A STUDY TO ANALYZE VARIOUS FACTORS CONTRIBUTING TO STRESS IN FIRST YEAR MBBS STUDENTS DURING EXAMINATION

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Abstract
Introduction: Exam stress is a set of responses that includes excessive worry, depression, nervousness and irrelevant thinking to a class of stimuli from an individual's experience of assessment and outcome. The rationale of this study is to assess the examination related stress among the first year MBBS students by measuring BMI (body mass index) and VAS (Visual analogue scale) as to determine the factors contributing to exam stress among first year medical students.
Methods: The study was conducted over four weeks with 130 students in the month of March 2011. Questionnaire consisted of VAS to measure exam stress and 16 questions consisted of matters related to Academic factors, psychological problems, details of food intake and lack of physical activities. Body weight was measured before, during and after the exams to assess any weight loss due to exam stress.
Results: There is a significant moderate level of stress marked on VAS during the examination. Among different factors contributing to exam stress, academic factors (63%), lack of physical exercise (89%), Details of food intake (59%) and psychological problems (50%) were most important factors reported by the students. There was no significant change in BMI during the various phases of examination.
Conclusion: This study indicates that there is a significant moderate level of exam stress among the first year MBBS students based on VAS and it also highlights the various factors which can contribute to examination stress process.
Keywords: Stress, examination, medical students

1. Introduction

The concept of mind influence on health has been recognized since the time of Hippocrates. Stress is defined as the body's nonspecific response to demands placed on it in response to disturbing events in the environment[1,2]. Medical education is inherently stressful and an emotionally demanding training[3]. Due to their busy and demanding schedule, stress is more prevalent among medical students[4]. Exam stress is the emotional reaction in medical students which is essential for learning as it interferes with their performance and keeps them task oriented. This sometimes promotes and assists in learning called favorable stress and as well restrain learning called as unfavorable stress[5]. Many authors have reported that various stressors may lead to increased anxiety and depression as a consequence of impaired judgment, reduced concentration, poor memorizing abilities, and loss of self-esteem[6]. As a result of increased stress, medical students always experience an alarming amount of stress-associated anxiety, depression, substance abuse, and sometimes even suicide. Chronic exposure of this busy demanding schedule leads to stress which influences their learning and memory capabilities, which disrupts their flexible thinking and ultimately leads to improper decision and patient care[7].
Studies have showed the prevalence of stress and depressive symptoms among the medical schools of Malaysian and Thai was 41.9% and 61.4% respectively[8,9]. Among the Swedish medical students, the prevalence of anxiety and depression was 12.9% and a total of 2.7% of students had made suicidal attempts[10]. There was a significant association between year of study and stress levels among gorgan (iran) medical students[11]. The main area of stresses reported in medical students included life style issues, lack of deliberate studying, psychological factors and students opinion of extensive course load[12]. Among medical students, different scales have been used to assess their anxiety and stress levels[13,14,15,16,17]. Visual Analogue Scale of anxiety is one of the validated assessment of exam stress among

medical students[18,19]. It has been observed that medical students have marked undue stresses during pre and examination period[20]. Previous studies have highlighted the major stressors among students oriented to exams and academics and did not emphasize on analyzing the factors like physical activity and food intake in detail. A similar study was done in Pakistan final year professional students to asses exam related anxiety and factors contributing to stress[21].

The main aim of our study was to assess the prevalence of stress and its association with various factors contributing to exam stress among first year medical students attending formative assessment whereas in most of the early studies have emphasized on subjective assessment of examination among pre and final year medical students. The aim was to identify the stress exposed groups at an earlier stage and by implementing various anxiety reduction techniques as well as counseling services to the affected group which would enable the medical students to achieve in their final subjective assessment.

2. Materials and Methods

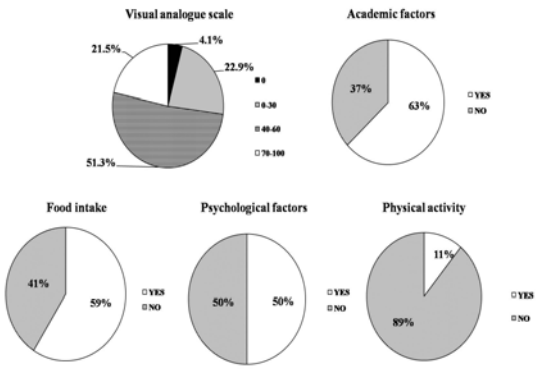
Ethical approval was obtained from the university through the Human ethical committee before proceeding with this study. This study was conducted in first year MBBS students of Meenakshi Medical college and Research Institute, MAHER University, Enathur, Kanchipuram, TamilNadu (India) by administering a Questionairre consisting of 16 questions of yes or no answer type related to academic factors like finding medical concepts difficult ,do they get enough time to revise before exams etc. psychological problems like feeling home sick, parents stress their outcome during exams, distractions in the form of entertainment , friends, cell phones, internet and do they get sick during exams in the form of indigestion nausea, headache and vomiting. Details of the food intake included from skipping of food or taking food too late or avoiding completely during exams as well as the information of lack of physical and extracurricular activities. Data collection was done over a period of four weeks using a sample size of 150 students in first year MBBS in the month of March 2011 during their formative assessment which included both theory and practical examination. Questionnaire also consisted of Visual Analogue Scale to measure exam stress which is widely used to assess anxiety states as well as in management of pain. Students were asked to mark the appropriate level of stress in VAS which consisted of 10 cm line marked on both the extreme ends by symptoms ranging from zero indicating no anxiety and 100 indicating severe anxiety[21]. The scale is further subdivided in to mild symptoms of anxiety ranging from 0-30, moderate symptoms from 40-60 and severe symptoms ranged from 70- 100[22].

3. Results:

The results were given in graph 1. A total of 130 students out of 150 first year medical students responded to the questionnaires which were provided during the examination and the response rate was 86.2%. The mean level of anxiety among the first year medical students was 51.3% of moderate level of stress was experienced during the time of examination.

On observing the different stressors contributing to exam stress, lack of physical exercise, extracurricular activities accounted for 89%, academic factors contributed for 63%, details of food intake was 59% and the psychological factors attributed to 50% of stress among the first year medical students during their exams.

3. Discussion and conclusion



Graph 1. Contribuing factors to stress in first year MBBS students

This study confirms a significant moderate level of stress among the first MBBS students at MAHER University, Kanchipuram. The overall prevalence of stress observed during exam using VAS was 51.3%. It has been observed that medical students have marked undue stresses during pre and examination period[23]. The results are well in agreement with the previous studies were students experience stress during the first year but not in subsequent years[24,25,26]. The medical students are always vulnerable to stress due to their high competitive environment. Student life is exciting but more stressful as it is a transitional period. There is a considerable little difference between the frequency of

stress among males and females[27] and hence in our study no specific gender evaluation of various factors contributing to stress were not analyzed separately. In our present study, there was a significant report (89%) on lack of physical exercise and extracurricular activities.

Medical students should be offered more opportunities for recreational and leisure time activities, such as weekly movie shows, event celebrations, excursion tours and musical concerts[28]. Physical activities, sports and socialization are indispensable for individual growth and to foster personal development[29,30]. Sports, music and arts could be made a part of the optional curriculum. In most of the earlier studies, common reasons highlighted were exams and academics, followed by relationship problems in the college or family and homesickness. In our study, 59% of students have reported to have stress due to psychological reasons. The psychological makeup developed by medical students during five years of medical schooling is likely to continue in their later professional lives too[31]. It affects not only academic performances but also all aspects of student health. In view of the potential long term benefits of managing stress in a more effective way, it may be important for students to develop such stress coping skills early in their medical career. Counseling started at an appropriate stage integrated with medical curriculum and extracurricular activities like yoga, meditation etc is found to have a significant impact on their stress level[32,33,34].

In our study, there was 63% of students reported stress due to academic factors which is well in agreement with the earlier studies due to lack of strategic studying, studying all night before exams, inefficient studying which include lack of review and revising of course material studied are major factors leading to exam related anxiety[35]. 59% of students have reported exam related anxiety due to skipping of food and improper nutrition during exams is well in accordance with earlier reports[36]. This was found to be common among the female students and eventually leads to negative impact on health. Preliminary talks by the community psychiatrist may be extremely useful in the first year of the carrier of medical students. Faculty can help students in improving studying habits, managing time wisely, learning positive self-talk and learning how to relax.

Medical students are important and pillars of our future young population and definite regular surveys are needed to be undertaken to monitor the levels of health among medical students in order to reduce exam related stress and negative impact on health.

References

1. Rosenham DL, Seligman ME. Abnormal psychology 2nd edition New York: Norton, 1989.
2. Selye H. Stress without distress. New York: Harper & Row, 1974.
3. Niaura R, Herbert PN, Saritelli AL. Lipid and lipoprotein responses to episodic occupational and academic stress. *Arch Intern Med.* 1991; 151:2172-2179.
4. Shah C, Trivedi RS. Coping of Stress by Medical Students. *J Clin Diag Res*. 2009; 19:401-523.
5. Linn BS, Zeppa R. Stress in junior medical students: relationship to personality and performance. *J Med Educ*. 1984; 59:7-12.
6. Giselle M. Stress in graduate medical degree. *Med J Australia*. 2002; 17:10-11.
7. Sugira G, Shinada K, Kawaguchi Y. Psychological well being and perceptions of stress amongst Japanese dental students. *Eur J Dent Educ*. 2005; 9:17-25.
8. Sherina MS, Rampal L, Kaneson N. Psychological stress among undergraduate medical students. *Med J Malaysia*. 2004; 59:207-211.
9. Saipanish R. Stress among medical students in Thai medical school. *Med Teach*. 2003; 25:502-506.
10. Dahlin M, Joneborg N, Runeson B. Stress and depression among medical students: a cross-sectional study. *Med Educ*. 2005; 39:594-604.
11. Marjani, Takeichi M, Sato T. Studies on the psychosomatic functioning of ill-health according to Eastern and western medicine. The verification of possible links between ill-health, lifestyle illness and stress -related disease. *Am J Chin Med*. 2000; 28:9-24.
12. Morrison J, Moffat K. More on Medical Student stress. *Med Educ*. 2001; 35:617-618.
13. Miller PM, Surtees PG. Psychological symptoms and their course in first year medical students as assessed by Interval General Health Questionnaire (I-GHQ). *Br J Psychiatr*. 1991; 159:199-207.
14. Rosal MC, Ockene IS, Ockene JK, Barrett SV, Ma Y, Hebert JR. A longitudinal study of students' depression at one medical school. *Acad Med*. 1997; 72:542-546.

15. Supe AN. A study of stress in medical students at Seth GS Medical College. *J Postgrad Med*. 1998; 44:1-6.
16. Inam SN, Saqib A, Alam E. Prevalence of anxiety and depression among medical students of private university. *J Pak Med Assoc*. 2003; 53:44-47.
17. Khan MS, Mahmood S, Badshah A, Ali SU, Jamal Y. Prevalence of depression, anxiety and their associated factors among medical students in Karachi, Pakistan. *J Pak Med Assoc*. 2006; 56:583-586.
18. Kidson M, Hornblow A. Examination anxiety in medical students: experiences with the visual analogue scale for anxiety. *Med Educ*. 1982; 16:247-250.
19. Thomas CS, Mellsop G, Callender K, Crawshaw J, Ellis PM, Hall A, Macdonald J, Silfverskiold P, Romans-Clarkson S. The oral examination: a study of academic and non-academic factors. *Med Educ*. 1993; 27:433-439.
20. Firth- Cozens J. Medical students stress. Med Educ. 2001; 35:6-7.
21. Shireen Hashmat, Masooma Hashmat, Farhana Amanullah, Sina Aziz. Factors causing exam anxiety in medical students. *J Pak Med.* 2008; 58:167-170.
22. Tiplady B, Jackson SH, Maskrey VM, Swift CG. Validity and sensitivity of visual analogue scales in young and older healthy subjects. *Age Ageing*. 1998; 27:63-66.
23. Sherina MS, Rampal L, Kaneson N. Psychological stress among undergraduate medical students. *Med J Malaysia*. 2004; 59:207-211.
24. Guthrie E, Black D, Bagalkote H, Shaw C, Campbell M, Creed F. Psychological stress and burn out in medical students: a prospective longitudinal study. *J R Soc Med*. 1998; 91:237-243.
25. Saipanish R. Stress among medical students in a Thai medical school. *Med Teach*. 2003; 25:502-506.
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; 24:12-7.
27. Steenberger BN, Allan J, Ralph A. Research in college health: Analyzing & communicating results. *J Am Coll Health*. 1993; 42:99-104.
28. Aktekin M. Anxiety, depression and stressful life events among medical students: A prospective study in Antalya. *Turkey Med Educ*. 2001; 35:12-17.
29. Azariah, Reichenback L. Youth development in Pakistan. Technical report Islamabad: Population Council No.21, 2001.
30. Durkin SR, Bascomb A, Turnbull D, Marley J. Rural origin medical students: How do they cope with the medical school environment? *Aust J Rural Health.* 2003; 11:89-95.
31. Firth Cozens J. Medical students stress. *Med Educ*. 2001; 35:6-7.
32. Decina PA, McGregor M, Hagino C. Lifestyle analysis: A comparative study between freshman, second and fourth year chiropractic students. *J Can Chiropr Assoc*. 1990; 34:69-81.
33. Larouche R. Determinants of college student's health promoting lifestyles. *Clin Excell Nurse Pract.* 1998; 2:35-44.
34. Srivastava K, Raju MSVK, Kundeyawala SM. Psychological well-being of Medical Students. *Med J Armed Forces India*. 2007; 63:137-140.
35. Sansgiry SS, Bhosle M, Sail K. Factors that affect Academic Performance among Pharmacy students. *Am J Pharm Educ*. 2006; 70:104-116.
36. Rosal MC, Ockene IS, Ockene JK, Barrett SV, Ma Y, Hebert JR. A longitudinal study of students' depression at one medical school. *Acad Med*. 1997; 72:542-546.