



Full Length Research Article

DEPRESSION AMONG MEDICAL STUDENTS AT QASSIM UNIVERSITY RATE, SEVERITY, AND CONTRIBUTING FACTORS; USING BDI II

¹Ali Mohammad Alakhtar and ^{2*}Dr. Homaidan Turki Al-Homaidan

¹College of Medicine, Qassim University, Qassim, Saudi Arabia

²Assistant Professor of Family Medicine College of Medicine, Qassim University, Qassim, Saudi Arabia

ARTICLE INFO

Article History:

Received 26th May, 2014
Received in revised form
19th June, 2014
Accepted 25th July, 2014
Published online 31st August, 2014

Key words:

Food Aid,
Hunger Alleviation,
Food Security,
Improved Diets,
Social Improvements.

ABSTRACT

Background: Medical education is an intensely competitive program; students go through severe stress while in it. They are known to be the victims of tremendous mental stress. They experience a variety of psychological changes in their medical school life from young insecure students to excellent physicians. Depression among medical students is an area of increasing concern worldwide.

Objective: To determine the Depression rate among medical students at different levels of education, taking gender differences into account and find out their contributing factors.

Methods: Depression rate, severity, and contributing factors were explored by a cross-Sectional study, conducted among medical students at Qassim University (males: 205; females: 127) in Saudi Arabia. Self administrated questionnaire including Beck Depression Inventory (BDI II) was used. Mean BDI score was applied and it's relation with different variables, such as, age, gender, place of staying, academic year, GPA, position among siblings, were assessed.

Results: The prevalence of depression was 60.5%. It was higher among females than males students (show male female percentages; P-value .000). The prevalence was highest among the first year and lowest among the fifth year medical students (show respective percentages, which is statistically significant (P- value .000). The prevalence of depression among female students was higher than male students, which is statistically significant (P- value .000).

Conclusion: Medical students should be informed of the high prevalence of depression among them and they should be encouraged to seek professional help.

Copyright © 2014 Ali Mohammad Alakhtar and Dr. Homaidan Turki Al-Homaidan. This is an open access article distributed under the Creative Commons Attribution License, which permits unrestricted use, distribution, and reproduction in any medium, provided the original work is properly cited.

INTRODUCTION

Depression among medical students is an area of increasing concern worldwide. Medical students are known to be the victims of tremendous mental stress (Mannapur *et al.*, 2010). Medical students experience a variety of psychological changes in their medical school life from young insecure students to an excellent physician. The personal and social sacrifice they have to make in order to maintain a good academic result in a highly competitive environment puts them under a lot of stress (Wolf and Kissling, 1984). Previous studies have shown fairly high levels of distress, such as symptoms of depression among

medical undergraduates (Dahlin *et al.*, 2005 and Sherina *et al.*, 2004). In recent years, depression has been recognized as a major morbidity in medical schools and the various factors that have been seriously affecting their academic performance and quality of life has been recognized (Sreeramareddy *et al.*, 2007). However, no studies are done in medical school at Qassim university. It is important for Medical educators to know the magnitude of depression in students and factors causing them, which not only affect their health and academic achievement but also has drastic consequences as suicide (Tyssen *et al.*, 2004 and Dyrbye *et al.*, 2008). Thus, we will carry out a questionnaire based cross sectional study to find out the rate, severity, and contributing factors of depression in medical school at Qassim university.

***Corresponding author: Dr. Homaidan Turki Al-Homaidan**
Assistant Professor of Family Medicine College of Medicine, Qassim University, Qassim, Saudi Arabia

MATERIALS AND METHODS

The design of the study was cross-sectional. Data was collected from the students by filling questionnaire, between March and June 2013. All the related clinical data was gathered and analyzed. We obtained a verbal consent from all participants with consent statement on the questionnaire. Clear clarification and explanation was performed for each statement and way of filling the questionnaire. Data was collected using Beck Depression Inventory II (BDI II), which is a well-established reliable questionnaire used to screen for depression and has been validated in non-psychotic patients in different studies (Dyrbye *et al.*, 2006; Ajit Singh *et al.*, 2010; Beck Depression Inventory from Wikipedia accessed; Beck *et al.*, 1988 and Ganesh S Kumar *et al.*, 2012). Beck questionnaire contents have been written by co- thinking and agreement of clinical specialists on pathological symptoms in depressive patients and it is in accordance with and comparable to DSM-IV criteria for depression. Test-retest reliability and validity of Beck questionnaire has been proved by several studies and researches (Sadock *et al.*, 2000). This scale is a widely used measure for intensity of depression.

Include copy of the questionnaire

Beck Depression Inventory (BDI, BDI II), is a 21-question multiple choice self-report inventory. It is a subjective scale used for screening purpose. In its current version the questionnaire is designed for individuals aged 13 and over, and is composed of items describing a specific behavioral, emotional and somatic manifestation of depression in last two weeks. The 21 items cover sadness, pessimism, sense of weight loss, somatic preoccupation and loss of libido (McDowell and Newell, 1996). Scores on each item can range from 0, indicating no depressive symptomatology, to 3, indicating a severe level of symptomatology. Total scale scores can thus range from 0 to 63. Scores of 10 or above is indicative of depression symptomatology and scores of 16 or above indicates clinically significant depression. The classification of depression scores involves: 0 - 9 (indicate no depression), 10 - 15 (indicate mild depression), 16 -29 (indicate moderate to severe depression) & 30 or more (indicate severe depression). The questionnaire also included some socio-demographic variables such as age, gender, place of staying, academic year, GPA, position among siblings. Statistical analysis was performed using the (Statistical Package For Social Sciences Software Version 18) (SPSS). Descriptive analysis was carried out, estimated mean, standard deviation (SD), for Beck Depression Inventory scores. Frequencies and percentages are calculated for the category variable. Based upon the studies on depression in other Gulf countries, we assumed that the prevalence of depression in our population will range between 25% and 35%.

The estimated sample size is 323 according to the following specifications

Expected proportion of depression in the population (p) = 30%
Confidence level = 95% (corresponding to $\alpha = 0.05$)
Width of the confidence interval, defined by $d = 5\%$

Design effect (DEFF) = 1

Applying the equation for estimating the sample size for proportions, the sample size is estimated at 323.

ceffenessedt

$$n = \frac{1.96^2 \cdot p(1-p)(DEFF)}{d^2}$$

RESULTS

Of the 334 questionnaires, 2 were removed for missing or incomplete data. Therefore, a total of 332 students formed the basis for all analysis. Out of the 332 respondents, 205 were males and 127 females. Sixty nine students (20.7%) were enrolled from first year, 51 students (15.3%) were from second year, 69 (20.7%) were from third year, 60 (18%) were fourth year, 83 (24.9%) were fifth year of medical school Table 1.

Table 1. Socio-demographic characteristics of study participants

Variable	Categories	Male	Female	P-Value
Phase	Basic	111	78	.193
	Clinical	94	49	
Age	19-22 y	94	84	.001
	23-25 y	106	43	
	26 & above	5	0	
Birth order	Oldest	73	36	.36
	In the middle	111	78	
	Youngest	21	13	
Place of staying	With your family	158	115	.002
	alone	46	13	
Year	1st	42	27	.013
	2nd	21	30	
	3rd	48	21	
	4th	42	18	
	5th	52	31	
Chronic diseases	Yes	20	19	.149
	No	185	108	
Exercise on regular based	Yes	64	33	.249
	No	139	96	
Psychiatric illness	Yes	8	10	.120
	No	197	117	

Of all the participants, 131 (39.4%) had their BDI score in the normal range (0-9), 94 (28.3%) in the mild mood disturbance range (10-15), 94 (28.3%) had their BDI score as moderate depression range (16-29), and 13 (3.9%) had BDI score indicating severe depression (30 or more) Figure 1.

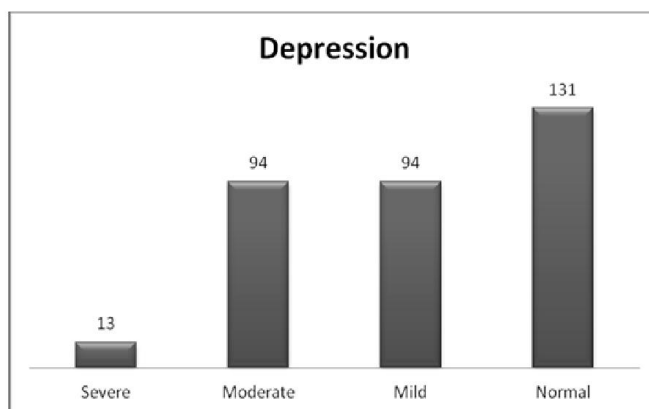


Figure 1. Frequency of severity of depression among study participants patients

It was noteworthy that the overall prevalence of depression in medical students was found to be 60.5%. Based on the findings, the prevalence of moderate and severe depression was higher in basic phase than clinical phase (32.8% > 22.4%; $p=0.04$) and (5.3% > 2.1%; $p=0.04$) correspondingly, (P-value .04). The prevalence of mild, moderate, and severe depression among female students was higher than male students, (P-value .000) Table 2.

Table 2. Distribution of depression severity by gender and academic phase

Depression Severity Group	Non Depression No. %	Mild Depression No. %	Moderate Depression No. %	Severe Depression No. %	Total No. %	Mean	P- Val
Male	99(48.3%)	57(27.8%)	47(22.9%)	2(1.0%)	205	10.8	.000
Female	31(24.4%)	38(29.9%)	47(37.0%)	11(8.7%)	127	16.3	
Basic phase	65(34.4%)	52(27.5%)	62(32.8%)	10(5.3%)	189	14.4	.047
Clinical phase	65(45.5%)	43(30.1%)	32(22.4%)	3(2.1%)	143	10.8	

Interestingly, the rate of depression was highest among first year and lowest among fifth year medical students, which is statistically significant (P-value .000) [Figure 2].

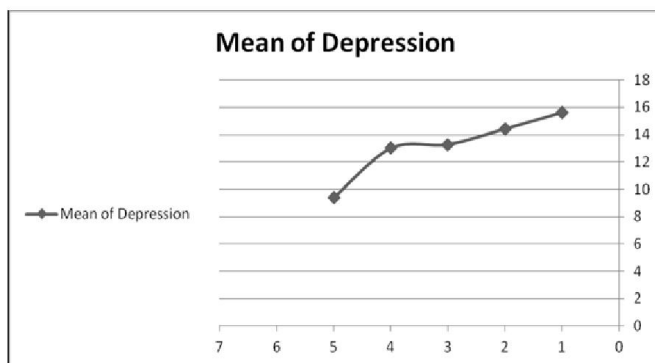


Figure 2. Distribution of mean depression scores by academic year

Moderate and severe depression was higher in the students who have chronic medical diseases (P-value .003). Mild and severe depression was higher in the students who have other psychiatric illness, which is statistically significant (P-value .011). According to the GPA the study showed that students who are on high and low GPA have higher rate of depression as compared to those who have intermediate GPA, (P-value .013). There was no significant relation between birth order in the family and depression, and also for place of staying either with family or alone. Among the students who perform exercise on regular basis and who did not, the study showed no significant relation with depression. No significant relation with depression.

DISCUSSION

Depression has emerged as a major epidemic affecting males and females of all age groups (Aktekin *et al.*, 2001). Psychological well being is important for medical students, for the patients they meet and for their future medical practice. The finding of this cross-sectional study demonstrate that prevalence of depression among medical students at Qassim university is (60.5%). These results supported by another study performed in Pakistan had nearly the same prevalence 60% of the students had anxiety and depression. Prevalence of anxiety and depression in students of fourth year, third year, second year, and first

year was 49%, 47%, 73%, and 66%, respectively. It was significantly higher in first year and second year, as compared to third and fourth year (Inam *et al.*, 2003). On the other hand one of the research done on depression in medical students had less prevalence rate, as in comparison to our study, the study conducted in Federal University of São Paulo, Brazil, showed that there were 184 (38.2%) students with depressive symptoms (BDI > 9) (Baldassin *et al.*, 2008).

Another research conducted in Dubai Medical College (in mid-2007) showed that 27.2% were in the normal depression range, 45.6% in the marginal depression range, 23.3% in the moderate depression range, and only 3.9%, were found to be in the moderate to severe depression range (Ahmadi *et al.*, 2008), which is the same rate of severe depression in our study. According to the BDI scores, 131 (39.4%) had their BDI score in the normal range (0-9) which is nearly the same result of the study conducted in Dubai, UAE (Isra Ahmed *et al.*, 2008). 94 (28.3%) in the mild mood disturbance range (10-15), 94 (28.3%) had their BDI score as moderate depression range (16-29), and 13 (3.9%) had BDI score indicating severe depression (30 or more). Other studies in different parts of the world also showed wide range of variation of depression among medical trainees, 2.2%-up to 85% of the students which could be due to different geographical regions, different sample sizes with varied demographic characteristics, scales used to assess depression and cut-offs used were also different and different medical curricula in these countries. The higher prevalence of depression in medical students may be due to the nature of the study and the stress associated with the frequent examinations in addition to the competitive environment in the medical schools, which push the students to do their best to score higher. Interestingly, the rate of depression was highest among first year and lowest among fifth year medical students which is statistically significant.

This may be due to better coping strategies adopted by senior students. Also, it is seen that as the years of training in a medical school increases, the prevalence of depression decreases which is also shown by similar studies that have reported prevalence of depression to be found less in the clinical years than the non-clinical years Sreeramareddy *et al.*, 2007; Abdulghani, 2008; Guthrie *et al.*, 1998 and Shaikh *et al.*, 2004). This clarifies the need for early prevention and intervention of depression that is seen to be more in the first year of medical schooling itself. The prevalence of mild, moderate, and severe depression among female students was higher than male students which is statistically significant (Table 3). It may be because females are more likely to report concern, stress due to self expectation, feeling of lack of competence and tendency to over report symptoms. Moderate and severe depression was higher in the students who have chronic medical diseases or psychiatric illness show higher prevalence of depression as compared to other

students, which is statistically significant, which indicate negative impact on medical students. According to the GPA the study showed that students who are on high and low GPA have higher rate of depression as compared to those who have intermediate GPA is statistically significant. This may be due to competitive environment and pressure in high GPA students, however, low GPA students may be because of their low GPA as in comparison to their colleagues and fear of failure situations. There was no significant relation between birth order in the family and depression, and also for place of staying either with family or alone. In another research conducted in United States, 20.4% of the depressed students reported experiencing suicidal ideation during medical school (Tjia *et al.*, 2005). On analyzing our results, there was no suicidal ideation occurred. This maybe because of the religion (Islam prohibits suicide) differences. Finally, These results suggest that it is the rigors of the medical curriculum that may play an important role in the increased prevalence of depression and anxiety for students during their medical education. Furthermore, students who are entering medical field already have concerns about medical school and are in the process of anticipating the necessary adjustment to the challenges ahead of them. Preventative programming efforts should begin early in medical education and address a wide variety of concerns from academic, to interpersonal relationships and financial worries (Smith *et al.*, 2007).

Conclusion

Actions should be taken to encourage the Qassim Medical College students to seek help for psychiatric problems, especially depression, and to provide adequate facilities. medical society should conduct more studies to identify the major causes of depression in such young group of students and try to manage the problem as with studying medicine students carry the burden of great responsibilities and depression might lead to behavioral changes that can affect both medical students and the patients as well especially when it comes to decision making which is in many situations is a life saving decision. Interventions addressing the mental health of medical students might be directed towards those revealing depressive symptoms.

REFERENCES

- Mannapur B, Dorle AS, Hiremath LD, Ghattargi CH, Ramadurg U, Wolf TM, Kissling GE. Changes in life-style characteristics, health and mood of freshmen medical students. *J Med Edu*1984;59:806-14.
- Dahlin M, Joneberg N, Runeson B. Stress and depression among medical students: a cross sectional study. *Med Educ*, 2005;39(6):594-604.
- Sherina MS, Rampal L, Keneson N. Psychological stress among undergraduate medical students. *Med J of Malaysia* 2004; 59(2): 207-11.
- Sreeramareddy CT, Shanker PR, Binu VS, Mukhopadhyay C, Ray B, Menezes RG. Psychological morbidity, sources of stress and coping strategies among undergraduate medical students of Nepal. *BMC Med Edu* 2007;7:26.
- Tysen R, Hem E, Vaglum P, Gronvold NT, Ekeberg O. The process of suicidal planning among medical doctors: predictors in a longitudinal Norwegian sample. *J Affect Disord* 2004; 80(2-3):191-8.
- Dyrbye LN, Thomas MR, Massie FS, Power DV, Eacker A, Harper W, *et al.* Burnout and suicidal ideation among U.S. medical students. *Ann Intern Med* 2008; 149(5):334-41.
- Dyrbye, Liselotte N, Thomas, Matthew R., Shanafelt, Tait D. Systematic Review of Depression, Anxiety and other Indicators of Psychological Distress Among U.S. and Canadian Medical Students. *Academic Medicine*, April 2006; 81(4):354-73.
- Ajit Singh, Amarlal, Shekhar. Prevalence of depression Among Medical Students of a Pvt Medical College: India. [accessed online http://www.ojhas.org/issue_36/2010-4.8ht].
- Beck Depression Inventory from Wikipedia accessed on 29.11.12.
- Beck A, Steer R, Garbin M. Psychometric properties of Beck Depression Inventory: twenty five years. of evaluation. *Clin Psychol Rev*. 1988; 8:77-100.
- Ganesh S Kumar, Animesh Jain, Supriya Hegde. Prevalence of depression and its associated factors using Beck Depression Inventory among students of a medical college in Karnataka. *Indian Journal of Psychiatry* 2012; 54(3):223-26.
- Sadock BJ, Sadock VA. Kaplan and Sadock's comprehensive textbook of psychiatry, 7th ed. Lippincott Williams and Wilkins: Philadelphia; 2000. p. 1940-3.
- McDowell I, Newell C. Textbook of Measuring Health. A Guide to Rating Scales and Questionnaires. Second edition. p. 244.
- Aktekin M, Karaman T, Senol Y.Y, Erdem S, Erengin H, Akaydin M. Anxiety, depression and stressful life events among medical students: a prospective study in Antalya. *Turkey Med Educ* 2001; 35(1): 12-17.
- Inam SNB, Saqib A, Alam E. Prevalence of anxiety and depression among medical students of private university. *J Pak Med Assoc* 2003; 53(2):44-7.
- Baldassin S, Alves TC, de Andrade AG, *et al.* The characteristics of depressive symptoms in medical students during medical education and training: a cross-sectional study. *BMC Med Edu* 2008;11(8):60.
- Ahmadi J, Kamel M, Galal Ahmed M, *et al.* Dubai Medical College students' scores on the Beck Depression Inventory. *IRCMJ* 2008; 10(3):169-72
- Isra Ahmed, Haseena Banu, Reem Al-Fageer, Reem Al-Suwaidi. Cognitive emotions: Depression and anxiety in medical students and staff, Second-year medical students, Dubai Medical College, Dubai, UAE 2008
- Sreeramareddy CT, Shanker PR, Binu VS, Mukhopadhyay C, Ray B, Menezes RG. Psychological morbidity, sources of stress and coping strategies among undergraduate medical students of Nepal. *BMC Med Edu*2007;7:26
- Abdulghani HM. Stress and depression among medical students: a cross sectional study at a medical college in Saudi Arabia. *Pak J Med Sci* 2008;24(1):12-7
- Guthrie E, Black D, Bagalkote H, Shaw C, Campbell M, Creed F. Psychological stress and burnout in medical students: a five –year prospective longitudinal study. *Jr Soc Med* 1998; 91(5):237-43
- Shaikh B, Kahloon A, Kazmi M, Khalid H, Nawaz K, Khan N, *et al.* Students, stress and coping strategies: a case of Pakistani medical school. *Educ Health* 2004; 17(3):346-53

Tjia J, Givens JL, Shea JA. Factors associated with under treatment of medical student depression. *J Am Coll Health* 2005;53(5):219-24.

Smith CK, Peterson DF, Degenhardt BF, *et al.* Depression, anxiety, and perceived hassles among entering medical students. *Psychol Health Med* 2007;12(1):31-9.
