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RESEARCH ARTICLE

A CROSS SECTIONAL COMPARATIVE STUDY TO ASSESS THE LEVEL OF STRESS AND ITS EFFECT ON ATTENDANCE AND PERFORMANCE AMONG SECOND YEAR MEDICAL STUDENTS.

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Abstract

Background: Medical students experience various degree of stress throughout their undergraduate course. The stress has negative impact on physical appearance and the mental behaviour of the students. Attendance and performance of the students in studies can deteriorate due to stress. Ultimately this can result in anxiety, depression and dropout from the institution. In order to break this vicious cycle, we decided to detect the burden of stress amongst medical students and correlate its effect on attendance and performance. We also decided to identify the factors contributing to stress so that timely guidance could be provided to these students. Methods: We used K10 scale to assess the burden and severity of stress among medical students (Appendix 1). We designed our very own questionnaire to detect the factors contributing to stress among medical students (Appendix 2). We divided the factors contributing to stress into three major categories which were academic burden, financial factors and social factors. Results: Sixty nine percent of students had some degree of stress during the study period. Fifty three percent students with some degree of stress did not perform well. A higher percentage of stress was seen in the female students (74%) whereas only 58% of male students were stressed out. 93% students who had some degree of stress had attendance >75% whereas 7 students (7%) out of 94 who had some degree of stress had attendance <75%. Conclusion: Sixty nine percent students had various degree of stress during their MBBS course. The main factor contributing to stress was academic performance. There was no correlation between stress and attendance. More number of female students were stressed out.

Key Words: stress, academic performance, attendance, financial factor, social factor.

INTRODUCTION

Stress is a state of mental or emotional strain. Within normal limit stress serves to energise our creativity and enhance efficiency. Stress can be deleterious when it is extended, persistent, unforeseen and intractable (1).Stress is a multifarious, powerful interaction between a person and his or her life. It is a conflict between physical, mental and emotional reaction to the various conditions (2).

A student undergoes various psychological changes due to over bearing stress during their tenure of medical education (3).These changes may have harmful effect on their academic performance as well as all round development of the students (4).The atmosphere in many medical schools may be stifling, due to their rigorous, dictatorial and inflexible systems.This promotes fierce competition among the students, ultimately worsening their stress levels. The stress is not just

limited to their undergraduate period, but may continue relentlessly throughout their life (3).The mental health of medical students is under severe threat due to various stressors.

Three major stressors include academics, financial and social factors.Academics factors include inability to cope up with the vast curriculum, sleep deprivation and inefficient time management. Financial factors include inability to pay the fees, buy the required books and access to various facilities. Social factor include adjustment to the unfamiliar medical school environment and lack of healthy relationship between peers and the faculty.The stress can eventually have disastrous effects on the students psyche resulting in anxiety, depression, academic under performance, incompetency, medical lapse and finally drop out from medical schools (5).There are couple of studieswhich address the influence of gender on stress among medical students. Some studies support that female students have higher levels of stress while others contradict it (6).

Excessive stress can lead to physical and mental health problems, cause low self-esteem and consequently, adversely affect their academicperformance. It is not just enough to educate students in medical profession but it is also essential to ensure that the students live a good quality of life (7)

In addition to stressful medical environment some medical students are perfectionist and their self esteem is performance based which compounds their mental distress. Thus medical students are at a risk for mental break down making them more vulnerable for substance abuse (8).

In order to achieve their medical goals students have to forego their social and personal obligations,whichmay result in a mental set back. These issues may remain unaddressed, undetected and untreated. Timely detection of these problems can overcome psychological morbidity with unwanted effects later in their lives (4).Although the Students undergo lot of stress, they may be unaware and at times helpless about seeking timely guidance. Consequently the crucial time of therapy is lost (9).Therefore medical educators should be made aware of the prevalence, causes, and stress levels amongst medical students, as these factors influence their academic performance and mental health (10).

Though, a lot is known about the impact of stress on the life of medical students proportionate studies have not been carried out. Hence we decided to undertake this study. Our primaryobjectives of this study was to assess the level ofstress and identify its correlation with performanceand attendance. Our secondaryobjectivewasto detect the factors contributing to stress and the influence of gender on stress.

MATERIALS AND METHODS

We used the Kessler10 Psychological Distress instrument (K10) developed by Kessler and colleagues (11) (Appendix 1). This instrument has been used widely in population-based epidemiological studies to measure current (1-month) distress. The K10 consists of 10 questions in the form of “how often in the past month did you feel …” and offers specific symptoms, such as ‘tired out for no good reason’, ‘nervous’, and ‘sad or depressed’. The five possible responses for each question range from ‘none of the time’ to ‘all of the time’ and were scored from 1 to 5 respectively. All the questions were collated to obtain a total score. The total score was interpreted as follows: a score of less than 20 was considered not to represent stress of any level while a score of 20-24 represented mild stress, 25-29 represented moderate stress, and 30-50

represented severe stress (3). The K10 questionnaire was observed to have good psychometric properties with a Cronbach's alpha of 0.89 [95% confidence interval (CI) 0.88-0.90]. Students had to fill additional questionniraon 'factors contributing to stress'(Appendix 2).

Study subjects All 150 medical students in the second MBBS IV semester,were invited to complete the K10 questionnaire during the 2014-2015 academic year.

Ethical aspects

All students who participated in the study were informed about the objectives of the study, and the information about the Kessler10 Psychological Distress instrument (K10) was explained. Approval for conducting the study was obtained from the Institutional Ethical Committee of the Goa Medical College, Bambolim Goa.

Collection of data

Completed K 10 questionnaires were collected from the 137 students. Thirteen students did not return the completed k10 questionnaire and wereexcluded from the studies. Responses to additional questions relating to factors contributing to stress were also collected. The students were allowed to respond in their own time and privacy. The participation was entirely voluntary.

RESULTS

In total, 137 (91%) of 150students completed the questionnaire.

Correlation between stress and Performance

Stress	Good Performance	Poor Performance
Yes	22 (23%)	72 (77%)
No	12 (28%)	31(72%)

Chi square = 0.32 df = 1 p = 0.57

Correlation between stress and Gender

Stress	Males	Females
Yes	28 (58%)	66 (74%)
No	20 (42%)	23 (26%)

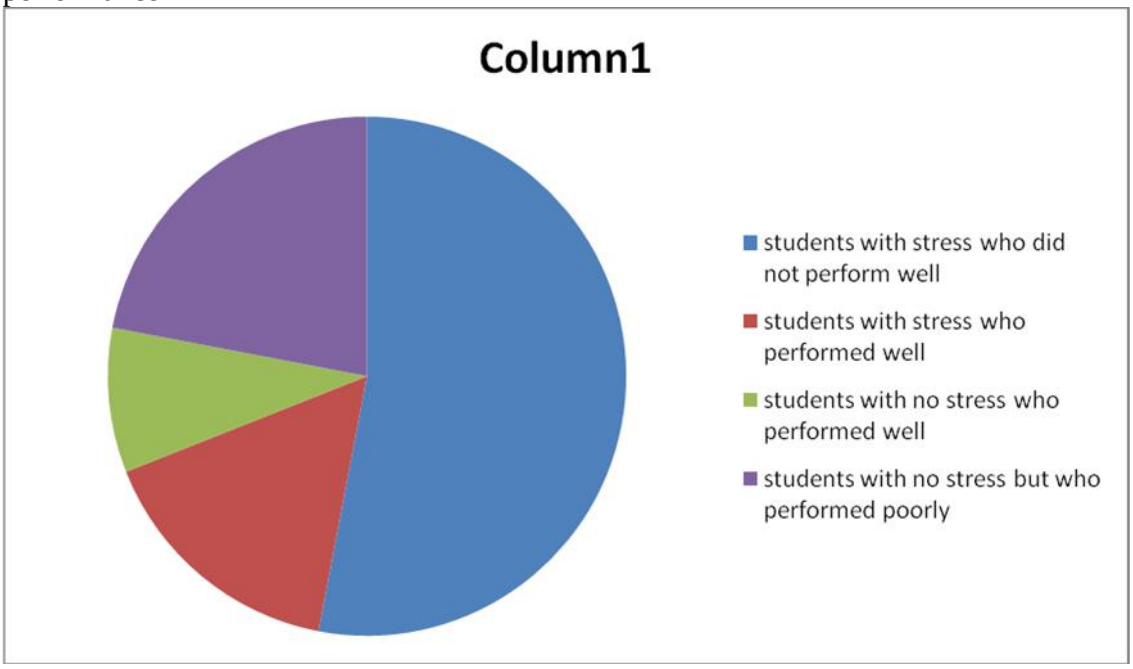
Chi square = 3.62 df = 1 p = 0.05

Correlation betweenstress and Attendance

Stress	>75%	<75%
Yes	87 (93%)	7 (7%)
No	43 (100%)	0

Chi square = 3.37 df = 1 p = 0.06

Pie diagram showing correlation between stress and performance



DISCUSSION

In our study we found that majority of the students had some degree of stress. The overall prevalence of stress in the study was 69% which was similar to Study at a College of Medicine in Saudi Arabia (63.7%) (3)and toThai study (61.4%) (12) but higher than a study in Egypt (43.7%) (13), or a Malaysian study (41.9%) (14). This could be either due to the different instruments used to assess the level of stress in other studies. A study from Agha Khan University, Pakistan has reported that more than 90% of students felt stressed at one time or the other during their course (15)

The students with mild, moderate or severe stress performed poorly in their terminal examinations whereas the students who had no stress performed better. Studieshave shown that stress has negative effect on academic performance as it impairs cognitive skills or higher cognitive function for e.g. impaired concentration, poor retention and poor recall (16).There were some exception to this relationship. Three students performed exceptionally well in spite of having higher stress levels. On the other hand some students who had no stress at all did not perform well. This could be due to following reasons. Students with no stress may be intelligent but may have no motivation to study or they may be too distracted with other activities or some students may be inherently poor academically. In a study done among Pakistani undergraduate Medical Students, it was noticed that the correlation between perceived stress and academic performance was negative and not statistically significant. (17)

We did not find any relationship between stress and attendance. Majority of the students irrespective of their stress levels had more than 75% attendance. This could be due to university rule of minimum 75% attendance inorder to qualify to answer the final examinations. The study

at a college of Medicine in Saudi Arabia did not show any association between stress and regularity of attendance in the course**s (3).**

Seventy fourpercent of female students experienced some degree of stress throughout their medical course. The prevalence of stress was higher among the female students compared to their male counterparts (3). The results of the study done in the Mongolia area of China noted that female medical students suffer higher levels of distress (18). Slightly higher level of perceived stress (23.8%) compared to males (17.1%) was also noted in Egyptian study (19).

Our primary objective was to identify the burden of stress amongst medical students.It was a setback when we detected that majority of the students had some degree of stressranging from mild to severe.We went on further to find out the factors contributing to their stress level. We framed the questionnaire based on the three major factors contributing to stress.

The fore most factor leading to stress was academic performance. Following may be the reasons: Pharmacology is vast and volatile subject. With better and intense scientific research in medicine, new drugs are being added up to the already exhaustive list of drugs, hence students find it difficult to remember and recall. They are unable to prioritise their academics. Many students inspite of putting in lot of effort did not score proportionately well. This could be due to problem either in framing, organising and reproducing the answers as required. Among the academic stressors 'dissatisfaction with the class lectures', 'vastness of academic curriculum/syllabus', 'frequency of examinations' and 'performance in the examinations' contributed to their stress levels (20).

Each second year subject has one or two journals which the students are expected to complete within a given span of time. A lot of their time is spent on completing these journals, so they are unable to devotesufficient timefor reading textbooks. Whatever little time is available is spent on modern electronic gadgets and social networking and media. Their inability to study regularly results in accumulation of vast unstudied portion before exams further aggravating their stress levels.

Next important factor contributing to stress was the family factor. If the atmosphere at home is not conducive to study students will be unable to study which will increase their stress level.

Inadequate financial requirement adversely affects the students. In many countries, financial factor is an important cause of stress amongst medical students (21, 22).They may be unable to buy required textbooks or pay their fees on time. Peer pressure to keep up with the latest gadgets and fashion affects the personality of the students negatively.This can lead to vicious cycle of increase in stress levels and decrease in academic performance. Repeated exams further depletes their finances. Stress has an impact on the cognitive areas of learning as well neuroplasticity (23).

Thus stress negatively influences the academic performance of the medical students and can be correlated to deteriorating cognitive skill and function (16).

CONCLUSION

In our study we noticed that majority of the students had some degree of stress and these students performed poorly in their academics. Academic factor played an important role in aggravating the stress levels of the students.Stress can lead to under performance, depression or anxiety and finally drop out from the college. Hence the onus lies on the faculty for timely detection and

help. Counselling program should be integrated with the MBBS curriculum to help the students relieve their stress.

Factors contributing to stress from students point of view

I feel hurt by any small issues. I have problem maintaining good relationship with others. College schedule from 8.00am to 5.00 pm is very lengthy and too much time is spent in the college. There are very few holidays to relax. Journey from home to college is very tiring. There is lot of studies but lack of time which increases the fear of failure due to inability to complete studies. There is lot of politics and groupism in the class which adds to my stress. If others perform better than me,I underestimate myself. Homesickness, bad food and improper facilities in the hostel adds to my stress levels. Completion and correction of too many journals on time increases my stress level tremendously. Class atmosphere is very competitive. Thinking about the future and lack of postgraduate seats makes me jittery. When my performance is poor as compared to the others I am stressed out. I am not able to cope up with the day to day portion being covered in the class, as less time is available after reaching home. Third year subjects are introduced in the second year, so unable to concentrate on the second year subjects. Should I chat with my friends or complete my journals the decision of which is sometimes stressful. I have alopecia and the fear of going bald is scary, inspite of having taken the required treatment. The competition and the pressure to score well and to be in the top list is really stressing me out and scoring low demoralises me totally. Confusion in managing time between clinical and paraclinical subjects enhance my stress. I have a constant desire to participate in extracurricular events but unable to do so because of vastness of syllabus and lack of time. I do not know what to study and how to study hence stress level is built up of being remaining behind in the class with respect to marks. I am unable to distribute time for studies, journal completion and correction. Journals only increase the workload they do not help in memorising the subject. I do not know how to manage time between studies and extra-curricular activities. Ill health of my parents makes me more stressed out. Lengthy time table makes us exhausted at the end of the day. A lot of time is wasted in travelling from home to college and back.

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Appendix 2

Factors contributing to stress

I. Academic Factors

a. Are you able to cope up with the vast portion?

Yes No

b. Do you have difficulty in

Understanding Memorising Recall

c. Inability to score good marks due to problem in

Framing the ansOrganising the ans Reproducing the ans

d. Is major part of each days schedule spent in completing journal?

Yes No
e. Do you wastea lot of time on
internetwhatsappfacebook any other please specify

2. Family Factors

a. How is the relationship between your parents?
Healthy Unhealthy
b. Do you get any encouragement in studies from
Parents Yes/No Siblings Yes/No
c. How is the family atmosphere?
Healthy Unhealthy
d. Is there any substance abuse in the family?
Yes No

e. How are the facilities for studying at home?
Proper Improper

3. Financial Factors

a. How is the income of the family?
Regular Irregular
b. Are the funds to meet the daily expenses
Sufficient Insufficient
c. Do you have problem in buying textbooks due to low family income?
Yes No
d. Are you able to pay your fees on time?
Yes No

Any other factors which increases your stress level and is not addressed here?

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