Original Research Article

Comparison of depression among medical and dental students of Qassim University 2019

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ABSTRACT

Background: Prevalence of depression enormously increasing throughout the world including developing and developed world. Especially in case of medical and dental students, after completion of schooling, will enter into University level and there will be different exposure, syllabus load and scientific terminology and adjustment to the surroundings leads to become depressive nature. Objective was to estimate the prevalence of depression, demographic variables and risk factors association with depression among medical and dental students of Qassim university.
Methods: A cross sectional study was conducted March 2019 to June 2020 among the medical and dental students of Qassim University. A total of 235 sample collected through Google forms due to COVID-19 pandemic situation. Data entered in Statistical package for social sciences, 21.0 version and necessary statistical tests were applied.
Results: In the present study about 235 study participants, of which 174 medical and 61 dental students participated. Among the 174 medical students, about 62.1% were males and among the 61 dental students, about 39.3% were males. Prevalence of depression among medical students and dental students was 82.90% and 86.90% respectively. Socioeconomic status was significantly associated with depression in both the groups' medical and dental students.
Conclusions: High prevalence of depression was noticed in medical and dental students. Need to strengthen the supportive health programs to the medical and dental students to be arranged and will indirectly reduce the stress among the students.

Keywords: Age, Dental students, Depression, Medical students, PHQ-9, Risk factors, SES

INTRODUCTION

In the modern era, there is some importance gained at the higher education level for better opportunities. In this context, medical, dental and nursing education taken big momentum for good opportunities as well as society respectful professions. At the same time those students scored with maximum percentage and merit people only will enter into the professional medical education college or university. Though medical and dental students joined through merit list, initial phase in the university adjustment with other students, infrastructure, professional language skills and also orientation to medical and dental subjects and time bound task completion leads to tendency to develop stressful situation, that indirectly affect the students' performance in the examinations. Sometimes it leads to suicidal tendencies also in some individuals.[1]

An estimated 16.2 million adults in the United States had at least one major depressive episode. This number represented 6.7% of all U.S. adults.[2] The prevalence of major depressive episode was higher among adult females (8.5%) compared to males (4.8%). The prevalence of adults with a major depressive episode was highest among individuals aged 18-25 years (10.9%).[3] Depression prevalence in primary care varies between 15.3-22%,

with global prevalence up to 13% and between 17-46% in Saudi Arabia.[4]

There were different studies conducted in India and Pakistan among Medical and Dental university students and revealed that medical students are more susceptible to depression than general population. Prevalence of depression ranging from 63 to 75.5%.[5-8] A study conducted among private medical college students (n-336) Bareilly and depression stated as 49.1%. In his cross sectional survey anonymous questionnaire was used and tool used in his study was Beck inventory depression scale.[9]

Similarly study conducted by Alharbi et al in Saudi Arabia among 2562 students from 20 universities, published in December 2018 among medical students and prevalence mentioned in their study was 83.4%.[10] In view of the high prevalence of depression and other above circumstances, present study was conducted in our province to see the demographic and risk factors associations with depression.

Objectives

To estimate the prevalence, compare the depression in medical and dental students of Qassim University and to find the risk factors association with depression.

METHODS

This chapter included study design, sample size calculation, method of data collection from the participant, statistical analysis and ethical considerations.

Study design and setting

This was a cross sectional study carried out at Qassim University medical and dental students from first year to final year students. All male and female students were included in the study.

Sampling method

Due to COVID-19 pandemic situation, in relation to selection of students from the class, initially contacted the all faculty in-charges and student class representatives to collect whatsApp and mobile numbers directory purpose. Personally contacted telephonically to the student representatives and sometimes contacted students through whatsApp communication, before sharing the questionnaire to the concerned student groups. Questionnaire was prepared as Google forms, then prepared a link, shared through e mails and whatsApp communication to all the student groups. Regular reminders kept for all student groups once in 3 days. Questionnaire circulated to 585 students and 174 people only responded in medical stream. Similarly among 290 dental students questionnaire was circulated and

responded 61 students only. Universal sampling taken in the present study.

Sample size

Sample size was calculated by using WHO software for sample size determination. Prerequisites for the sample size calculation, at 95% confidence level, 5% precision and a reported prevalence of 83.4% of depression among medical students.[10] Based on the above formulae, the calculated sample size was 213. Then identified all the batches from first year to final (5th) year in medical and dental colleges Qassim university. Finally through Google forms collected 174 medical and 61 dental students in our study. As per the sample estimation, the sample size was 213. In view of data collection from Google forms, the total number of participants were increased to 235, another 10% excess sample taken to maintain the adequacy and good statistical test applications to draw some inferential conclusions.

Study period

This study was conducted from March 2019 to June 2020.

Target population

All Medical and dental students of Qassim university from the first year to 5th year.

Inclusion criteria

All the medical students and dental students from first year to 5th year.

Exclusion criteria

Primary preparation year, freezing study and internship students exempted from the study.

Sampling technique

Whole sample taken in the study as universal sampling.

Data collection tools

Self-administered questionnaire and circulated through whatsApp and mail communication.

Questionnaire:

Questionnaire consists of socio-demographic variables and patient health questionnaire components. Questionnaire has gone through different stages to finalize the existing questionnaire. Validation of questionnaire done by Family medicine consultants, research experienced faculty and the concerned research supervisor at the Family Medicine Academy. PHQ-9 was quite commonly used tool at the community level as

screening tool to diagnose the depression in developing and developed world. Another important area is that patient health questionnaire components and its grading classified as no depression (score 0-4), mild depression (score 5-9), moderate depression (score 10-19) and severe depression (score 20-27).

Statistical analysis:

Data cleaned and collected information will be entered and analysed by using "statistical package for social sciences" (SPSS) software Version 21.0 (Chicago). A descriptive analysis of the data will be done as means with standard deviations for quantitative variables and frequencies with proportions for qualitative variables. For qualitative analysis, the chi-square test will be used. Fisher's exact test was considered if ≥25% of the cells had an expected frequency of less than 5. The level of significance will be taken as p≤0.05. Multiple binary logistic regression analysis was used for prediction of risk factors after adjustment of all other factors.

Pilot study

Pilot study conducted on 20 medical residents and 10 dental students in the month of December 2019 and collected altogether 30 sample. This sample was not included in the main study sample. After pilot study there was no modification of questionnaire done.

Ethical considerations

Institutional ethical committee approval will be taken from Qassim Regional Bio-Ethics Committee. Subsequently obtained permission approval from the Deans of Qassim medical and dental college. Before collection of the data, informed consent form attached to the each Google questionnaire and oral consent taken from all respondents before circulation. Confidentiality of all participants will be ensured at all stages of study including in the personal identity to the results presentation.

RESULTS

In the present study, total of 235 students were participated in the study. Majority of the students were not responded. Average response rate among both medical and dental students was 26.8% (235/875). Of which, 174 medical students and 61 dental students were participated. Among the medical students, about 108 (62.1%) were males and 66 (37.9%) were females. Similarly among the dental students, about 24 (39.3%) were males and 37 (60.7%) were females. Out of 174 medical students, about 72.5 % were in the age group of 21-24 years. Nearly three fourth of the participants were having their family income >10,000 SR per month. Maximum students participated from 4th year level. Among the dental students, about 60.7% were females. Almost 84% were in the age group of 21-24 years.

Maximum of 29.5% of students participated from 5th year. About two third of dental students families, family income was >10,000 SR per month. In the study population, about 82.75% (144/174) medical students were having depression and 86.9% (53/61) dental students were having depression in study population. Of which severe depression among dental students was 11.5% and medical students was about 8.6%.

Table 1: Different risk factors frequencies in the Medical students population.

| Risk factors variables	Number	%
Academic performance		
Bad	19	10.9
Average	97	55.7
Good	58	33.3
Smoking		
Active	18	10.3
Never smoked	150	86.2
Previous smoker	06	3.5
Family status		
Living together	141	81
Divorced	17	9.8
Death of the parent	16	9.2
Recent deaths in the family in last 1 year		
Yes	30	17.2
No	144	82.8
Financial difficulty in the family for last 1 year		
Yes	30	17.2
No	144	82.8
Chronic disease in the family		
Yes	127	73
No	47	27
Psychiatric illness in the family		
Yes	52	29.9
No	122	70.1
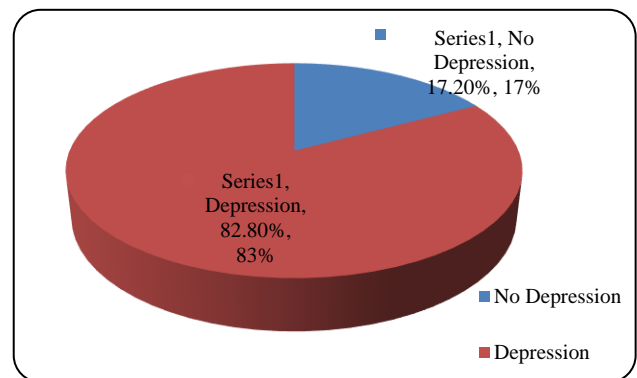
Figure: 1: Prevalence of depression status among Medical students.

About only one third of medical students academic performance was good and 10.3% were current smokers. In relation to recent deaths in the family for the last 1 year, about 17.2% were revealed that recent deaths in

their family and also same proportion revealed that financial difficulties in their families. About 30% of the medical students revealed that presence of psychiatric illness in their family (Table 1). Figure 1 stated that prevalence of depression among medical students was 82.90%.

Present study stated that 54.1% of the dental students were showing good academic performance. About 9.8% were active smokers and 23% of the dental students experienced recent deaths in their families for the past 1 year. About 37,7% were having psychiatric illness in their families (Table 2). Figure 2 shown that prevalence of depression among dental students was 86.90%.

Table: 2: Risk factor frequency in the dental study population.

| Risk factors variables	Number	%
Academic performance		
Bad	3	4.9
Average	25	41
Good	33	54.1
Smoking		
Active	6	9.8
Never smoked	54	88.5
Previous smoker	1	1.6
Family status		
Living together	52	85.2
Divorced	5	8.2
Death of the parent	4	6.6
Recent deaths in the family in last 1 year		
Yes	14	23
No	47	77
Financial difficulty in the family for last 1 year		
Yes	10	16.4
No	51	83.4
Chronic disease in the family		
Yes	44	72.1
No	17	27.9
Psychiatric illness in the family		
Yes	23	37.7
No	38	62.3
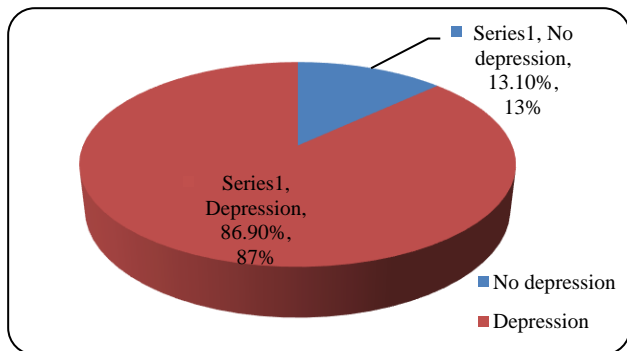
Figure 2: Prevalence of depression status among Dental students.

Table 3: Type of chronic disease and type of psychiatric disease in medical and dental study population.

Type	Yes (%)	No (%)	Total (%)
Type of chronic disease in medical students families			
Diabetes	94 (54)	80 (46)	174 (100)
Hypertension	77 (44.3)	97 (55.7)	174 (100)
Stroke	14 (8)	160 (92)	174 (100)
Asthma	29 (16.7)	145 (83.3)	174 (100)
Dyslipidaemia	48 (27.6)	126 (72.4)	174 (100)
Type of psychiatric illness among students families			
Major depressive disorder	29 (16.7)	145 (83.3)	174 (100)
Schizophrenia	06 (3.4)	168 (96.6)	174 (100)
Bipolar disorders	08 (4.6)	166 (95.4)	174 (100)
Generalized anxiety disorders	26 (14.9)	148 (85.1)	174 (100)
Type of chronic disease in dental students families			
Diabetes	32 (52.5)	29 (47.5)	61 (100)
Hypertension	29 (47.5)	32 (52.5)	61 (100)
Stroke	6 (9.8)	55 (90.2)	61 (100)
Asthma	14 (23)	47 (77)	61 (100)
Dyslipidaemia	5 (8.2)	56 (91.8)	61 (100)
Type of psychiatric illness in dental families			
Major depressive disorder	10 (16.4)	51 (83.6)	61 (100)
Schizophrenia	2 (3.3)	59 (96.7)	61 (100)
Bipolar disorders	2 (3.3)	59 (96.7)	61 (100)
Generalized anxiety disorders	15 (24.6)	46 (75.4)	61 (100)
Obsessive compulsive disorder	2 (3.3)	59 (96.7)	61 (100)

Current study revealed that among the medical students, about 54% of the families having diabetes as common chronic disease, 44.3% were hypertension and 27.6% were dyslipidaemia condition. About 16.7% of the medical student families were having major depressive disorder and 14.9% were having generalized anxiety disorder. Similarly in case of dental students, about 52.5% of the families were having as common chronic disease as diabetes and 47.5% were having hypertension problem. About 16.4% were having major depressive

disorder in their families and 24.6% were having generalized anxiety disorder (Table 3). In the present study revealed that about depression among female medical students was 87.9% and males was 79.6%. There was statistically significant association was observed with low socio-economic status (family income 3000-10000 SR/month) with depression status (p<0.05, Table 4).

Table 4: Socio-demographic associations with depression among medical students.

Variables	No depression (%)	Depression (%)	Total (%)	Odd's ratio and CI
Gender				
Male	22 (20.4)	86 (79.6)	108 (100)	χ^2-1.95,OR-1.855, CI-0.775-4.449
Female	08 (12.1)	58 (87.9)	66 (100)	
SES				χ^2 **value and p value**
3000-10000 SR/month	2 (4.7)	41 (95.3)	43 (100)	
10001-20000 SR/month	9 (13.6)	57 (86.4)	66 (100)	11. 926, 2df, p-0.003
>20000 SR/month	19 (29.2)	46 (70.8)	65 (100)	
Age (in years)				χ^2 **value and p value**
18-20	10 (29.4)	24 (70.6)	34 (100)	
21-24	18 (14.3)	108 (85.7)	126 (100)	χ^2-4.387, 2df, p-0.112.
25-28	2 (14.3)	12 (85.7)	14 (100)	

Table 5: Socio-demographic associations with depression among dental students.

Variables	No depression (%)	Depression (%)	Total	χ^2 value and p value
Gender				
Male	3 (12.5)	21 (87.5)	24 (100)	χ^2=013, 1 df, p=0.909
Female	5 (13.5)	32 (86.5)	37 (100)	
SES				
3000-10000 SR/month	1 (4.8)	20 (95.2)	21 (100)	
10001-20000 SR/month	1 (5)	19 (95)	20 (100)	χ^2=7.446, 2df, p=0.024.
>20000 SR/month	6 (30)	14 (70)	20 (100)	
Age (in years)				
18-20	0 (0)	5 (100)	5 (100)	
21-24	8 (15.7)	43 (84.3)	51 (100)	χ^2=1.805, 2df, p= 0.405.
25-28	0 (0)	5 (100)	5 (100)	

Table 6: Multi-variable logistic regression model analysis of the different factors associations with depression among medical students.

Variables	Categories	Adjusted odd's ratio	Confidence interval	P value
Gender	Male	0.571	0.226 - 1.442	0.236
	Female (1)			
Financial difficulties	No	7.361	0.945 - 57.333	0.057
	Yes (1)			
Chronic disease in the family	No	0.391	0.167 - 0.916	0.031
	Yes (1)			
Psychiatric illness in family	No	1.124	0.448 - 2.822	0.803
	Yes (1)			
Deaths in family for the last 1 year	No	1.684	0.449 - 6.316	0.440
	Yes (1)			

In the current study stated that about depression among male dental students was 87.5% and females was 86.5%. There was statistically significant association was observed with low socio-economic status with depression status (p<0.05, Table 5). Present study stated that in the study population, after adjustment of all other factors, chronic disease in the family was significantly associated with depression in the medical students (Odd's ratio 0.391, p<0.05, Table 6). Current study revealed that in the study population, after adjustment of all other factors, deaths in family for the last one year was significantly

associated with depression in the dental students (odd's ratio 0.210, p<0.05, Table 7).

Table 7: Multi-variable logistic regression model analysis of the different factors associations with Depression among Dental students.

Variables	Category	Adjusted odd's ratio	Confidence interval	P value
Gender	Male	1.102	0.220-5.523	0.906
	Female (1)			
Psychiatric illness in family	No	0.667	0.124-3.596	0.637
	Yes (1)			
Deaths in family for the last 1 year	No	0.210	0.041-0.990	0.050
	Yes (1)			

DISCUSSION

This present study was conducted among the Medical and Dental students of all years (from first year to fifth year) studying at Qassim university during the period from March 2020 to June 2020 and selected the students as per the study guidelines to see the main objective of comparison of depression among medical and dental students.

The mean age of the medical students and standard deviation were noticed in the present study as 22.19±1.829. Among the dental students, the mean age and standard deviation was about 22.38±1.507. Similar result of age group range and same mean age was observed in the study conducted in Pakistan among public sector medical university students.[15] Incidentally 25% of the both medical and dental students less than 21 years, 50 percentage of the students were more than 22 years and lastly 75% of the both medical and dental students were less than 23 years of age.

In comparison to mean age, other study conducted in Saudi Arabia among 20 universities by 27 data collectors in the year 2018 and same tool of Patient health questionnaire-9 was used and revealed the mean age and standard deviation shown as 22.05±1.98.[10]

Depression among medical students was 82.80% and about dental students was about 86.90%. Similar observation was found by a study done by Alharbi et al in Saudi Arabia among medical students, the prevalence reported in his study was 83.6%.[10] In spite of high depression prevalence in the present study, severe depression prevalence among the both medical and dental students was less 11.5% and 8.6% respectively.

In Saudi Arabia majority studies conducted on depression and prevalence was recorded more than 50%.[10,11] Other studies conducted in Pakistan revealed that a study conducted on students of MBBS in Sargodha Medical College in March 2017, showed that depression in medical students was very high, 75.5% students reached depression criteria and another study conducted at Shalamar Medical and Dental College showed the prevalence of depression to be 63%.[7,8] In Malaysia by Fuad MD et al stated that prevalence of depression was 60.2%.[14]

There were some studies done on different parts of world, where prevalence of depression was reported less in medical and dental students and also in general population. Prevalence of depression among dental students in Kerala noted that about depression was estimated as 26.9% (95% confidence interval: 22.4-31.8).[13] The prevalence of depression among Ethiopian population reported as 24.5%, in Malawi east Africa the depression was 30.3%.[16,17]

In our present study, there was no significant association was observed between gender and depression status in both medical and dental students. But in some studies conducted at different places revealed that there was significant association and also high prevalence of depression was observed among the female gender. Different prevalence of depression reported in the following studies as among females was 28.4% and that of males was 20.8%. The high prevalence of depression among females was evident in similar studies in different parts of the world like Ethiopia West Bengal and the United States of America.[16,18,19]

This high prevalence could be due to type of tool was used. In case of patient health questionnaire consideration of score as normal was 0-4 only. Score above 5 onwards mild depression category will start. Second thing was that self-administered questionnaire some of the variables, participant may misunderstood and also sometimes leads to wrong interpretation. If the principal investigator is available during data collection, that will solve some misunderstanding variables issues. During COVID-19 era, unforeseen situation and social distancing, questionnaire circulated through Google forms.

PHQ-9 was used, which contained nine questions based on DSM-IV. The questions are arranged as Likert scale and graded from 0 to 3 (not at all, several days, more than half the days, and nearly every day). The Likert items were computed as a total score. The score ranges from 0-27, Out of total score categorized in a diagnostic algorithm, where a score of 0-4 as normal people, score of 5–9 is considered mild, 10–19 moderate depression, and ≥20 is severe depression.[20]

In relation to predictors of depression status, Al-Saleh SA, Al-Madi EM et al conducted a study in Saudi Arabia revealed that marital status and financial responsibilities

were not significant predictors of depression, anxiety, or stress in their research. Other studies have also found that students marital status is not a significant predictor. Generally married students may be more prone to stress due to their increased responsibilities in addition to academic activities. No tuition fees for education at Kingdom of Saudi Arabia University, in addition to the monthly stipend may reduce the effects of financial factors on depression.[21,22] Because of stipend to the students, all the students family income boosted to more than 3000 SR per month in all the student families. One of the limitation of the study was as the questionnaire was self-administered questionnaire, some of the questions may misunderstood and response rate was also low because questionnaire forms circulated through Google forms.

CONCLUSION

Based on the study results, high prevalence of depression was noticed in both the medical and dental students. Multiple logistic regression analysis was done with different risk factors and depression, chronic disease in the family was significantly associated with depression in the medical students. Similarly among the dental students, binary logistic regression analysis was applied with different risk factors, deaths in family for the last one year was significantly associated with depression in the dental students (p<0.05). Socioeconomic status was significantly associated with depression among medical and dental students of Qassim University. Need to identify the problem early and suggesting some life style modifications and supportive programs adoption will reduce the depression burden certain extent. Student motivation is more important than other enforcement of rules in the institute. Need similar sample studies in our province are required to substantiate the present study findings.

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