are more likely to get depressed than those with high GPA (95% confidence interval, .549 - .932). The odds of married students having depression are less than single students; however this didn't reach statistical significance (95% confidence interval, .174- 1.106).

Table 1. Demographic characteristics of the study participants (N = 666).

	Parameters	Frequency	Percent
Gender	Male	69	10.4
	Female	597	89.6
Age	19-20	353	53
	21-22	236	35.4
	23-24	53	8
	25-26	12	1.8
	27-28	12	1.8
Marital status	Single	642	96.4
	Married	24	3.6
Specialty	Health specialty	223	33.5
	Non-health specialty	443	66.5
Total		666	100

Table 2. Ratio of normal and abnormal students with stress (N=666).

Factors	Normal	Stressed
Health Specialty	48 (7.2%)	175 (26.3)
Non-Health Specialty	96 (14.4%)	347 (52.1)
Total	144 (21.6%)	522 (78.4%)
P value=.966 (insignificant)		

Table 3. Ratio of normal and abnormal students with anxiety (N=666).

Factors	Normal	Abnormal Students Anxious
Health Specialty	45 (6.76%)	178 (27%)
Non-Health Specialty	69 (10.36%)	347 (52.10%)
Total	114 (17.1%)	552 (82.9%)
P value=.137 **(insignificant)**		

Table 4. Ratio of normal and abnormal students with depression. (N= 666).

Factors	Normal	Abnormal students Depressed
Health Specialty	45 (6.76%)	178 (26.73%)
Non-health Specialty	57 (8.56%)	386 (57.96%)
Total	102 (15.32%)	564 (84.7%)
P value= .013 **(significant)**		

Table 6 identifying the risk factors for anxiety in Saudi Arabia and the association between academic performance and anxiety, for gander: The odds of women are nearly twice as likely as men to be diagnosed with anxiety (95% confidence interval, 1.146 - 3.786). The odds of students who have low GPA are more likely to get anxious than those with high GPA (95% confidence interval, .574 - .946).

Table 7 identifying the risk factors for stress in Saudi Arabia and the association between academic performance and stress, for gander: The odds of women are nearly twice as likely as men to be diagnosed with stress (95% confidence interval, 1.341 - 4.021). The odds of students who have low GPA are more likely to get stressed than those with high GPA (95% confidence interval, .646 - 1.010).

Discussion

College years represent a crucial time in a person's life thereby triggering one's psychological status. Our study gives an answer to the question "Who suffers more? Health or non-health students?" which is: everyone. However, personal variables including gender and GPA determine the extent of risk the person's apt to having a mental disorder. The data reveal high levels of mental disorders. Depression was very highly prevalent among college students (about 84%). Stress (about 78) and anxiety (about 82%) were also highly prevalent (as Tables 2- 4 have shown). These results build on an existing evidence of national surveys in the United States and Canada. In 2008, 95% of directors reported an increase in severe psychological problems among their students [2], the National College Health Assessment sponsored by the American College Health Association (ACHA-NCHA) surveyed the students, and the proportion reported to have ever been diagnosed with depression has increased from 10%–15% since 2000 [2].

Risk factors

Female gender was shown to be associated with higher levels of depression, anxiety, and stress [15]. In our study, the odds of women to be diagnosed with depression, anxiety or stress is nearly twice as likely as men. This is most likely biased since most of contributors were actually females.

GPA of the student is also associated with high levels of mental disorders. Our data shows [Tables 5-7] that the odds of being depressed, anxious and stressed are more likely in a student with a lower GPA. A previous research stated that depression influences cognition negatively, therefore symptoms of depression are associated with lower academic performance [5]. We hypothesized that medical students are more likely to have mental disorders as a Portuguese study showed that being a medical student is highly associated with being anxious and depressed compared to other specialties [9]. Counter

Table 5. Logistic regression for depression.

Factors	B	S.E.	Wald	df	Sig.	Exp(B)	95% C.I.for EXP(B)	
							Lower	Upper
Gender	0.656	0.323	4.132	1	0.042	1.927	1.024	3.626
Age	-0.084	0.165	0.257	1	0.612	0.92	0.665	1.272
Academic level	-0.055	0.109	0.254	1	0.614	0.947	0.765	1.171
GPA	-0.361	0.138	6.804	1	0.009	0.697	0.532	0.914
Constant	1.898	0.811	5.47	1	0.019	6.671	–	–

Table 6. Logistic regression for anxiety.

Factors	B	S.E.	Wald	df	Sig.	Exp(B)	95% C.I.for EXP(B)	
							Lower	Upper
Gender	0.715	0.311	5.296	1	0.021	2.044	1.112	3.758
Age	0.098	0.172	0.327	1	0.568	1.103	0.788	1.545
Academic level	-0.16	0.107	2.232	1	0.135	0.852	0.691	1.051
GPA	-0.337	0.131	6.597	1	0.01	0.714	0.552	0.923
Constant	1.551	0.777	3.984	1	0.046	4.714		

Table 7. Logistic regression for stress.

Factors	B	S.E.	Wald	df	Sig.	Exp(B)	95% C.I.for EXP(B)	
							Lower	Upper
Gender	0.838	0.285	8.643	1	0.003	2.311	1.322	4.039
Age	-0.069	0.148	0.217	1	0.641	0.933	0.698	1.247
Academic level	0.049	0.096	0.254	1	0.614	1.05	0.869	1.268
GPA	-0.21	0.116	3.297	1	0.069	0.81	0.646	1.017
Constant	0.359	0.695	0.267	1	0.605	1.432		

Table 8. Population size (for finite population correction factor or fpc) (N): 1000000 Hypothesized % frequency of outcome factor in the population (p): 30%+/-5 Confidence limits as % of 100 (absolute +/-%) (d): 5 Design effect (for cluster surveys-DEFF).

Sample Size (n) for Various Confidence Levels	
Confidence Level (%)	Sample Size
95%	323
80%	138
90%	228
97%	396
99%	558
99.9%	909
99.99%	1271

intuitively, our data shows [Tables 2- 4] that there are no significant differences between specialties. Demographics, age, and academic year did not appear to significantly affect the probability of having a mental illness [Tables 5-8]. Year of study being non-significant in our study do not fit with previous studies that reported the academic year as a significant factor in predicting the presence of anxiety and stress [2], and found significant relationship between the year of study and depression [16,17].

In our study, we wanted see if we can relate having an OCD with student's specialty but there was no relationship between the two (Figures 1-5), although comorbidity of mental disorders is not uncommon [6].

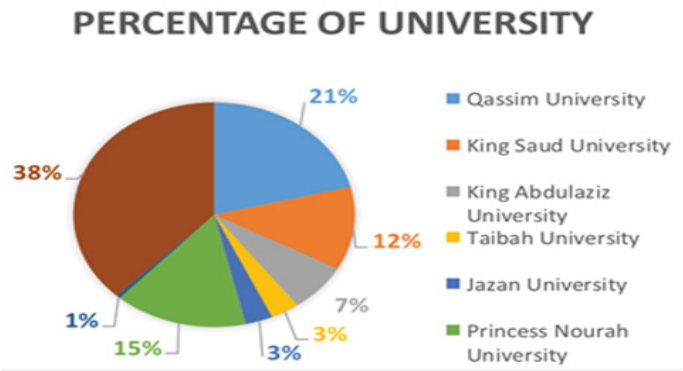

Figure 1. Percentage of University. Shows the highest percentage of college students whom participated is from King Saud University. (38%) coming second Qassim University (21%) and the lowest percentage is from Prince Sultan University (1%).

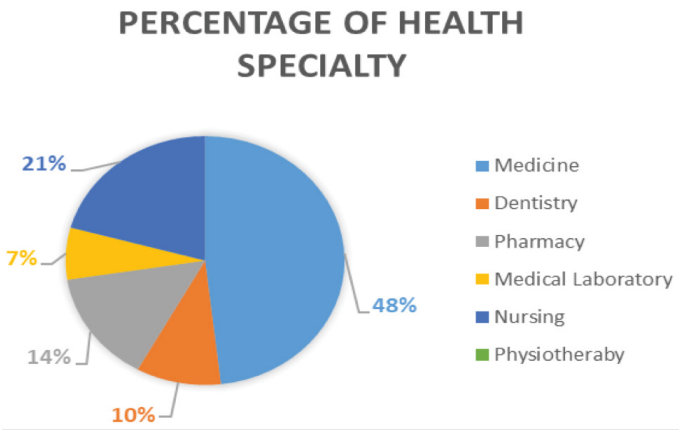

Figure 2 . Percentage of health specialty shows the highest percentage of health specialty students who participated is medicine (48%) coming nursing (21%) and the lowest percentage is physiotherapy which recorded (0%) in the result.

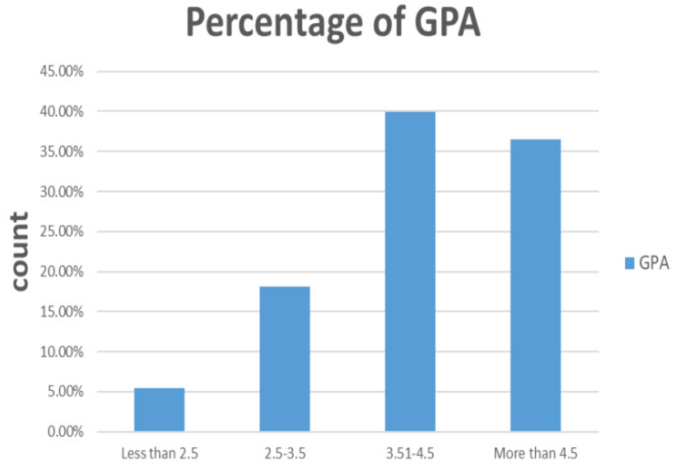

Figure 3 . Percentage of GPA shows the highest percentage of GPA in the study is 4.5-3.5 with (40 %), Then more than 4.5 come after with (36.5%), come after with it 3.5-2.5 with (18%) lastly with the lowest percentage less than 2.5 with (5.5%).

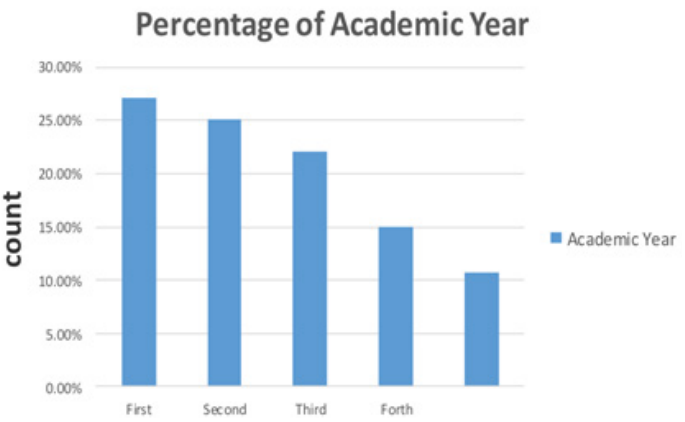

Figure 4. Shows the highest percentage of academic year participant in the study is first year with (27%), then second year come after with (25%), come after it third, fourth year with (22%) (15%), lastly with the lowest percentage fifth with (10.5%).

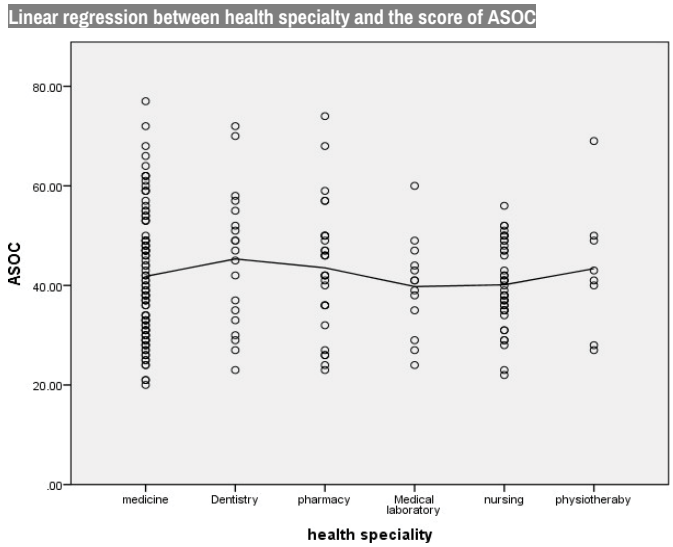

Figure 5. Shows that there is no linear regression between health specialty and the score of ASOC.

Limitations

Females (89.6%) in our sample greatly outnumbered males (10.4%) Generalization of the results should be done carefully. Our research yields a potential of underestimating mental health of males among the overall population of college students given that studies reported that males are at higher risk for suicide [18-21].

We also want to highlight the fact that DASS can only be used to quantitatively assess psychological disturbance, and not to diagnose clinical disorders [2]. The disorders mentioned in our study reflect the type diagnosed by DASS and not actual disorder which is more serious and need a professional assessment to be diagnosed.

Conclusion and Recommendations

To sum up, we concluded that college students suffer from mental health disorders and have to deal with a lot of stress and anxiety. Minimizing the burdens of psychological distress require strong support and deep digging to reach the roots of these problems. Previous studies recommended modifying the curricula in a way that achieves minimal negative effect students' mental status. Financial support to searches in these fields to come to a complete understanding to the problem is also suggested.

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