

The Prevalence of Stress among Medical Students and Its Effects on Academic Performance in The Kingdom of Saudi Arabia

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ABSTRACT

Background: A definition of stress is anything that can disturb the normal individual's mental or physical wellbeing. Medical school is known to be a stressful branch in higher education and requires a lot of effort.

In fact there is an increase in the incidence of stress between medical students. Young students are more liable to develop stress due to the high competitive field of medicine.

Aim of Study: the study is to explore the prevalence of stress among medical students and its effects on their academic performance in the Kingdom of Saudi Arabia.

Methods: A cross sectional study was conducted in under graduate medical students and interns at Faculty of Medicine in the kingdom of Saudi Arabia, a quota sampling was used. The questionnaire was validated, self-administrated with a Kessler Psychological Distress Scale (K10) used to conduct the data. **Results:** In total, of 1900 students and interns, 29.5% were males, 70.1% females. The prevalence of stress among undergraduates 82.1% and interns 17.1%, the prevalence of severe stress was in the undergraduate female 84.6%. According to the results the proportion of female who had stress was higher 70.1% than their counterpart males 29.5%. The prevalence of stress was highest among fourth year students 21.1%, and first year 4.8% showed the lowest. There was a high association between a study year and level of stress $p < (0.00)$ There is high association between studying medicine and developing symptoms of stress (p value 0.001). Most of the 60.6% of the participants developed symptoms related to exposure to stress, most common symptoms were gastrointestinal (67.19%). There is significant association between marriage and stress (p value 0.19). There is no association between work and stress ($p < 0.132$). There is no association between marital status and stress (p value < 0.386).

Conclusion: The main result in this study shows high prevalence of stress among medical students in Kingdom of Saudi Arabia compared to others studies. The Level of stress is more among the female students compared to the male students. The main causes of stress are related to hours of sleep, hours of studying and marriage.

Keywords: stress, medical students, study medicine

INTRODUCTION

Medical school is known to be a stressful branch in higher education and requires a lot of effort. Therefore there is an increase in the incidence of stress between medical students⁽¹⁾. The large amount of information leaves a little time for the medical students to relax and refresh, because of that stress and depression have been always linked to mental and physical issues⁽²⁾.

A definition of stress is anything that can disturb the normal individual's mental or physical wellbeing⁽³⁾. So stress could be beneficial or harmful. The beneficial stress will improve the individual performance, increase achievement and imagination. While the harmful stress will affect your general health⁽⁴⁾.

Many studies have shown that the level of stress is higher in medical student comparing to other faculties a study was conducted In three British universities revealed that the prevalence of stress

was 31.2%⁽⁵⁾, while in a Malaysian medical school it was 41.9%⁽⁶⁾, in a Thai medical school 61.4%⁽⁷⁾ and in Jizan university was (71,9%)⁽⁸⁾.

According to a study conducted at College of Medicine, in Jizan University, Jizan, Saudi Arabia, it's found that there is a difference in prevalence of stress between male and female medical students, the prevalence of stress among the females was 77% while that among the males it was 64%. There is a statistically significant association between gender and stress ($p < 0.05$). and the age of the students ranged from 18 to 26 years, with a mean age of 20.8 years.

Even though the difference in mean age of the two groups, stressed and not stressed, was very small; the analysis shows that the difference is statistically significant.

There is a strong belief that stress levels can influence the eating habits and may affect weight and Body Mass Index. The Mean weight and Mean

BMI showed the same trend, and both were slightly lower in the stressed group. The difference was statistically significant. And There was a statistically significant association between stress and BMI ($p < 0.05$) in the two categories, BMI below 25 and BMI above 25. While the difference in mean height of the two groups was not statistically significant.

The stress is linked to anxiety and depression^(9,10), sleeps difficulties⁽¹¹⁾, lower academic achievement and clinical performance⁽¹²⁾.

It is also reported that the stress reduce the attention, concentration and the ability of the students to create good relationships with patients that leads to decrease in confidence and self-satisfaction with clinical practice in the future.

The facts proved the negative association of the stress with mental, emotional and physical morbidity and it will have effect on the patients' lives and the health of the community. So to minimize the effects of stress on the students the early detection and intervention should be done.

This study was conducted to assess the prevalence of stress among medical students in Jizan University. The factors used in the this study and its possible associations with stress were year of study, BMI, gender, whether staying with parents or not, parents' education level and occupation, place of residence, ownership of house, number of siblings, time of waking up in the morning, mode of travel to the college, time taken to reach college, perceived health status and marital status.

Rational of this study was to explore the level of stress among medical students and its effect on their academic performance, causes of stress and coping strategies with stress including all the medical colleges in kingdom of Saudi Arabia.

METHODOLOGY

Design and Participants :A cross sectional study was conducted in 2017 on under graduate medical students and interns at Faculty of Medicine in the kingdom of Saudi Arabia, from April to November. A quota sampling was used with the participants being 1st to 6th year medical students and interns. Freshmen and participants under physiological consultation were excluded.

Survey: Data collection was in the form of questionnaire. The Survey was administrated by the research team which composed of 5 female medical students on the 8th of June 2017 to 8th November.

The questionnaire was validated, self-administrated to tool in a hard and soft copy format.

The questionnaire has 3 sections. the first section contain 9 items related to demographic data while the second contain 11 items to evaluate the relation between stress and studying medicine, in the third section a Kessler Psychological Distress Scale (K10) taken from Kessler R. Professor of Health Care Policy, Harvard Medical School, Boston, USA. That contains 10-item questionnaire used to evaluate stress based on questions about anxiety and depressive symptoms that a person has experienced in the most recent 4 week period.

Each question has a Likert scale range of answers and these answers are none of the time, a little of the time, some of the time, most of the time and all of the time. And with a sum scores range from 10 (minimum) to 50 (maximum) for the ten questions.

- score under 20 are likely to be well
- score 20-24 are likely to have a mild mental disorder
- score 25-29 are likely to have moderate mental disorder
- score 30 and over are likely to have a severe mental disorder

The statistical package SPSS version 21 was used descriptive statistics were calculated for all variables, while T-test, ANOVA, and liner regression were used as inferential tests. **The study was done after approval of ethical board of Royal Commission Medical Center Yanbu, Yanbu Industrial City, Almadinah, Saudi Arabia.**

RESULTS

In total of 1900 students and interns participated in the study approximately 1818 completed the questionnaire their mean of age was 22.53 year (\pm standard deviation) 2.045, 537(29.5%) were males and 1274 (70.1%) females.

The majority of the students 383 (21.1%) were fourth year and the minority were the 1st year 4.8%.

Details are given in Table 1.

Level of stress	N	%
Sever stress	498	27.36%
Moderate stress	345	18.95
Mild	378	21.36
Normal	577	31.7

The prevalence of stress among undergraduates 1480(82.1%) and interns 323 (17.1%), the prevalence of severe stress was in the undergraduate female (84.6%)

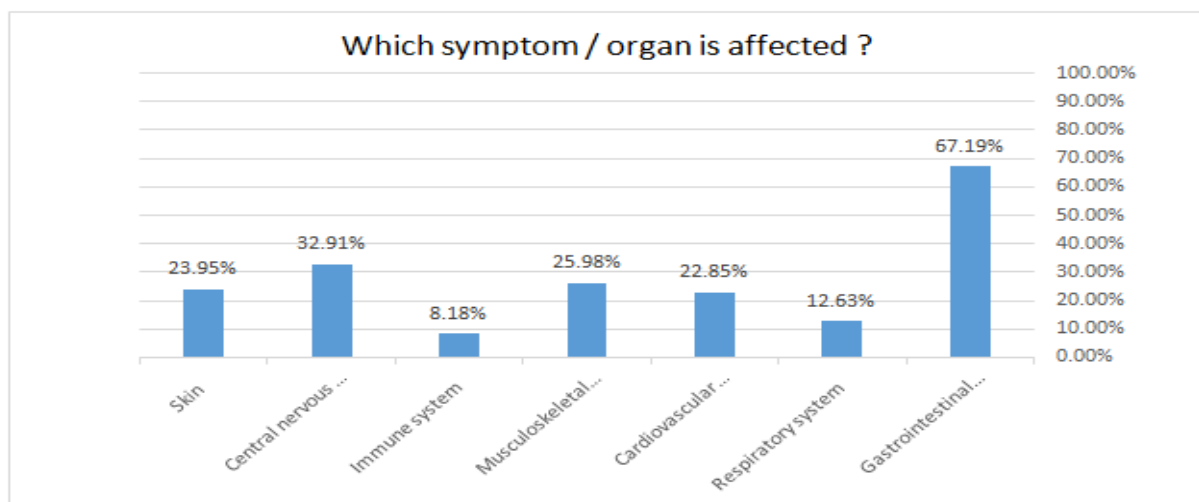
According to the results the proportion of female who had stress was higher (70.1%) than their counterpart males (29.5%)

The prevalence of stress was highest among fourth year students (21.1%), followed by interns (17.8%), fifth year (17.6%), third year (17.2%), sixth year (13.1%), second year (7.8%), and first year

significance association between academic performance and stress level (p value 0.81).

There is high association between studying medicine and developing symptoms of stress (p value 0.001) as shown in figure 1

Figure 1. most of the60.6% of the participants developed symptoms that were related to the exposure to stress , the most common symptoms were gastrointestinal (67.19%) , central nervous system (32.91%) , musculoskeletal (25.98%) , dermatology (23.95%) , cardiovascular (22.85%) respiratory



(Figure 1)

(4.8%).There was a high association between a study year and level of stress (p <0.00)

It's found that the majority of undergraduate have a good academic performance (37.8%) there was a

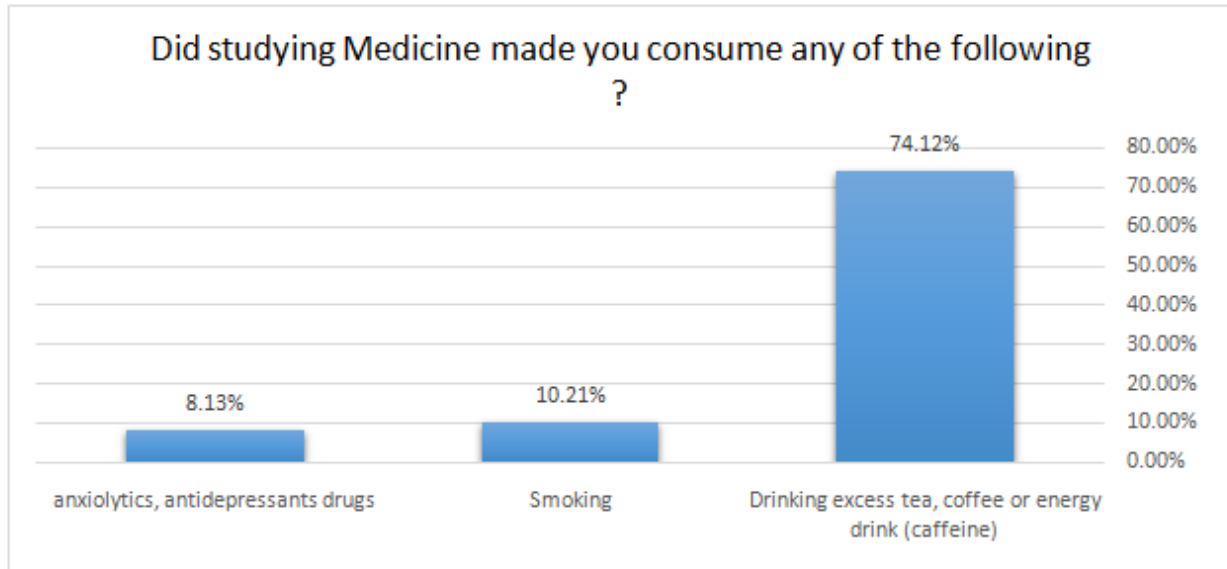
(12.63%) , immune system (8.18%) , (40.7%) of the participants are convened that these symptoms were developed due to stress while (5.3%) admitted that it's not

Table2 : association between stress and study variables			
	Yes	No	P
Work	27.8%	72.2%	0.132
Studying medicine	46.3%	53%	
Financial problems	55.9%	44.1%	0.204
Sleeping hours	72% less that 7 hrs	28% more than 7 hrs	0.024
Living a way	43.4%	50.4%	0.810
Medicine and symptoms	62.1%	37%	0.001
Marriage	7.8%	20.1%	0.19

In table 2 There is significant association between marriage and stress p vale 0.19

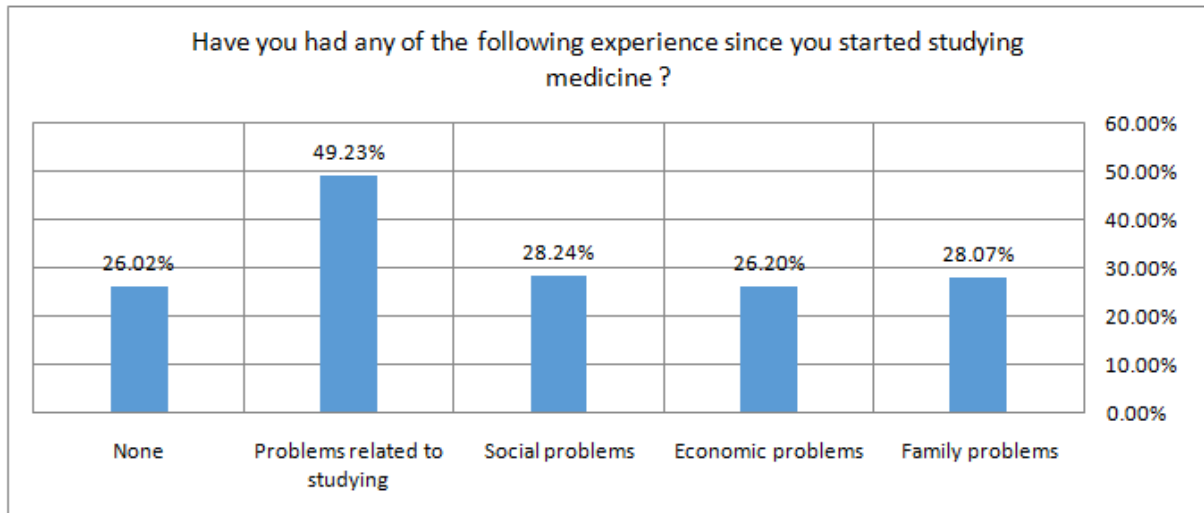
There is no association between work and stress (p <0.132)

There is no association between martial statues and stress (p value<0.386)



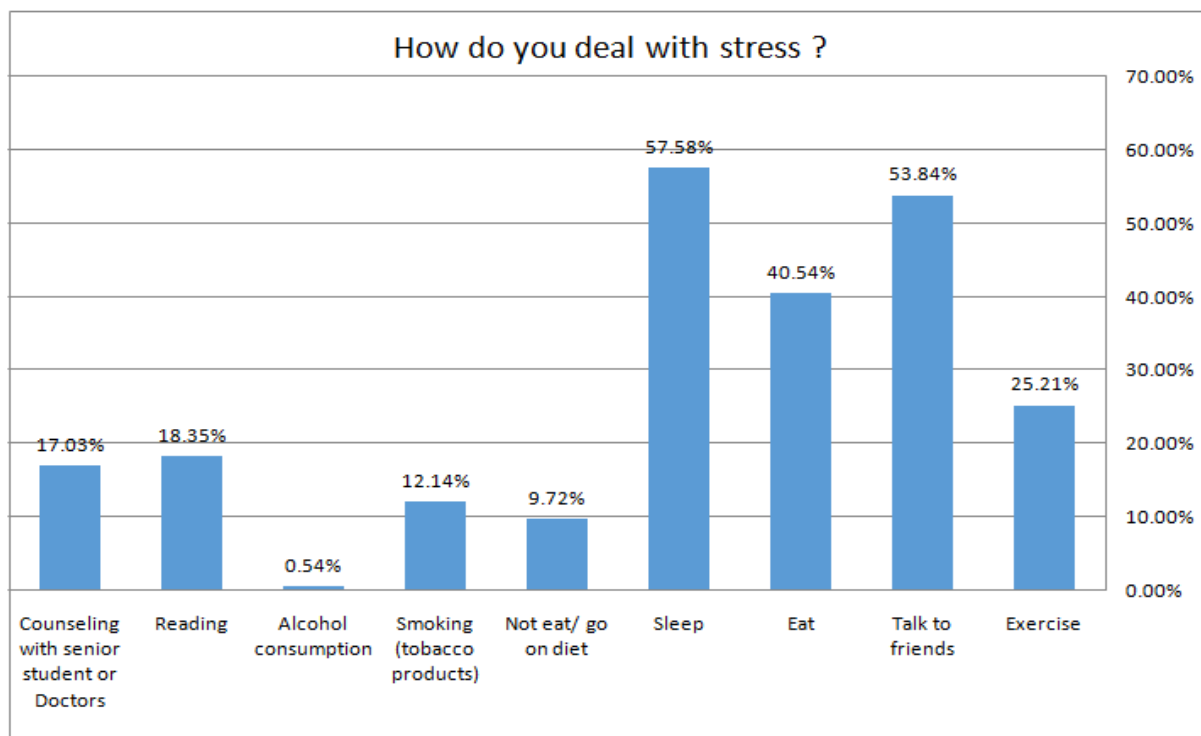
(Figure 2)

Studying medicine made the participants consume the following products to cope with stress as showed in the figure 2



(Figure 3)

Many of the students they had experienced problem related to studying medicine 49.23% , social problems (28.24%) , family problems (28.07%) , economic problems (26.20%) in figure 3



(Figure 4)

In Figure 4 Coping strategies were also identified among undergraduate and interns , sleep (57.58%) had the highest frequent among coping strategies while alcohol consumption (0.54%) score the lowest among the participants. details are given in the tables 3.

Table (2): illustration of the strategies among undergraduate and interns

Strategies	%
Exercise	25.21%
Talk to friends	53.84%
Eat	40.54%
Sleep	57.58%
Smoking	12.14%
Go on diet	9.72%
Alcohol consumption	0.54%
Reading	18.35%
Counseling with senior	17.03%

DISCUSSION

This study was applied at the Kingdom of Saudi Arabia, it shows high prevalence of stress among undergraduate medical students.

The level of stress differs between the stages of education. The highest prevalence of stress was found in the 4th year, with 21.1% followed by the interns with 17.8%. The overall prevalence of stress observed in this

study was 67.5%, which was lower than same study that was conducted in Jizan 71.9%. The prevalence of stress was 70.1% among females compared to 29.5% among males⁽¹³⁾.

And higher than the following studies 61.4% for Thai and Iran⁽¹⁴⁾, 41.9% for Malaysian⁽¹⁵⁾ and 31.2% for British⁽¹⁶⁾. An interesting finding that the prevalence of stress in first year in medical college is the lowest in our study compared to Iran study which shows the highest among their medical students⁽¹⁷⁾.

The items such as marriage, hours of the studying and the hours of sleep showed significant relationship with stress .

On the other hand the work, living away and having financial problem did not show any significant relationship with stress. This study shows that the majority of undergraduate had a good academic performance (37.8%), there was a significant relationship between academic performance and stress level.

CONCLUSION

The main result in this study shows high prevalence of stress among medical students in Kingdom of Saudi Arabia compared to others studies.

The Level of stress is more among the female students compared to the male students. The main causes of stress are related to hours of sleep, hours of studying and marriage.

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