

Perceived Stresses among Male Students in University of Dammam, Eastern Saudi Arabia: A Comparative Study

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Abstract: Background: University students often experience different stresses, which may affect their emotional, psycho-social and physical health. **Objectives:** to estimate the prevalence of perceived stresses and the effects of studying on health and life style among male students from College of Medicine and College of Applied Studies & Community Service (CASCS) in the University of Dammam, Saudi Arabia. **Methods:** This was a cross-sectional study conducted among 456 students, 363 from college of medicine, and 93 from CASCS. A self-administered validated Arabic version of "Influence of Studying on Students' Health" questionnaire was used. It consisted of self-reported problems and stresses encountered by students. Chi-squared test was used and a p-value of <0.05 was considered significant. **Results:** There was a high prevalence of social, emotional, and study problems among medical students (86.6%, 81.3%, and 80.4% respectively). The main problems reported by students of CASCS were family, economic, and study problems (27.7%, 21.8%, and 19.6% respectively). Concentration, recognition, and memory were reported to be worse in 26.8%, 17.6%, and 27.1%, respectively among students of both colleges. Mood disturbances (56.4%), frustration (42.5%), and anxiety and nervousness (38.7%) were the main stresses experienced by students. Curriculum contents (81.4%), teaching methods (68.4%), and fear of failure (63.2%), were the main reasons for being under stress for students of both colleges. **Conclusions:** Studying affected physical, mental, social, and psychological health of students. Establishment of counseling unit and preventive mental health services are recommended.

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1. Introduction

The World Health Organization (WHO) estimates that mental disease, including stress-related disorders, will be the second leading cause of disabilities by the year 2020.^(1,2) Stress is a term often used by individuals in a variety of social, academic, and employment settings. Both negative and positive aspects of a person's life can contribute to stress.⁽³⁾ University students, however, often experience an undue amount of stress, which can have negative academic, emotional, or health outcomes.⁽³⁾ Stress can affect students' grades, health, and personal adjustment.⁽⁴⁾ Stress in university students has many sources, including academics, personal situations, environment, time, and economic circumstances.^(5,6) It is related to how students perceive their immediate environment, personal lives, and tasks confronting them.⁽⁴⁾

Life as a medical student poses particular challenges and stressors which can impact on quality of life.⁽⁷⁾ Medical education is perceived as stressful. High levels of stress have been documented in medical students in various studies

⁽⁸⁻¹²⁾, and psychological morbidity have been reported in high rates amongst medical students using various instruments.^(13,14)

Based on previous studies, stress prevalence among medical students ranges from 30% to 50%.^(9,10,12,14-19) This level of stress is high in comparison to that of the general population⁽¹²⁾, and that of students in other study courses.^(10,16) The prevalence of stress among the Malaysian medical students was 29.6 %⁽²⁰⁾, while the prevalence of stress in Singapore law and medical students was 47.2% and 57.0%, respectively.⁽¹⁶⁾ Limited studies of Arab medical students suggest that they have a high prevalence of perceived stress, depression and anxiety, with levels of perceived psychological stress as high as those reported in the international literature for medical students of other regions of the world.⁽²¹⁾ A study conducted at King Saud University, Kingdom of Saudi Arabia (KSA) showed a high prevalence of stress (57%) in medical students.⁽²²⁾ **El-Gilany et al.**, reported stress rates of 28.9% and 30.9% among Saudi and Egyptian medical students, respectively.⁽²³⁾

Amongst medical students, stress has been reported to be due to academic demands, exams, inability to cope, helplessness, increased psychological pressure, mental tension, and too much work load.⁽²⁴⁾ Stress during medical school can lead to problems later in professional life compromising patient care.⁽²⁵⁾

The aim of the present study was to estimate the prevalence of perceived stresses and to compare the effect of studying on physical, mental, psychological, emotional, and life style among medical and non- medical male students in the University of Dammam, KSA.

2. Material and Methods:

I-Statistical Design:

This was a cross-sectional, comparative study conducted in university of Dammam, Eastern Province, KSA, among male medical students from the College of Medicine and non-medical students from the College of Applied Studies & Community Service (CASCS).

The target population consisted of all registered male students in both colleges. Students from the college of medicine in the preclinical phase (from first to fourth year) were included in the study. Their total number was 425 and only 363 completed the questionnaire with a response rate of 85.4%. Also 152 students from different specialties from year one to three in the CASCS were included and 93 completed the questionnaire with a response rate of 61.2%. The study was approved by the College of Medicine and the university authorities and the objectives of the study were explained to the participating students after which they gave their informed consent and they were assured that their information will be kept confidential.

II-Technical Design:

Data was collected using the self-administered validated Arabic version of "Influence of Studying on Students' Health" (ISSH) questionnaire which was developed by the International Federation of Medical Students' Association (IFMSA).⁽²⁶⁾ The questionnaire was reviewed by the researchers and questions related to alcohol and addicting drugs were not included due to socio-cultural considerations.

The questionnaire consisted of close-ended questions about the following main parts: socio-demographic data (age, faculty of study, native city, place of residence, students living with parents and having a separate room); Self-reported problems (family, economic, social, emotional, and study) encountered by students, detailed questions about the effect of studying on physical, mental,

psychological, emotional, and life-style of university students

III-Statistical Analysis:

Data collected were checked for accuracy and completeness and were coded and entered into the Statistical Package for Social Sciences (SPSS) software version 16 (SPSS Inc., Chicago, Illinois, USA). Descriptive statistics for all studied variables, Chi-squared and Fisher's exact tests were used and a *p*-value of <0.05 was considered statistically significant throughout the study.

3. Results:

The study comprised a total of 456 male students, 363 from college of medicine and 93 from CASCS. The mean age of students in the medical college was 20.21±1.46 and 21.09±2.56 in CACS. A total of 169 (37.1%) students do not study in their own city comprising 44.4% from college of medicine and 8.6% from CASCS and the difference was statistically significant (*P*<0.001) as shown in **table 1**. The majority of students (70.2%) live with their parents. However, 21.5% of medical students share apartment with other students, compared with 3.2% of students from CASCS (*P*<0.001). A high proportion of students (76.1%) live alone in a separate room, with a statistical significant difference between the two colleges (72.7% in medical college and 89.2% in CASCS; *P* <0.01). (**Table 1**)

Figure 1 shows self-reported problems experienced by male students of both colleges. There was a high prevalence of social, emotional, and study problems among medical students (86.6%, 81.3%, and 80.4% respectively). The main problems reported by students of CASCS were family, economic, and study problems (27.7%, 21.8%, and 19.6% respectively). There was a statistical significant differences between students of both colleges regarding family and social problems (*P* <0.05).

A high proportion (40.8%) of students of both colleges reported that their current physical health became worse compared to their physical health before entering college as shown in Table 2. Nearly one-fourth (25.4%) of students of both colleges stated that their physical health problems started at the first academic year, 24.5% in medical students compared to 29.0% of CASCS's students, (*P* <0.001). A high proportion (30.0%) of medical students reported that their physical health problems were related to studying compared to 13.9% of CASCS's students, (*P* <0.01).

It was clear from **table 3** that studying affected various aspects of mental health of students of both colleges. Concentration,

recognition, memory, and judgment were reported to be worse in 26.8%, 17.6%, 27.1% and 7.3%, respectively among students of both colleges. Concentration and memory were statistically significantly affected among medical students compared to those of CASCs ($P < 0.01$ and $P < 0.05$ respectively).

Table 4 shows a high prevalence of all forms of stress among medical students compared with students from CASCs. However, these differences were not statistically significant ($P > 0.05$). Mood disturbances (56.4%), frustration (42.5%), and anxiety and nervousness (38.7%) were the main forms of stress experienced by students of both colleges as a result of studying. The main reasons for being under stress reported by students of both colleges were curriculum contents (81.4%), teaching methods (68.4%), fear of failure (63.2%), and college environment (46.3%). Teaching methods and college environment, as reasons for being under stress, were significantly more prevalent among medical students than students from CASCs ($P < 0.05$). The main outcomes of this stress in students of both colleges were changes

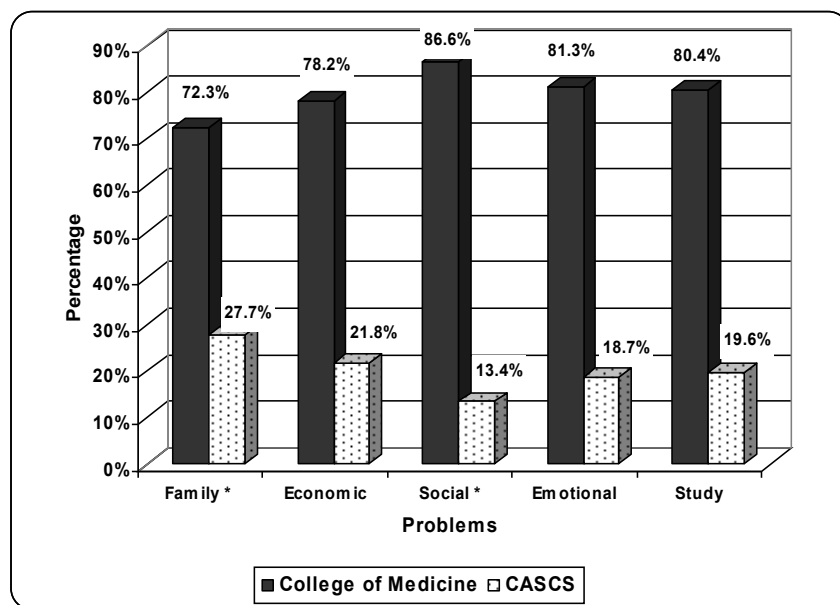
in habits and life-style (48.7%) and psychological conditions (34.4%). Those were significantly higher in medical than CASCs students ($P < 0.001$).

When students were asked if studying has changed specific aspects of their life-style, the answer was yes to different aspects as shown in **table 5**. Socialization (68.2%), recreational activities and hobbies (61.8%), and having enough hours of sleep (61.8%) were the main aspects affected by students of both colleges. The effects of studying on all aspects of life-styles were statistically significantly more prevalent among medical students than students from CASCs ($P < 0.001$). The stress caused by studying led students of both colleges to drink more tea and coffee (37.9%), to increase smoking (10.9%), and to increase intake of sedatives and anti-depressants (3.7%). These three habits were also reported to increase during exam times by students of both colleges. Smoking during exam times was statistically significantly higher among students from CASCs (30.1%) than medical students (6.9%; $P < 0.001$).

Table 1: Socio-demographic characteristics of university students by college

Socio-demographic characteristics	College of Medicine (n=363)		CASCs* (n=93)		Total (n=456)		Test of Significance (P-Value)
	No.	%	No.	%	No.	%	
1-Age in Years							
15 - <20	136	37.5	30	32.3	166	36.4	$X^2=44.01$ ($P < 0.001$)
20 - <25	227	62.5	52	55.9	279	61.2	
25 - 30	0	0.0	11	11.8	11	2.4	
Mean Age in years \pm SD	20.21 \pm 1.46		21.09 \pm 2.56		20.4 \pm 1.8		
2-Academic level:							
First	100	27.5	52	55.9	152	33.3	$X^2 = 42.7$ ($P < 0.001$)
Second	87	23.9	20	21.5	107	23.5	
Third	80	22.1	21	22.6	101	22.2	
Fourth	96	26.5	0	0.0	96	21.0	
3-Student study in his own city:							
Yes	202	55.6	85	91.4	287	62.9	FET= 40.57 ($P < 0.001$)
No	161	44.4	8	8.6	169	37.1	
4-Where Student lives:							
With parents	239	65.8	81	87.1	320	70.2	$X^2 21.44$ ($P < 0.001$)
Separate apartment	25	6.9	5	5.4	30	6.6	
Sharing apartment with other students	78	21.5	3	3.2	81	17.8	
Student hostel	9	2.5	0	0.0	9	1.9	
Others	12	3.3	4	4.3	16	3.5	
5-Student lives alone in a separate room:							
Yes	264	72.7	83	89.2	347	76.1	FET=11.11 (< 0.01)
No	99	27.3	10	10.8	109	23.9	

- College of Applied Studies & Community Services



CASCS=College of Applied Studies & Community Services. * $P < 0.05$

Figure 1: Self-reported problems experienced by university students by college

Table 2: Effect of studying on physical health of university students by college

Physical health	College of Medicine (n=363)		CASCS* (n=93)		Total (n=456)		Test of Significance (P-Value)
	No.	%	No.	%	No.	%	
1- Physical health now:							$X^2 = 4.3$ (NS**)
Better	332	91.4	90	96.7	422	92.5	
Acceptable	23	6.4	1	1.1	24	5.3	
Worse	8	2.2	2	2.2	10	2.2	
2-Physical health now compared to health before entering College:							$X^2 = 16.6$ ($P < 0.001$)
Better	56	15.4	31	33.3	87	19.1	
Similar	148	40.8	35	37.6	183	40.1	
Worse	159	43.8	27	29.1	186	40.8	
3- Academic year the problems started							$X^2 = 16.4$ ($P < 0.01$)
First	89	24.5	27	29.0	116	25.4	
Second	67	18.5	2	2.2	69	15.1	
Third	27	7.4	9	9.7	36	7.9	
Fourth	3	0.8	0	0.0	3	0.7	
No physical problems	177	48.8	55	59.1	232	50.1	
4-Physical problems were related to studying							$X^2 = 13.7$ ($P < 0.01$)
Yes	109	30.0	13	13.9	122	26.6	
No	27	7.4	14	15.1	41	8.9	
Don't know	50	13.8	11	11.8	61	13.4	
No physical problem	177	48.8	55	59.2	232	50.1	

* College of Applied Studies & Community Services

NS** = Not Significant

Table 3: Effect of studying on mental health of university students by college

Mental health	College of Medicine (n=363)		CASCS* (n=93)		Total (n=456)		Test of Significance (P -Value)
	No.	%	No.	%	No.	%	
1- Concentration:							
Better	155	42.7	52	55.9	207	54.4	X ² =11.7 (P < 0.01)
Same	98	27.0	29	31.2	127	27.8	
Worse	110	30.3	12	12.9	122	26.8	
2 Recognition:							
Better	163	44.9	42	45.2	205	44.9	X ² =3.1 (NS**)
Same	131	36.1	40	43.0	171	37.5	
Worse	69	19.0	11	11.8	80	17.6	
3- Memory:							
Better	147	40.4	42	45.2	189	41.5	X ² =6.14 (P <0.05)
Same	108	29.8	35	37.6	143	31.4	
Worse	108	29.8	16	17.2	124	27.1	
4- Judgment							
Better	243	66.9	65	69.9	308	67.5	X ² =0.4 (NS**)
Same	94	25.9	21	22.6	115	25.2	
Worse	26	7.2	7	7.5	33	7.3	

* College of Applied Studies & Community Services; NS** = Not Significant

Table 4: Prevalence, reasons, and outcomes of stress among university students by college

Stress Aspects	College of Medicine (n=363)		CASCS* (n=93)		Total (n=456)		Test of Significance (P -Value)
	No.	%	No.	%	No.	%	
1- Students suffering from:							
Depression	113	31.1	27	29.0	140	30.7	NS**
Anxiety & nervousness	143	39.4	32	34.4	175	38.7	
Social phobia	49	13.5	10	10.8	59	12.9	
Mood disturbances	205	56.5	52	55.9	257	56.4	
Frustration	159	43.8	35	37.6	194	42.5	
2-Reasons for being under stress:							
Curriculum contents	300	82.6	71	76.3	371	81.4	NS** (P <0.001) (P <0.05)
Teaching Methods	284	78.2	48	51.6	332	68.4	
College environment	177	48.7	34	36.6	211	46.3	
Home environment	93	25.6	26	27.9	119	26.1	
Relationship with other students	88	24.3	30	32.3	118	25.9	
Fear of failure	228	62.8	60	64.5	288	63.2	
3- Main outcome of this stress							
Physical complaints	14	3.9	3	3.2	17	3.7	X ² =29.9 (P <0.001)
Psychological conditions	134	36.9	23	24.7	157	34.4	
Changes in habits & lifestyle	183	50.4	39	41.9	222	48.7	
Not suffering	32	8.8	28	30.1	60	13.2	

* College of Applied Studies & Community Services; NS** = Not Significant

Table 5: Effect of studying on lifestyle of university students by college

Lifestyle	College of Medicine (n=363)		CASCS* (n=93)		Total (n=456)		Test of Significance (P -Value)
	No.	%	No.	%	No.	%	
1-Studying changed students lifestyle:							
Recreational activities & hobbies	247	68.0	35	37.6	282	61.8	P <0.001
Exercise	239	65.8	29	31.2	268	58.8	
Socialization	268	73.8	43	46.2	311	68.2	
Enough hours of sleep	242	66.7	40	43.0	282	61.8	
Caring for your health status	230	63.4	39	41.9	269	58.9	
2 Studying influenced :							
Drinking excess tea, coffee	137	37.7	36	38.7	173	37.9	NS** P <0.001 NS**
Increase of smoking	26	7.2	24	25.8	50	10.9	
Increase of sedatives & antidepressants	11	3.0	6	6.5	17	3.7	
3-Habits Increased during exam times:							
Drinking excess tea, coffee	164	45.2	49	52.7	213	46.7	NS** P <0.001 NS**
Smoking	25	6.9	28	30.1	53	11.6	
Sedatives & antidepressants	10	2.8	3	3.2	13	2.9	

* College of Applied Studies & Community Services; NS** = Not Significant

4. Discussion:

A high proportion of medical college students in the present study came from cities other than the one in which the college is situated and live away from their parents compared with students from CASCs. This condition predisposes students to a lot of psychosocial, mental, and physical stress. A similar study of male medical students in Egypt and Saudi Arabia showed that 19.4% of Egyptian and 4.9% of Saudi students were living away from their families during their study.⁽²³⁾ **Sheikh et al.**, study also showed that family problems and home sickness were some of the reasons for stress quoted by medical students.⁽²⁴⁾

The present study found a high prevalence of social (86.6%), emotional (81.3%), and study (80.4%) problems among medical students. These figures are higher than similar studies conducted among university students.^(17,18,21,22,24) **Sidik et al.**, study among medical students in Malaysia reported an overall prevalence of 41.9% of emotional disorders.⁽¹⁷⁾ **Zaid et al.**, also found a prevalence of 46.2% of emotional disorders among 117 medical students of a private medical school in Malaysia based on positive GHQ scores.⁽¹⁸⁾ **Abdulghani** study of 494 medical students in Saudi Arabia reported a prevalence of 57% of stress and that the main source of stress was their studies (60.3%), followed by home environment (2.8%).⁽²²⁾ The statistically significant difference between medical and CASCs colleges was probably due to the fact that the college of medicine curriculum was too much demanding, tiring, and with too many examinations which puts too much stress on students. **Shaikh et al.**, showed a high prevalence of stress among Pakistani medical students and that the main reasons for stress among male students were exams (71%), academics (59%), relationship problems (22%), and homesickness (22%).⁽²⁴⁾

The excessive workload and great demands of studying medicine, with limited time available for social and recreational activities would probably affect physical as well as psychological health of students. In this study it was apparent that studying statistically significantly affected physical health of medical students more than students of the other college. A high proportion of medical students reported their physical health became worse than before entering the college. In fact, students need to be prepared and better informed about university education with continuous counseling and follow up by concerned university authorities so that they can cope with their new environment. **El-Gilany et al.**, in their study of perceived stress among male medical students in Egypt and Saudi Arabia showed too many stressful factors reported by

students in both countries mainly related to studying.⁽²³⁾ These included academic problems, excessive workload, inconsiderate and insensitive instructors, and family problems.

Similar studies show that stresses prevalence were higher among the early years of studying and diminishes gradually.^(20-22,27) **Abdulghani** showed that stress prevalence was higher among first year students (70%) and diminishes progressively.⁽²²⁾ **Jadoon et al.**, study of medical students in Pakistan reported that the prevalence of anxiety and depression was significantly higher in first year and lower in fourth year.⁽²⁷⁾ **Yusoff et al.**, observed the highest prevalence of stress among second and fourth year medical students (36.5% and 35.3% respectively).⁽²⁰⁾ They concluded from a logistic regression analysis that the main predictor influencing the stress level of medical students was the year of study.⁽²⁰⁾

Quite a high proportion of medical students reported that studying affected various aspects of their mental health (concentration, recognition, and memory) compared to students of CASCs. Several studies have shown a high prevalence of psychiatric morbidity among medical students.^(13,22,27,28) **Dahlin et al** in Sweden, in a longitudinal study reported that 25% of the interviewed medical students had a clinically significant psychiatric diagnosis and that higher levels of personality trait impulsivity predicted burnout.⁽¹³⁾ **Costa EF et al** study showed an overall prevalence of 40.0 % of common mental disorders among medical students.⁽²⁸⁾ **Andrews and Wilding** in their study of University College, London students found that 40% of students had attended student health clinic for psychological problems, characterized by anxiety, tension, and poor concentration.⁽²⁹⁾

The worsening of mental health aspects in students of both colleges in this study as a result of studying may possibly reflect the inadequate teaching and learning strategies as well as the educational environment as a whole. Colleges authorities need to look at these factors in depth for the sake of better mental health and wellbeing of students.

The present study revealed a high prevalence of depression, anxiety, social phobia, mood disturbances and frustration, especially among medical students. This result was consistent with many other studies.^(20,22,27,30) **Khan et al.**, study among medical students in Pakistan reported a prevalence of 70% of anxiety and depression⁽³⁰⁾, and **Jadoon et al.**, found a prevalence of 43.89% of anxiety and depression among 482 medical students.⁽²⁷⁾ A similar study among Saudi medical

students showed a prevalence of stress of all types of 57% and of severe stress among 19.6% study subjects.⁽²²⁾

The main reasons for being under stress in this study were related to academic study (curriculum content and teaching methods) and college environment. This result was similar to **Abdulghani** study among Saudi medical students who reported that the main source of stress was found to be their studies (60.3%) followed by home environment (2.8%).⁽²²⁾ Similarly **El-Gilany et al.**, found that the main stressors among male medical students in Egypt were academic problems (91.1%), congested classrooms (71.4%), personal problems (66.1%), and relationships (47.7%).⁽²³⁾ **Labib et al.**, study on sources of stress among Fayoum university students in Egypt found that academic and family sources of stress were statistically significantly more in medical than non-medical students.⁽³¹⁾ These stressors need to be considered seriously by university authorities as they affect students' academic performance as well as their health and wellbeing.

An interesting finding in this study was that stress, anxiety, and depression resulting from studying among medical and non-medical students had tremendous effects in changing students' lifestyle, social habits, and behavior. These findings were similar to other studies conducted among university students.^(10,20,22,23) **Aktekin et al.**, study in Turkey shows that there was a decrease in the psychological health of medical and non-medical students and that some inadequacies in the social activities of the students might play a role in this disturbance.⁽¹⁰⁾ In the present study, studying led to less time for socialization, recreational activities, and less time for sleep. The stresses posed by much time for studying and too many exams had resulted in students drinking excess tea and coffee, increase in smoking and intake of sedatives and antidepressants. Inadequate time management by students and lack of advice and counseling by colleges authorities might be some factors which predisposed to these negative coping behaviors by students. **El-Gilany et al.**, study showed that limited time for recreational and social activities and environmental problems were important stressful factors reported by male medical students in Egypt and Saudi Arabia.⁽²³⁾ **Yusoff et al.**, also reported that lack of time for family and friends was a factor causing mild to moderate stress among Malaysian medical students.⁽²⁰⁾

5. Conclusions and recommendations:

This study showed a high prevalence of psychosocial, emotional, study, and family problems among male medical students of university of Dammam. Studying affected physical, mental, and psychological health of both medical and non-medical students. Curriculum contents, teaching methods, and college environment were the main reasons for being under stress. Studying had a great impact in changing students' lifestyle and habits. This study can be a baseline for university authorities to look with more depth into the students' health and wellbeing. We recommend the establishment of students counseling unit, supportive and preventive mental health services to help students to cope with the increasing demands of studying and exams.

One limitation of this study was that it was a cross-sectional one, so cause-effect relationships could not be established. Some students might have over- or under-reported their stress and stressful factors. In addition, the study was conducted in only two colleges, which might not be generalizable to other colleges. University characteristics, curriculum, teaching methods, and university environment need to be further explored in more details.

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