Scholars Journal of Applied Medical Sciences (SJAMS) **ISSN 2320-6691 (Online)**
Sch. J. App. Med. Sci., 2015; 3(7C):2615-2620 **ISSN 2347-954X (Print)**

(An International Publisher for Academic and Scientific Resources)
www.saspublishers.com DOI: 10.36347/sjams.2015.v03i07.036

Research Article

A Study to Access the Exam Stress in Medical College and Various Stressors Contributing To Exam Stress

Dr. Sangeeta Nagpal, Dr. Simran Grewal*, Dr. Lily Walia, Dr. Vishavdeep Kaur
Dept. of Physiology, MMMC&H, Kumarhati, Solan, Himachal Pradesh, India

***Corresponding author**
Dr. Simran Grewal
Email: drsimran3@hotmail.com

Abstract: To evaluate exam anxiety in medical students and also to determine various factors contributing exam anxiety**.** The cross-sectional study was conducted in 2014 at the Maharishi Markendeshwar Medical College and involved 110 medical students who were voluntary participants. 20 self rating questionnaire State anxiety scale (S scale) was used to measure anxiety and a pre-designed questionnaire asked the first year MBBS students about the various factors contributing to exam related stress. All data was coded and analysed using SPSS version 16 with a prior set alpha level of 0.05. In results of the 150 1st Prof. Medical Students who were given self administered questionnaires, 110 returned completed questionnaires. The mean age of students was 18.58 + 0.96. The pre-examination anxiety (57.2+ 11.74) was significantly higher than the baseline anxiety levels (28.32+ 5.61). By applying linear correlation analysis psychosocial factors were found to be strongly positively correlated with anxiety (r=0.511) followed by lifestyle(r =0.247) and academic factors (r=0.097). In conclusion the study indicated high levels of exam anxiety among the medical students, showing that there is a need for anxiety-reduction programmes in medical colleges.
Keywords: stress, examination, medical students, Psychological.

INTRODUCTION

Stress is an adaptive response to noxious stimulus causing imbalance/disturbance in normal functioning. An academic examination stress is an inevitable feature of student's life where periodic exam acts as an acute stressor. During exams students are exposed to real stress of exam and also to perceived stress of the fear of failure or low score due to high level of competition.

Exam stress is quite predominant among medical students. Various students have reported the prevalence of stress ranging 27-73% among medical students [1]. The medical students probably face a major stress during the first credit examination. The transition from school to professional college has been identified as crucial stage of medical students. In addition to that in coordinate hours, sleep deprivation, excessive workload, helplessness, increased psychological pressure, mental tension, inadequate support adds to the stress of medical students. Exam stress in medical students is associated with changes in the mental and physical health such as increased anxiety, increased negative mood and also affects the performance of students [2].

The present study is designed to assess the exam related anxiety level in undergraduate medical students. In medical students different scales and self evaluation questionnaires have been used to assess their anxiety and stress levels. Spielberg state trait anxiety inventory (STAI) self evaluation questionnaire is validated scale for assessment of exam stress among medical students [3].

In most of the earlier studies, common reasons causing pre-examination were highlighted. Life styles related issues include inadequate rest, insufficient physical activity, poor nutrition and lack of time management are found to be the contributing factors leading to exam anxiety as reported by many authors [4]. Students' perception of extensive course load is also reported to cause exam anxiety in medical students [5]. Examination system itself is a major stress for students [6]. Psychological factors which contribute significantly to exam anxiety are negative and irrational thinking about exams, outcomes of exams and feelings of no control over exam situation (e.g. going blank during exam) are reported by many authors [7].

Another Purpose of our study is to highlight the major stressors among medical students with the aim to identify the stress exposed undergraduate

students at the earliest so that various anxiety reduction techniques and counselling services can be provided to the affected group.

MATERIAL AND METHODS

This was a cross-sectional educational study done in 2014 which was reviewed and approved by the Institutional Ethical Review Board. Study participants were 1st year medical students enrolled in the MBBS programme at Maharishi Markendeshwar Medical College and Hospital, Kumarhatti, Solan. It was ensured that all of them were free from any illness.

The purpose and nature of study was explained to all the volunteers and informed consent was obtained. The baseline anxiety of 1st year medical students was assessed 2 months prior to 1st semester in the month of October. They were reassessed 1 week prior to 1st semester examination in the month of December to evaluate their pre examination anxiety .The anxiety level in our study was assessed by STAI, the Spielberger state trait anxiety inventory. It consists of 20 self rating questionnaires ranging from 20-80. All the items are rated on 4 point likert scale as follows-1) not at all 2) somewhat 3)moderately so 4) very much so. The range of possible score varies from minimum 20 to maximum 80.Higher score indicates higher anxiety. Score > 30 suggests moderate anxiety and score > 45 suggests severe anxiety [8].

The students were also subjected to a questionnaire for analysing various factors contributing to exam related stress in first year MBBS students. The questionnaire consisted of questions, yes or no answer type related to academic factors like excessive course load, finding medical concept difficult, do they get enough time to revise before exams, lack of systematic studies etc. Psychosocial factors like feeling homesick, peer pressure, negative thinking, parental expectations and personal factors like distractions in form of mobile phone, internet, lack of extracurricular activities, details of food habits, sleep pattern during exam were also included in that questionnaire . Information about stress reduction techniques was also collected from students.

Data was collected and frequency of different responses to various factors contributing to exam anxiety was analysed by the research team. Data was collected and entered in MS Excel spreadsheet. The analysis was done by SPSS version 20.0 and online graph pad software (prism 5 for windows) VERSION 5. Descriptive statistics including frequency, mean and standard deviation were used to analyze the data. Pearsons Chi-square test was used to evaluate difference between groups for categorized variables and paired and unpaired student t test was used to calculate difference of means for quantitative variables. Pearson correlation analysis was used to calculate correlation between various factors with anxiety level. The normally distributed data was presented as means and standard deviation, or 95%confidence intervals. All tests were performed at a 5%. Level of significance, thus an association was significant if the p value was less than 0.05.

RESULT

150 self administered questionnaires were distributed among 1st Prof. Medical Students. Out of which 110 returned completed questionnaire. The response rate of the survey questionnaire was 73.3%. The mean age of students was 18.58 + 0.96. The mean level of baseline anxiety i.e. 2 months prior to examination was 28.32+ 5.61 and prior to examination was 57.2+ 11.74 respectively as assessed by STAI (table1). The pre-examination anxiety was significantly higher than the baseline anxiety levels in our studies. The prevalence of severe anxiety in our study was (table 2)

By applying linear correlation analysis psychosocial factors were found to be strongly positively correlated with anxiety (r=0.511) followed by lifestyle(r =0.247) and academic factors (r=0.097) but the result from all the 3 factors were found to be statistically non significant. (Table 3)

Excessive course load (91.81%), lack of time to revise before exam (87.27%) and lack of systematic studies (80.90%), Parental expectations (80%) and lack of time for physical activity and extracurricular activities (78.18%) were the most frequently reported factors causing exam related anxiety among the 1st year M.B.B.S. students (TABLE 4). Only 57.81% students were aware of stress reduction techniques but only 32.18% students were aware and implementing them.

Table 1: Mean anxiety status by STAI

	Mean anxiety status
Baseline anxiety	28.32 ± 5.61
Pre-examination anxiety	57.26± 11.74
P value	.000 ××

Table 2: Prevalence of Pre examination anxiety

	N=110		
Grading	Mild N (%)	Moderate N (%)	Severe N (%)
Pre-examination anxiety	3(2.72%)	9(8.18%)	98(89.09%)

Table 3: Correlation of factors with anxiety score

Factors	R value	P value
Academic Factor	0.097	0.741
Life Style Factors	0.247	0.338
Psychosocial Factors	0.511	0.379

Table 4: Results of questionnaire filled by medical students n=110

FACTORS CONTRIBUTING TO EXAM ANXIETY	TOTAL	PERCENTAGE
Excessive course load	101	91.81%
Lack of time to revive before exam	96	87.27%
Lack of systematic studies and time management	89	80.90%
Parental expectation	88	80%
Lack of physical and extracurricular activity	86	78.18%
Unable to recall and review	85	77.27%
Fear of failure	83	75.45%
Fear of facing teacher during viva	78	70.90%
Lack of parental presence and Home sickness	77	70%
Irrational thoughts about examination and result	76	69.09%
Lack of knowledge about exam pattern	75	68.18%
Not studying adequately	64	58.18%
Studying all night before exam	64	58.18%
Distractions in the form of mobiles, internet, entertainments	62	56.36%
Disturbed sleep	61	55.45%
Negative thinking and self criticism	53	48.18%
Dietary factors	49	44.45%
Peer pressure	48	43.63%
Type personality	46	41.81%
Health problems	41	37.27%
Failure to respond well in discussion with colleagues	38	34.54%
Lack of knowledge of relevant content	34	30.90%
Memorizing the text without understanding	29	26.36%
Finding medical concept difficult	27	24.54%
Long duration of exam	26	23.63%

DISCUSSION

Seyle defined stress as ‘an external event or any internal drive which threatens to upset the organism or equilibrium is stress. This study confirmed the general impressions that there is considerable amount of stress in medical students. This is similar to other studies elsewhere which have reported such findings [9]. There are three issues considered the most important for the development of stress in medical students. First is the fact that they have to learn a massive amount of new information in a short time. Second is when they have exams (evaluation period), and the last one is that they have little or no time to review what they have learned [10]. Pre examination anxiety is one of the fundamental problem that Medical students face [11].

Medical students undergo various changes like psychological, hormonal, immunological and behavioural during the pre-examination time. The extents to which these changes take place in different students depend upon gender, physical activity, spiritual strength etc [12].

This study confirms that there is significant severe level of pre-examination anxiety among first

MBBS students at MMMC&H, Kumarhati, and Solan. The overall prevalence of severe anxiety was 89.09% and mild to moderate was 10.90% in our study. The results of our study are in agreement with the previous studies that have also reported high prevalence of anxiety in medical student due to the pressure of exams [13].

The high mean anxiety status as studied by STAI in 1st Professional Medical students prior to their Ist semester summative examination in our study support the findings of earlier authors that first year Medical students are more vulnerable to stress during pre-examination and examination period. [14, 15].

We have studied various stressors of pre-examination anxiety in medical students and various reasons have been highlighted. In our study psychological factors were found to be strongly correlated with anxiety followed by lifestyle and academic factors. These findings are in agreement with previous studies which also showed that psychological factors as leading cause of exam anxiety [16, 17, 18].

The major psychosocial factor contributing to exam anxiety in our study is parental expectations as reported by 80% students. Results of our study are in line with previous findings that have also suggested high parental expectation as a major emotional stress [19]. Lack of parental presence and homesickness was also leading to exam related anxiety among 70% students. Similar findings have also been reported among 1st year students in earlier literature [20]. Other psychological factors contributing to exam anxiety in our study were Negative thinking and self criticism (48.18%), Peer pressure (43.63%) and type A personality (41.81%)

Major lifestyle stressors reported by students in our study are lack of physical activity and extracurricular activities, studying all night before exams, distractions, disturbed sleep, dietary factors and health problems. Lack of physical activity and extracurricular activities is the major lifestyle stressor as reported by 78.98% students. The result of our study is in accordance with study conducted by Gajalakshmi Getal where 89% students reported lack of physical activity and extracurricular activities as leading cause of exam anxiety [21]. Students reported disturbed sleep and studying all night before exam also causing exam anxiety. A result similar to our study has been reported by other author [22, 23]. The results suggest a need for early intervention. Counselling and stress reduction techniques must be launched and implemented as comprehensively as possible. In our study only 32.18 students were implementing stress reduction techniques. Physical activities, sports should also be introduced to the students as Scientists have found that regular participation in aerobic exercise has been shown to decrease overall levels of tension, elevate and stabilize mood, improve sleep, and improve self-esteem. Albert and Monika (2001) reported that even five minutes of aerobic exercise can stimulate anti-anxiety effects [24]. Other measure like prayers and self-motivation, sleep and relaxation, TV and music, calling friends and revising more can also be used by the students to reduce exam anxiety as suggested by a previous study conducted by Hasnain Afzal in 2012 [25].

Our study found another factor contributing to exam anxiety is academic factors. The major academic stressors are extensive course load, lack of time to revise and lack of systematic studying and time management. 91.81% medical students reported extensive course load as a major academic factor contributing to anxiety. The findings is in agreement with the previous literature that has also suggested that students' perception of extensive course load as the leading cause of exam anxiety in medical students [26, 27]. Our study also showed that 80.90% students were stressed due to lack of systematic study and time management. Students should be taught about the time management. With better time management skills, students would not end up "cramming" for examinations, and thereby decrease test anxiety and improve their academic performance [28, 29] .This might assist students in dealing with stress due to study loads as suggested by Sanjeev Kumar in his study conducted in 2013[30]. The problem of 'content overload" calls for redesigning of the medical sciences curriculum. The MBBS curriculum is to be divided into "must know", "desirable to know" and "nice to know categories in the ratio of 80: 20: 10. At the same time students opinion should be taken to modify the curriculum. Emphasize should be given on interactive teaching. The introduction of stress management education into the curriculum could prove useful in combating this problem.

CONCLUSION

Medical students are important pillars of our young population and regular monitoring of students should be undertaken to find the stressed students at the earliest. Students may need guidance and reassurance from a positive role model and someone whom they can trust to talk to about such pressures, otherwise they may chose negative ways to cope with the stress in their lives. Teachers, parents, and college administration should work together to reduce the level of stress and enhance their coping strategy that promote a healthy lifestyle. Stress management' and 'Time management' should be taught along with first year curricula.

Acknowledgments:

The authors would like to thank all the students who participated in this study.

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