

A Comparative Study of Perceived Stress among Female Medical and Non-Medical University Students in Dammam, Saudi Arabia

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دراسة للمقارنة بين الضغوط النفسية التي تواجهها طالبات كلية الطب وطالبات كلية غير طبية بالدمام في المملكة العربية السعودية

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الخلاصة: الهدف: تهدف هذه الدراسة إلى مقارنة طالبات في كلية الطب مع طالبات من كلية أخرى غير طبية في الجوانب الآتية: 1. مدى انتشار ومسببات الضغوط الجامعية. 2. التغيرات الجسمية والذهنية والنفسية والانفعالية وكذلك نمط الحياة لدى الطالبات الجامعيات منذ التحاقهن بالجامعة. الطريقة: هذه دراسة مقطعية أجريت في جامعة الملك فيصل بالدمام (المملكة العربية السعودية) في شهر يناير 2008. شملت الدراسة جميع طالبات الطب في المرحلة ما قبل السريرية (319 طالبة) وتم اختيار (297 طالبة) من كلية الدراسات التطبيقية وخدمة المجتمع من جميع التخصصات والمستويات عن طريق الاختيار العشوائي الطبقي. استخدم في البحث استبيان "تأثير الدراسة على صحة الطلاب". النتائج: بينت الدراسة بأن طالبات كلية الطب يتعرضن لضغوط نفسية أكثر (48.6%) من طالبات كلية الدراسات التطبيقية وخدمة المجتمع (38.7%) والنتيجة معتدلة إحصائياً ($P > 0.01$). طرق التدريس غير المناسبة وعدم ملاءمة البيئة الدراسية والخوف من الفشل في الامتحانات كانت أهم أسباب الضغوط التي تواجه طالبات كلية الطب أكثر من الطالبات الأخريات، وكانت تلك العلاقة ذات دلالة إحصائية معتدلة أيضاً ($P > 0.05$). كانت المشاكل الاجتماعية أكثر لدى طالبات كلية الطب، غير أن المشاكل المالية كانت أكثر لدى طالبات الدراسات التطبيقية وخدمة المجتمع ($P < 0.05$). كما أن التغيرات الجسمية والذهنية والنفسية والشعور بالقلق والاكتئاب والتغيرات السلبية لنمط الحياة كانت أكثر لدى طالبات الطب منذ التحاقهن بالكلية. الخلاصة: نستنتج من هذه الدراسة بأن طالبات كلية الطب معرضين للإصابة بمشاكل صحية جسمية وذهنية نظراً للضغوط الأكاديمية التي يتعرضن لها. كذلك هناك نسبة من طالبات كلية الدراسات التطبيقية وخدمة المجتمع يتعرضن لنفس الضغوط، لذا نقترح إنشاء لجنة لدعم الطالبات في الكليتين لتقديم النصح والإرشاد لهن في كيفية معالجة الضغوط بالطرق الصحيحة والتأقلم مع الضغوط.

مفتاح الكلمات: الضغوط النفسية، علم النفس، التعليم، علم الوبائيات

ABSTRACT: Objectives: The objective of this study was to investigate any differences between female undergraduate medical and non-medical students for: 1) prevalence and causes of perceived academic stress, and 2) changes in physical, mental, psychological and emotional health as well as life-style since starting college studies. **Methods:** A cross-sectional study was conducted at Dammam University, Dammam, Saudi Arabia, in January 2008. All 319 pre-clinical female medical students were included in the study and 297 non-medical students from the College of Applied Studies and Community Services (CASCS) were selected by stratified random sampling. The study instrument was a questionnaire on the "Influence of Studying on Students' Health". **Results:** More medical students (48.6%) reported being frequently stressed due to studies than CASCS students (38.7%, $P < 0.01$). Unsuitable teaching methods, an unsatisfactory study environment, and fear of failure in examinations were more frequently mentioned by medical than non-medical students ($P < 0.05$). While underlying social problems were significantly more common in medical students, economic problems were more prevalent among CASCS students ($P < 0.05$, $P < 0.05$). More medical than non-medical students reported a worse status of physical and mental health, anxiety and depression and negative life-style changes since initiation of the college programme. **Conclusion:** Medical students were at higher risk of physical and mental health problems than non-medical students due to academic stress. Since a substantial proportion of CASCS students also experienced academic stress, we recommend that a student support committee be established for both colleges to provide counselling and guidance in healthy ways to cope with stress.

Keywords: Stress; Psychology; Education; Epidemiology

ADVANCES IN KNOWLEDGE

1. This is the first study in Saudi Arabia to compare the differences in study-related stress between medical and non-medical university students.

2. The parameters of stress and their effect on physical and mental health have been identified in both groups with medical students as victims of greater stress.
3. These findings will be used to change educational methods and initiate stress management programmes to improve students' health and quality of life.

APPLICATION TO PATIENT CARE

1. The physical and mental health of medical students has a potential to affect the quality of patient care when they become physicians.
2. The stress of student days may continue during internship, the postgraduate study-period and later in a physician's practical life.
3. Stressed and anxious doctors are unlikely to provide optimal patient care.
4. Timely intervention to control stress in medical students is likely to lead to a better learning situation and subsequently better patient care.

IT IS GENERALLY BELIEVED THAT THE HEALTH of students is affected by the stresses of academic life. These stressors may affect their learning ability, academic performance and health. Several international studies have revealed high rates of health problems in undergraduate medical and non-medical students as a result of their studies.¹⁻⁷ Research projects conducted in the USA have reported a nationwide increase in stress among undergraduate college students in various fields of study.^{4,5} Medical students in particular, and from different countries, have been found at risk of psychological stress, mental disorders and decreased life satisfaction.⁶⁻⁹ A majority of medical students from universities in Mumbai (India)¹ and Karachi (Pakistan)² perceived stress at one time or another during their study period. A high prevalence of emotional disorders among medical students was reported at a Malaysian private medical school,³ while El-Gilany *et al.* found an overall stress rate of 30.9% and 28.9% among Egyptian and Saudi medical students respectively.¹⁰ Abdulghani reported a higher prevalence of stress (57%) in medical students from King Saud University, Riyadh, (Saudi Arabia).¹¹

Studies in the literature have reported that some of the challenges faced by students include managing the psychosocial environment and financial problems, accompanied by academic pressures.^{12,13} Academic demands and the quality of the study environment may vary in different fields of education and different colleges and consequently result in different student life-styles and health effects. There is a lack of data on the comparison of perceived stress and its health consequences among medical and non-medical students.

At Dammam University, Dammam, Saudi Arabia, medical students from the College of Medicine and non-medical students from the

College of Applied Studies & Community Service (CASCS), largely share a common life-profile, language, religion and culture, but perhaps differ with regard to their levels of academic pressure. There is reason to hypothesise that there would be a variation in their stress level and consequent health effects, with medical students at a higher risk of perceived stress than their non-medical counterparts.

The current study was conducted to compare differences between female undergraduate preclinical students and non-medical (CASCS) students of Dammam University, Dammam for: 1) prevalence and causes of perceived academic stress, and 2) changes in physical, mental, psychological and emotional health as well as life-style since initiation of the college programme.

Methodology

This research was a cross-sectional, comparative study of female medical and non-medical students conducted simultaneously for both groups at Dammam University, Dammam, in January 2008. Approval for the study was obtained from the higher academic and administrative authorities of the university. All undergraduate pre-clinical medical students (up to 4th level) were recruited for the study. An almost similar number of undergraduate non-medical students from CASCS, undergoing courses in accounting, marketing and secretarial training, were selected by stratified random sampling with proportional allocation for different specialties and academic levels. The response rate for the study was 93.3 %.

The study instrument was the latest version of the questionnaire (2007) on the "Influence of Studying on Students' Health" (ISSH) developed

Table 1: Psychosocial and family problems experienced by medical and CASCs Students

Problems	College		P value
	Medical (N = 319)	(CASCs) (N = 297)	
Economic	14 (4.4%)	32 (10.8%)	< 0.01*
Social	93 (29.2%)	68 (22.9%)	0.05*
Family	72 (22.6%)	70 (23.6%)	0.7
Emotional	73 (22.9%)	85 (28.6%)	0.1

*statistically significant

by the International Federation of Medical Students' Association (IFMSA)¹⁴ for transnational projects. The validity and Arabic translation of the questionnaire were reviewed by an expert committee of IFMSA. The following information was obtained: socio-demographic data (age in completed years, faculty of study, native city, place of residence, whether living with parents and having a separate room for study); family, socio-economic and emotional problems encountered; perceived academic stress and its causes; changes in physical, mental, psychological and emotional health as well as life-style changes since the start of college studies; changes in tea/coffee drinking habits, smoking and intake of antidepressants/sedatives during the examination period [Annex 1]. For cultural reasons, information on intake of alcohol and narcotic drugs was not obtained. Students were gathered in their respective classrooms and informed consent for the research study was obtained. The questionnaire was self-administered. All information was self-reported and no psychometric instruments were used to verify mental and psychological health. Reassurance was given on the confidentiality of the information gathered.

The data were analysed using the Statistical Package for Social Sciences (SPSS), Version 16. Results were presented in frequency tables and bar charts. The chi-squared test was used for bivariate analysis of qualitative variables and Fisher's exact test if expected frequency was less than 5 in more than 20% of the cells. A *P* value of <0.05 was considered significant.

Results

A total of 616 students participated in the study, of which 319 (51.8%) were medical students and 297 (48.2%) non-medical students studying at the

CASCs. The mean age of the medical students was 19.7 (SD ±1.3) years and that of non-medical students was 20.4 (SD ±1.7) years (*P* <0.01). While 29.2% of medical students were natives of other cities, only 7.1% of CASCs students did not belong to the local area (*P* <0.001). A majority of the students (87.2%) from both colleges were living with their parents. Among the few who resided in the student hostel, most were medical students (95.6%, *P* <0.01). There was no statistically significant difference in the proportion of medical (78.4%) and CASCs (81.1%) students reporting a separate study-room at their place of residence (*P* >0.05).

Of the 616 university students, 96.3% had experienced stress at one time or another due to studies with 8.0%, 44.5% and 43.8% students respectively, reporting stress to occur "seldom," "sometimes" or "frequently". More medical students (48.6%) experienced frequent academic stress than non-medical students (38.7%, *P* <0.01). Reported causes of study-related stress included an overloaded curriculum (84.2%); unsuitable teaching methods (77.2%); fear of failure (70.7%); an unsatisfactory study environment at the faculty (40.5%); non-supportive relationships with other students (18.8%), and an unsuitable study environment at their place of residence (17.5%). Figure 1 shows that some of these causes were significantly more frequent among medical than CASCs students.

Overall, a majority of the students (92.5%) did not report economic problems. Among the few who did, significantly more CASCs students reported economic problems than medical students (*P* <0.01) [Table 1]. On the other hand, medical students reported a higher prevalence of social problems compared to their non-medical counterparts (*P* <0.05). There were no significant differences between the two groups of students with respect to family and emotional problems (*P* >0.05 and *P* >0.05).

Table 2 shows that nearly 240 (40%) out of 616 students felt that their physical health had been adversely affected since the start of their university studies. Significantly more medical students reported a worsening of their physical status compared to CASCs students (*P* <0.001).

Deterioration of mental health in terms of concentration, memory and judgment was also reported to be significantly more frequent among medical than non-medical students (*P* <0.001; *P*

Table 2: Self-reported changes in physical and mental health during college study-period among medical and CASCS students

Health	College		Total	P value
	Medical (N = 319)	(CASCS) (N = 297)		
Physical				
Worse	148 (46.4%)	98 (33.0%)	246 (39.9%)	0.001*
Similar	151 (47.3%)	138 (46.5%)	289 (46.9%)	
Better	20 (6.3%)	61 (20.5%)	81 (13.1%)	
Mental Concentration				
Worse	162 (51.1%)	85 (28.6%)	247 (40.2%)	0.001*
Similar	96 (30.3%)	117 (39.4%)	213 (34.7%)	
Better	59 (18.6%)	95 (32.0%)	154 (25.1%)	
Memory				
Worse	142 (44.8%)	98 (33.0%)	240 (39.1%)	0.002*
Similar	129 (40.7%)	129 (43.4%)	258 (42.0%)	
Better	46 (14.5%)	70 (23.6%)	116 (18.9%)	
Judgement				
Worse	39 (12.3%)	28 (9.4%)	67 (10.9%)	0.02*
Similar	111 (35.0%)	80 (26.9%)	191 (31.1%)	
Better	167 (52.7%)	189 (63.6%)	356 (58.0%)	

*statistically significant

<0.01; $P < 0.05$) [Table 2]. Overall, psychological and emotional health problems such as mood disturbance (69.6%), anxiety (52.1%), frustration (49.2%) and depression (37.0%) were reported to have occurred in a large proportion of the student population after the start of their college studies. Figure 2 shows that medical students suffered significantly more frequently from psychological/emotional problems than CASCS students.

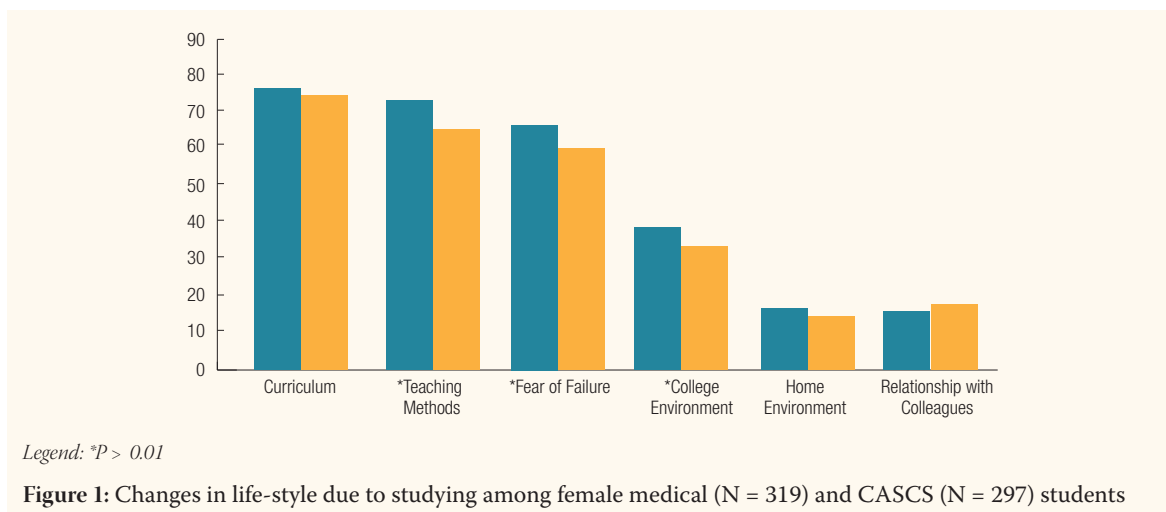
Overall, the most common negative change in life-style was inadequate social interaction with family and friends (73.2%) followed by lack of sleep (69.7%), lack of self-health care (62.2%), inadequate time for hobbies and recreational activities (61.6%), and also lack of physical exercise (41.2%). Figure 3 show that significantly more medical students reported these changes in their life-style than non-medical students. Medical and CASCS students, respectively, also reported changes in certain habits during the examination period such as increased intake of tea and coffee (59.6% versus 48.55%, $P < 0.01$), smoking (0.6% versus 2.7%, $P < 0.05$) and intake of sedatives and anti-depressant drugs (1.9% versus 5.4%, $P < 0.05$).

A vast majority of medical and CASCS students (93.4% and 90.9% respectively) reported that they had not received any education about stress

management at their faculty. The need for such courses in future was suggested by more than half of the medical and non-medical students (60.5% and 51.1%).

Discussion

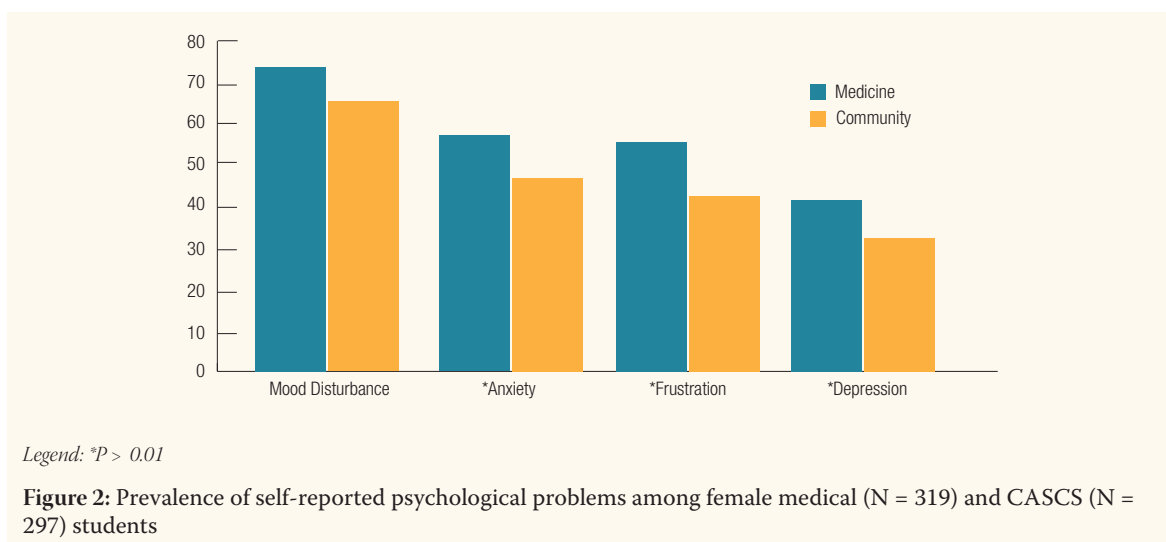
The finding that medical students were more frequent victims of academic stress than non-medical students was expected considering the more intensive study demands of a medical programme compared to courses for diploma/bachelors in accounting, marketing and secretarial skills. Students in pursuit of higher professional education in a highly competitive environment such as that found in medical academia are more vulnerable to stress than those with lesser challenges. Although an overloaded curriculum as a cause of stress was almost equally reported by both groups with no statistical difference, there was variation in the responses on the quality of teaching methods and study environment at the two colleges. In the medical school, the teaching methods are largely traditional, that is, one-way didactic sessions in large classrooms with a teacher-student ratio of one to eighty or more. This situation provides little opportunity for teacher-student interaction during

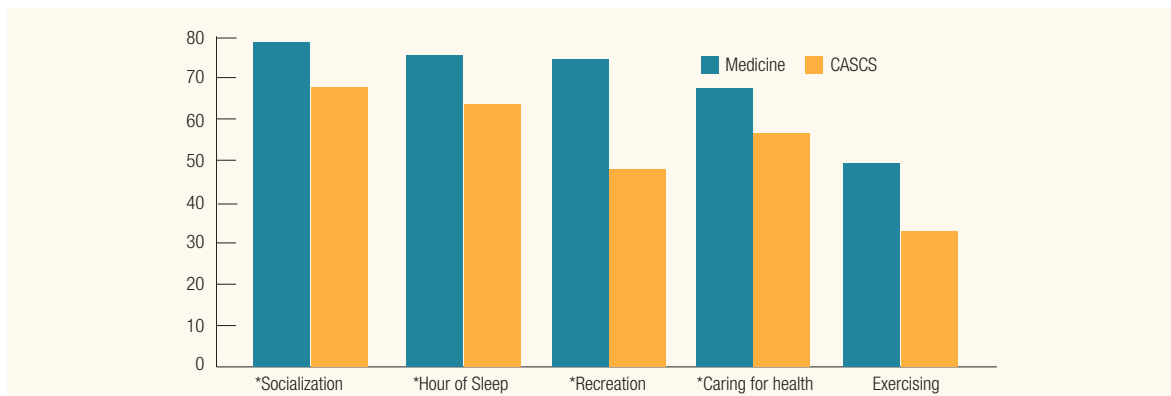


classes. On the other hand, the CASCS students have smaller classes with a teacher-student ratio of one to thirty/forty or less and more opportunities for interactive learning. Moreover, there have been frequent anecdotal reports from medical students that use of a foreign language (English) as a medium of instruction enhances their academic stress. On the contrary, CASCS students are taught mainly in their native Arabic language. It is well known that comprehension and learning of a subject is best and most satisfying when conveyed through the native language. Fear of failure in examinations, was also a more common concern in medical than non-medical students. Our findings are similar to those of several studies reporting examinations to be the most prevalent source of academic stress for medical students.^{1,2,15} Abdulghani found that the main source of stress in Saudi medical students was their studies,¹¹ whereas Gilani *et al.* found

that the top four stressors for Egyptian medical students were congested classrooms, troubles with the instructors, fear of future and limited time for recreational activities.¹⁰

Academic stress is usually enhanced if it is compounded by other background problems. Significantly more medical than non-medical students in this study were residents of other cities, lived in hostels, (hence lacked close parental support on a day-to day basis) and reported more social problems, all factors that may have contributed to their more frequent stress. On the other hand, a sub-group of CASCS students reported more economic problems than medical students. Though our study did not investigate the economic status of the students, perhaps differences in the financial implications of the medical and non-medical academic programs may have contributed to this





Legend: * $P > 0.01$

Figure 3: Changes in life-style due to studying among female medical (N = 319) and CASCS (N = 297) students

finding. Whereas medical students study free of charge and are supported by a small monthly stipend by the government, CASCS students pay substantial fees for their courses.

While there could be multiple causes leading to deterioration of physical health, frequent stress in medical students could be one of them. Moreover, unhealthy life-styles such as lack of exercise, insufficient sleep and poor self-health care, which were more common features among medical than CASCS students, could well have contributed to their worse physical status. Often the high pressure of studies and limited time to acquire vast knowledge prevent medical students from adopting a healthy life-style. Abdulghani also reported an association between level of stress and the increase of physical problems in Saudi medical students.¹¹

A greater likelihood of deterioration of mental health in terms of concentration, memory and judgment among medical compared to CASCS students can again be explained by the difference in the academic demands. In general, medical students have more credit hours per year, more teaching sessions per week and more frequent examinations, consequently leading to more hours of study, lack of rest and stress, factors which can adversely affect mental health. Others too have reported a worsening of mental health after students are admitted to a medical college and this condition remains poor throughout their training.⁶

Whether psychological and emotional ill health in a large proportion of students was a cause or outcome of stress is difficult to conclude from this cross-sectional study. Other studies have reported a

positive correlation of perceived stress with anxiety and depression,^{4,16,17} and that most cases of anxiety in college students were found to be reactions to either maturational or environmental stresses rather than endogenous factors.⁴ With more frequent academic stress among medical students and less hours of recreational and social activities to balance out the stress, it is expected that psychological and emotional distress would be more common in them than in the CASCS group. Several studies have reported that psychological problems were common among medical students^{3,7,9,18} and that lack of time for recreational activities was one of the important stressors.^{10,18} Lima *et al.* found that 44.7% of Brazilian medical students suffered from mental disorders⁹ and El-Gilany *et al.* reported that 24.7% of Egyptian medical students were victims of anxiety and depression.¹⁰

Stress management courses are sadly lacking on both the medical and CASCS campuses of the university, but it was encouraging to note that a large proportion of students of both colleges expressed the need for such training.

A limitation of this study is that it reflects the findings of only one university campus of Saudi Arabia; hence, the results may not be generalized to other institutions in the country. Perceived stress and its causes were self-reported by students and that may have resulted in some reporting bias. To keep the student data-collection time within reasonable limits, information on psychological health was also self-reported and no special psychometric instruments were used to measure it. Validation of the questionnaire was not done in the

local population. Hence there may have been some misreporting on the magnitude of the problem. Future research is warranted on estimating the level of stress by psychometric instruments and the relationship between stress and academic achievement.

Conclusion

In conclusion, medical students were more frequent victims of academic stress than CASCs students and this was possibly due to their higher academic demands and perception of time constraints to fulfill them. Important causes of stress among medical students included unsuitable teaching methods; an unsatisfactory college study environment; fear of failure in examinations, and social problems all of which resulted in perceived anxiety and depression, negative life-style practices and a worse status of physical and mental health changes since the start of their college studies.

We recommend that attention is given to improve the methods of teaching and quality of study environment on the medical college campus. Since a substantial proportion of medical and CASCs students reported experiencing academic stress, we recommend that a student support committee be established at both colleges that should provide female students with knowledge about the unhealthy consequences of stress, and self-awareness and counselling on positive methods to cope with stress. We agree with others that stress management programmes should focus on encouraging students to construct an effective time management plan for studies and leisure activities⁴ during their academic years. Moreover, adoption of a healthy life-style and explicit promotion of work-life balance will go a long way to enhance the physical and psychological well-being of college students.

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References

1. Supe AN. A study of stress in medical students at Seth G.S. Medical College. *J Postgrad Med* 1998; 44:1–6.
2. Shaikh BT, 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 (Abingdon)* 2004; 17:346–53.
3. Zaid ZA, Chan SC, HO JJ. Emotional disorders among medical students in a Malaysian Private medical school. *Singapore Med J* 2007; 48:895–9.
4. Misra R, McKean M. College students' academic stress and its relation to their anxiety, time management and leisure satisfaction. *Am J Health Studies* 2000; 16:41–51.
5. Sax LJ. Health trends among College Freshmen. *J Am Coll Health* 1997; 45:252–62.
6. 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; 91:237–43.
7. Dyrbye LN, Thomas MR, Eacker A, Harper W, Massie FS Jr, Power DV, et al. Race, ethnicity, and medical student well-being in the United States. *Arch Intern Med* 2007; 167:2103–9.
8. Kjeldstadli K, Tyssen R, Finset A, Hem E, Gude T, Gronvold NT, et al. Life Satisfaction and resilience in medical school - a six-year longitudinal, nationwide and comparative study. *BMC Med Educ* 2006; 6:48–64.
9. Lima MC, Domingues Mde S, Cerqueira AT. Prevalence and risk factors of common mental disorders among medical students. *Rev Saude Publica* 2006; 40:1035–41.
10. El-Gilany A, Amr M, Hammad S. Perceived stress among male medical students in Egypt and Saudi Arabia: effect of socio-demographic factors. *Ann Saudi Med* 2008; 28:442–8.
11. Abdulghani HM. Stress and depression among medical students: A cross sectional study at a medical college in Saudi Arabia. *Pak J Med Sci* 2008; 24:12–17.
12. Chan GCT, Koh D. Understanding the Psychosocial and Physical work environment in a Singapore medical school. *Singapore Med J* 2007; 48:166–71.
13. Omigbodun OO, Odukogbe AA, Omigbodun AO, Yusuf OB, Bella TT, Olayemi O. Stressors and psychological symptoms in students of medicine and allied health professions in Nigeria. *Soc Psychiatry Psychiatr Epidemiol* 2006; 41:415–21.
14. International Federation of Medical Students' Association (IFMSA). The influence of studying on student's Health (ISSH). Questionnaire. From www.iss-h-ifmsa.org. Accessed June 2007.
15. Saipanish R. Stress among medical students in a Thai medical school. *Med Teach* 2003; 25:502–6.
16. Katz J, Monnier J, Libet J, Shaw D, Beach S. Individual

HEALTH

* With respect to your physical health:

1. Your health at present is:

- a) Excellent
- b) Very good
- c) Good
- d) Fair
- e) Poor

2. In comparison to the health of your colleagues, your own is:

- a) Much Better
- b) Better
- c) Similar
- d) Worse
- e) Much worse
- f) I don't know

3. Your health at present compared to the time before you started your medical studies:

- a) Much Better
- b) Better
- c) Similar
- d) Worse
- e) Much worse
- f) I don't know

If there has been deterioration in your health since commencing your studies:

4. Which system/organ is the most affected? (choose just 1 answer)

- a) Gastrointestinal system (e.g. gastric ulcer, heartburn, IBS...)
- b) Respiratory system (e.g. bronchitis, asthma, allergies...)
- c) Cardiovascular system (e.g. hypertension...)
- d) Musculoskeletal system (e.g. pain in your back, muscles...)
- e) Immune system (e.g. chronic bacterial and viral infections...)
- f) Central nervous system (e.g. headache, vision & hearing changes)
- g) Skin (e.g. acne, dermatitis, psoriasis...)
- h) Others

5. In which year did it start: 1 2 3 4 5 6 7

6. Is this problem ... : a) acute or b) chronic

7. Do you think that the cause is related to studying:

- a) Yes
- b) no
- c) I don't know

With respect to your mental health over years you have been studying, please tick the appropriate boxes:

	8. Concentration	9. Recognition	10. Memory	11. Judgement
a) Much better				
b) Better				
c) Similar				
d) Worse				
e) Much worse				
f) I do not know				

* With respect to your psychological and emotional health:

12. Did you suffer from any of the following: (encircle 1 or more answers)

- a) Depression
- b) Anxiety
- c) Phobia
- d) Mood breakdown
- e) Frustration
- f) others

13. Has studying put you under stress?

- a) Often
- b) Sometimes
- c) Seldom
- d) Never

14. If you feel this stress, what is the reason? (encircle 1 or more answers)

- a) The content of the curriculum (overloading or of high level)
- b) The methods of teaching (not interesting, not suitable, exam oriented, ...)
- c) The environment at the faculty
- d) The environment at home
- e) The relationship with other students
- f) Fear of failure to achieve your expectations
- g) Others

15. What is the main outcome of this stress (choose just 1 answer)

- a) Physical complaints
- b) Psychological conditions
- c) Changes in your habits and life style
- d) Others

LIFESTYLE

1. Has studying changed your lifestyle? (encircle 1 or more answers)

- a) Recreational activities and hobbies
- b) Exercise
- c) Socialization (social interaction with friends or family)
- d) Enough hours of sleep
- e) Caring for your health status
- f) Others
- g) No change

2. Has studying influenced your uptake of any of the following habits? Please tick the appropriate boxes.

	2.1 Drinking excess tea, coffee (caffeine)	2.2 Smoking	2.3 Drinking alcohol	2.4 Sedatives, antidepressants, etc.	2.5 addictive drugs
Yes/no					

3. During exam times are any of your habits changed?

Please tick the appropriate boxes.

a) Increased					
b) The same					
c) Decreased					

MANAGEMENT OF THESE PROBLEMS

1. Are you being educated about stress and dealing with stress by your faculty? (i.e. lectures, stress management courses...)

- a) Yes
- b) no

2. If yes, do you think that it is effective?

- a) Yes
- b) no
- c) I don't know

3. If no, do you need stress management courses?

- a) Yes
- b) no
- c) I don't know

4. Do you have any suggestion to overcome this stress?

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