



Prevalence of depression, anxiety and stress among male medical students at Najran University, Saudi Arabia

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Abstract

Objectives: The aim of this 2017 study is to identify the prevalence of depression, anxiety, and stress and their association with Najran university male medical students' age, monthly income, living status, academic level, daily studying hours outside the university, and the personal problem factor. Also, the authors aim to find out the correlation and its significance if found between depression, anxiety, and stress among the study participants.

Methods: This study is cross-sectional and used a mixed approach (quantitative and qualitative) with 49% (i.e. 67 students) response rate. All population was included in the study due to its small size [i.e. (N=136), including all levels of male medical students at Najran University and excluding female medical students and first year-students]. Data was anonymously collected using a hardcopy self-administrated survey (DASS-21-tool). Descriptive and inferential statistics were done using the Statistical Package for the Social Sciences (SPSS) Software.

Results: Overall, the prevalence of depression, anxiety, and stress was high. Stress was significantly associated with the living status of the students ($P=0.028$), while academic level and daily studying hours outside the University were significantly associated with depression with $P=0.015$ and $P=0.023$ respectively. However, no significant association was found between anxiety and any variable in our study. Also, there was a positive association between depression and anxiety, between depression and stress and between anxiety and stress scores.

Conclusions: With a high prevalence of depression, anxiety, and stress among male medical students is reported, this issue should be considered when planning educational programs for medical students.

Keywords: depression, anxiety, stress, male, medical, students

1. Introduction

The World Health Organization considers mental health as an important and fundamental component of health [1]. A person could be described as being depressed if s/he shows a variable combination of loss of interest or pleasure; low mood; feelings of guilt; low self-esteem; disturbed sleep; disturbed appetite; or disturbed concentration [2]. The American Psychological Association (APA) characterizes anxiety and stress by feelings of worried thoughts, tension, and physical changes. While anxiety is more related to skeletal muscle tension, autonomic arousal, and situational aspects, stress is more related to impatience, irritability, and difficulty in relaxing [3, 4]. The Authors hypothesis states that there is a relationship between the degree of prevalence of Depression, Anxiety, and Stress (DAS) and the male medical students' monthly income, academic levels and performance. Accordingly, we aim to explore this hypothesis regarding the existence or non-existence of such a relationship between the dependent and independent study variables using the DASS-21 tool. Despite being studied in many countries; the student population in the Middle East is still understudied with regard to the prevalence of DAS [1]. In Saudi Arabia, the government as well as the society encourage morality of the community as well as promoting and facilitating the practice of religion. Islam,

which is the predominant religion in the country, advocates hard work and honesty, and empower its followers to remain peaceful and optimistic in all circumstances [1]. In addition, the crime rate is also among the lowest in the world, i.e. 27. As per mid-2017 statistics reported by Numbio [5]. Accordingly, it could be assumed that the prevalence of depression, anxiety, and stress should be lower than other contemporary societies. The medical curriculum at Najran University consists of basic and clinical subjects complimenting each other in a gradient fashion. The learning methods include lectures, problem-based learning, laboratory sessions, and clinical rotations. Many Concerns about the mental health and well-being of the students have been reported by a number of students and faculty at the College of Medicine, Najran University at different for [6]. The hectic schedule, course burden, and ancillary courses are being considered as potential reasons for this perceived psychological pressure [1]. The aforementioned led to the design of the present study to explore mental health status in our students. Out of the different tools used for examining and appraising mental health, we chose a short, reliable, and validated questionnaire known as Depression, Anxiety, and Stress Scale-21 (DASS-21) out of its particular importance. The tool can identify traits of depression, anxiety, and stress rather than actual diagnosis. The DASS-21

questionnaire21 categorizes each condition into five subcategories, namely, normal, mild, moderate, severe, and extremely severe, as given in table 1. We carried this study to assess the level of depression, anxiety, and stress among medical students at Najran University, and to identify possible correlates such as age, academic level, monthly income, living status, and daily studying hours. Contemporary literature suggests that medical education might adversely affect students' mental health [1, 7, 8]. We expect by the end of this study to find out the degree of prevalence of Depression, Anxiety, and Stress (DAS) among the different levels of medical students at Najran University. It worth noting that in this study, the academic level refers to one semester only according to the curriculum structure at Najran University. Therefore, only the following levels were covered in our study as the study timeframe covered only the second half of the academic year. i.e., level four, level six, level eight, level ten, level twelve (total of five levels).

Table 1: Depression, Anxiety, and Stress (DAS) 21 questions scoring Scale

	Depression	Anxiety	stress
Normal	0-4	0-3	0-7
Mild	5-6	4-5	8-9
moderate	7-10	6-7	10-12
Sever	11-13	8-9	13-16
Extremely sever	+14	+10	+17

2. Methods & participant

This study is cross-sectional and will use a mixed approach i.e. quantitative and qualitative research methods that will take place at Najran University. The population of students from basic levels, i.e. pre-clinical (years 2, 3 and 4) and Clinical Levels (year 5 and 6) filled the study data collection tool, i.e. DASS-21-tool [10], which is a self-administrated survey. It should be noted that due to the small size of the population of the study, i.e. 136 male medical students at Najran University, we distributed the questionnaire on all the population and accordingly, we got a response rate of 49.2% (67 students) within a timeframe of two weeks. Besides collecting data about the prevalence of Depression, Anxiety, and Stress (DAS) among the study population, this tool collected information about the students' monthly income, academic level and students' daily studying hours outside the university as well. The monthly income was calculated in Saudi Riyals. Furthermore, information about the students' academic level [basic levels i.e., pre-clinical (years 2, 3 and 4) and Clinical Levels (year 5 and 6)] was obtained as well in addition to the students' daily studying hours outside the university. A qualitative section will be added to further explore the possible causes of the research findings. The preparatory year students i.e., the first year are usually studying a mix of modules that are mainly focused on improving English language and include students from different specialties and therefore, were excluded from our study. Also, female students were excluded due to time constraints as well as the difficulties to reach this portion of the population during the study period. To maintain studnets 'anonymity, no names nor any identifere were taken except for the acaedmic level. The tool has been validated by their creators i.e., Lovibond SH and

Lovibond PF [9].

3. Data collection method

A cross-sectional hardcopy self-administered Arabic version survey, i.e. DASS-21 that consists of a 21-item was distributed to collect the needed data from the sample. This questionnaire is divided into three subscales of seven items each, which is designed to measure the magnitude of three negative emotional states: depression, anxiety, and stress [10]. This tool takes about 5-10 minutes to complete. The DASS depression focuses on reports of low mood, motivation, and self-esteem while the DASS-anxiety focuses on physiological arousal, fear, and perceived panic, and finally, DASS-stress focuses on tension and irritability. On each subscale, higher scores indicate increasing severity of anxiety, depression, or stress [11].

4. Data analysis

The Statistical Packages for Social Sciences (SPSS) Version 22. Was used to analyze the data. Descriptive statistics and inferential statistics were done. For inferential statistics, Depression, Anxiety, and Stress were then categorized into two categories; either normal or abnormal (i.e., the "Normal" and "Mild" were considered as the group with normal levels while "Moderate", "Severe" and "Extremely Severe" were considered as the other group with abnormal levels of DAS). Pearson's Chi-square test was conducted to observe an association between the categorical outcome (depression, anxiety, and stress) and different variables such as age group, academic level, monthly income, living status (home), daily studying hours and personal problem factors. Bivariate Correlations was done to show the strength of association between Depression, Anxiety, and Stress. Also, partial correlations were carried out to show the strength of association between Depression, Anxiety, and Stress with Students monthly income as a controlling factor. $P < 0.05$ was considered as the statistical significant point.

5. Results

The male medical students in all 5 years were administered the DASS-21 questionnaire. The total number of registered students in collage of medicine at Najran University was 136 students (N=136). A total of 67 students participated (i.e. 49.2%). The study population was divided in five levels, i.e. level four, level six, level eight, level ten, level twelve. Students in level six had the highest level of depression, anxiety, and stress. The DASS-21 scores were also higher among 22-23 age group, students who living in a rent house, also those studying for 7-8 hours per day, and those who monthly income is less than one thousand. In the majority of the instances (i.e. the number of students who answered the survey qualitative section), war and family problems were regarded as the reasons for their depression, anxiety, or stress as shown in figure 6. Bivariate correlation showed that there was a positive association between depression and anxiety score ($r=0.747$, $p < 0.001$), positive association between depression and stress score ($r=0.844$, $p < 0.001$) and positive association between anxiety and stress score ($r=0.749$, $p < 0.001$) as shown in table 2. The prevalence of depression was significantly associated with the students' academic level

($\chi^2=12.26$, $p=0.015$) and daily studying hours ($\chi^2=11.31$, $p=0.023$) as indicated in table 3, while stress was significantly associated with the living status of the students (either as living in a rent house or living in their own house) with ($\chi^2=4.82$, $p=0.028$) also as shown in table 5. Anxiety on the other hand had no significant relationship with any variable in this study (table 4).

Table 2: Bivariate Correlation between the levels of Depression, Anxiety, and Stress among Participants at Najran University in 2017:

Variable	R	P Value
Depression	0.747	P<0.001**
Anxiety		
Depression	0.844	P<0.001**
Stress		
Anxiety	0.749	P<0.001**
Stress		

*Significant at the 0.05 level, ** Significant at the 0.01 level

Table 3: Association between personal and socioeconomic conditions & Depression among male medical students in Najaran University in 2017:

Variables	Depression (%) Moderate, Severe, Extremely Severe	Depression (%) Normal, Mild	Chi-Square	P Value
Age Group				
Age 20-21	46.4	53.6	6.34	0.096
Age 22-23	66.7	33.3		
Age 24-25	25.0	75.0		
Age 26-27	30.0	70.0		
Academic Level				
Level Four	41.4	58.6	12.26	0.015**
Level Six	78.6	21.4		
Level Eight	100.0	0.0		
Level Ten	20.0	80.0		
Level Twelve	25.0	75.0		
Monthly Income				
Riyal <=1000	46.3	53.7	1.42	0.232
Riyal 2000-4000	28.6	71.4		
Living Status (Home)				
Own House	41.5	58.5	0.14	0.706
Rent House	46.2	53.8		
Daily Studying Hours				
Study Hrs. <=2	50.0	50.0	11.31	0.023*
Study Hrs. 3-4	33.3	66.7		
Study Hrs. 5-6	28.0	72.0		
Study Hrs. 7-8	81.8	18.2		
Study Hrs. >=9	66.7	33.3		
Personal Problem Factor				
Family Problem	55.6	44.4	0.75	0.687
War Problem	46.2	53.8		
Other Problems	40.4	56.6		

Table 4: Association between personal and socioeconomic conditions & Anxiety among male medical students in Najaran University in 2017

Variables	Anxiety (%) Moderate, Severe, Extremely Severe	Anxiety (%) Normal, Mild	Chi-Square	P Value
Age Group				
Age 20-21 •	64.3	35.7	3.04	0.385
Age 22-23 •	73.3	26.7		
Age 24-25 •	50.0	50.0		
Age 26-27 •	80.0	20.0		
Academic Level				
Level Four •	62.1	37.9	2.50	0.644
Level Six •	71.4	28.6		
Level Eight •	100.0	0.0		
Level Ten •	40.0	60.0		
Level Twelve •	70.0	30.0		
Monthly Income				
Riyal <=1000 •	66.7	33.3	0.44	0.506
Riyal 2000-4000 •	57.1	42.9		
Living Status(Home)				
Own House •	61.0	39.0	0.47	0.492
Rent House •	69.2	30.8		

Daily Studying Hours				
Study Hrs. <=2 •	50.0	50.0	0.92	0.971
Study Hrs. 3-4 •	66.7	33.3		
Study Hrs. 5-6 •	64.0	63.0		
Study Hrs. 7-8 •	72.7	27.3		
Study Hrs. >=9 •	66.7	33.3		
Personal Problem Factor				
Family Problem •	77.8	22.2	0.97	0.614
War Problem •	69.2	30.8		
Other Problems •	61.7	38.3		

*Significant at the 0.05 level, ** Significant at the 0.01 level

Table 5: Association between personal and socioeconomic conditions & Stress among male medical students in Najran University in 2017

Variables	Stress(%) Moderate, Severe, Extremely Severe	Stress(%) Normal, Mild	Chi-Square	P Value
Age Group				
Age 20-21	46.4	53.6	0.90	0.823
Age 22-23	53.3	46.7		
Age 24-25	37.5	62.5		
Age 26-27	40.0	60.0		
Academic Level				
Level Four	44.8	55.2	3.78	0.436
Level Six	64.3	35.7		
Level Eight	100.0	0.0		
Level Ten	40.0	60.0		
Level Twelve	35.0	65.0		
Monthly Income				
Riyal <=1000	44.4	55.6	0.01	0.915
Riyal 2000-4000	42.9	57.1		
Living Status (Home)				
Own House	34.1	65.9	4.82	0.028 *
Rent House	61.5	38.5		
Daily Studying Hours				
Study Hrs. <=2	16.7	83.3	3.15	0.532
Study Hrs. 3-4	52.4	47.6		
Study Hrs. 5-6	44.0	56.0		
Study Hrs. 7-8	54.5	45.5		
Study Hrs. >=9	33.3	66.7		
Personal Problem Factor				
Family Problem	44.4	55.6	0.52	0.769
War Problem	53.8	46.2		
Other Problems	42.6	57.4		

*Significant at the 0.05 level, ** Significant at the 0.01 level

6. Discussion

The main results of this study suggest that among medical students at Najran University, there is a high “baseline” level of depression 59.3% (39 students), anxiety 71% (47 students), and stress 60.7% (40 students), which tends to be highest in level six. The students perceive the family problems and war as the most important reasons underlying their high DASS-21 scores. The high levels of DAS among medical student is consistent with the results of other studies that indicated similar results [1, 12, 13]. To the best of our knowledge, this study was the only in the Najran University where all male students were included. Students in the level six (year 3) had the highest level of depression, anxiety, and stress. The DASS-21 scores were also higher among students at level four. In conclusion, more than half of the medical undergraduate students were found to be affected by depression, anxiety and stress.

6.1 Relationship of DASS-21 severity with age

We found that students would be highly DASS-21 at 22-23 age group followed by 20-21 age group. Like many other countries, in Saudi Arabia, the students are admitted to medical college after completing 12 years of school education. The transition from a high school or college to a professional career is a big jump [1]. It is no wonder second and third year medical students feel depression, anxiety, and stress due to greater workload. Thus, this agrees with other similar studies elsewhere [14]. Lowest levels of depression have been reported during 24-25 age and 26-27 age respectively which is level ten and twelve as they finish the study of blocks and start the longitudinal courses compared to other undergraduate years. In the current study, although there was high depression, anxiety and stress at 20-21 years it peaked in year 22-23, where the blocks phase starts as their dominant method of learning. Most of the students were from 20-21 by 40.6% (27 students) followed by 23.2% (15 students) from 24-25. The least were from 26-27 by 4.9% (3students). It should be noted

that the result which indicates that level ten have the lowest levels of depression might be due to the fact that level ten students represent the smallest portion of the population (only nine students).

6.2 Relationship of DASS-21 severity with academic level

Although there was high stress among level 4 students in the current study, it peaked in level six, where a new phase starts and students rotate through various disciplines of the hospital as their major method of training. We also found that level six had the highest depression, anxiety and stress scores. Thus, this agrees with other similar studies elsewhere [14].

6.3 Relationship of DASS-21 severity with monthly income

We found that students would score high levels on DASS-21 are those with monthly income being less than one thousand (≤ 1000). The prevalence of stress is much higher than either depression or anxiety.

6.4 Relationship of DASS-21 severity with living status

In our study, most of the students lived in their own house (59.4). However, there were students (37.7) who either lived alone or with relatives. Although the levels of depression, anxiety, and stress were highest among those who lived in a rented house, it did not reach statistical significance relationship. We found that students who are where living in a rented house would score highly on DASS-21. The prevalence of stress is much higher than either depression or anxiety.

6.5 Relationship of DASS-21 severity with daily studying hours

We found that students with high DASS-21 scores are those who are studying for a long time especially for 7-8 hours. Accordingly, this study found strong link between the studying for a long time and the episode of depression, anxiety and stress.

7. Problem factors and DASS score

We found that students would be highly depressed, anxious, and stressed due to war and family problems as they mentioned in the qualitative question of the survey.

8. Advantages of this study

The study is important in several ways. Firstly, it gauges the prevalence of depression, anxiety, or stress among medical students in all 5 years at Najran University, which is a leading institution in the Kingdom of Saudi Arabia. Secondly, it simultaneously compares the DASS-21 scores in relation to age, academic level, monthly income, living status and daily studying hours. Thirdly, the sample size is large and adequately represents the students in all 5 years from basic sciences to clerkship phases. Thirdly, such findings can be utilized to enrich the existing research body of knowledge, enable the administrators as well as other people in authority within Najran University or even elsewhere to make informed decisions about the possible interventions they can make to either maintain or minimize the revealed prevalence scores among medical students from different levels. Fourthly, other researchers can further use these results as a basis for more detailed research on this topic. Fifthly, studying this topic is

important because as the literature suggested, there is an existing problem within the community of medical students in relation to the degree of prevalence of Depression, Anxiety, and Stress (DAS). As indicated by different studies, students reported several reasons for having such levels like the schedule and curriculum as the primary causes for high DASS-21 [1]. Studying different factors such as those suggested in this project to find out whether they have a significant relationship with the prevalence of depression, anxiety, and stress therefore is important on the university local level as well as on national and international scale as it may serve as a starting point for more studies to investigate this issue in more depth.

9. Limitations of this study

First, the study tool depends upon self-reported measures. Therefore, there is some potential for reporting bias which may have occurred because of the respondents' interpretation of the questions or desire to report their emotions in a certain way or simply because of inaccuracies of responses. Also, this study is limited to male students at single institution i.e., Najran University.

10. Conclusion

The study findings suggest that the level of psychosocial DASS-21 was higher in level six (year 3). The study shown a significant association between high DASS-21 score and monthly income, living status and daily studying hours. The findings of high level of DASS-21 among the medical students suggest that special care must be taken to minimize future psychiatric problems among medical school students. Preventive measures such as providing support services in different forms like counseling for instance for medical students should be seriously considered to be made available for various levels of medical school students at Najran University in order to minimize the level of such psychological symptoms.

11. Previous presentations

This research project was presented as a poster at the Kuwaiti Association of Surgeons' in collaboration with the Kuwait Chapter of The American College of Surgeon 2017, and won the second prize of the best poster presented in medical education category.

12. Ethical approval

Since this project was supervised by a member of the university ethical approval committee who is also the module coordinator of the module requiring this project, no need for ethical approval was required for any project as long as no personal data or sensitive information is collected.

13. Acknowledgment

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to this study.

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