

Factors causing exam anxiety in medical students

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Abstract

Introduction: To assess examination related anxiety among final professional medical students by VAS (Visual Analogue Scale) and to determine the factors contributing to exam anxiety among final professional medical students

Methods: A cross sectional study using structured self-administered questionnaire was carried out over four weeks in Dow Medical College using sample size of 120 students. Duration of study was four weeks in May 2006. Survey questionnaire consisted of VAS to measure exam anxiety and seventeen questions regarding life style, study style, psychological problems, and examination system.

Result: A total of 120 students out of 200 (60%) filled in the questionnaire. There were 25.8% male and 74.2% female students. The average maximum Exam Anxiety marked on VAS was 64 ± 28 . Among different factors contributing to exam anxiety, extensive course loads (90.8%), lack of physical exercise (90%) and long duration of exams (77.5%) were the most important factors reported by the students. Most of the students had no knowledge of exam-taking and anxiety-reduction techniques and majority of those who knew these strategies did not implement them.

Conclusion: This study indicates moderate level of exam anxiety based on a Visual Analogue Scale in students of a medical college and also highlights factors such as extensive course load, lack of exercise and long duration of exams which contribute to Exam Anxiety (JPMA 58:167;2008).

Introduction

Exam anxiety 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/test and outcome.¹ It is experienced by many students while undertaking any exam.² There are four main areas of reported stresses which can contribute to exam anxiety including life style issues, lack of required information, studying style and psychological factors.³

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.^{4,5}

Sujit et al⁶ have reported that lack of strategic studying i.e. ineffective studying style through inconsistent content coverage and 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.

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.^{7,8}

Students' perception of extensive course load⁹ is also reported to cause exam anxiety in medical students. Examination system¹⁰ itself is a major stress for students.² At Dow Medical College, final year M,B;B,S exams consist of nine theory and six viva voce exams with two to three days gap in between each paper. It leads to total duration of eight to nine weeks which makes it an exam of nerves rather than knowledge.

Anxiety and stress levels among medical students have been assessed using different scales including General Health Questionnaire by Jenny Firth¹¹, Spilberger's Test Anxiety Inventory by Rosal MC et al¹², Zung's depression scale by Supe AN et al¹³ and Aga Khan University Anxiety and Depression scale (AKUAD) by Inam SN et al¹⁴ and Khan MS et al¹⁵ in Pakistan. Visual Analogue Scale of anxiety has been validated for assessment of exam anxiety among medical students by Kidson et al¹⁶ and Thomas CS et al¹⁷ and since it is easy to administer as compared to above mentioned scales it was used in this particular study.

It has been observed that medical students have marked undue stresses during pre and examination period.¹¹ The studies previously done in Pakistan, highlighting exams and academics as major stressors^{18,19} in Pakistani Medical students did not give particular emphasis on exam anxiety it self, hence we decided to conduct this study to document if

similar factors are present in our student population. The aim of this study was to assess examination related anxiety among final professional medical students by VAS (Visual Analogue Scale) and to determine the factors contributing to exam anxiety among final professional medical students.

Methods

This study utilized a cross-sectional survey design and was conducted by administering a questionnaire to 200 students enrolled in final professional M.B.B.S at Dow Medical College/Dow University of Health Sciences, (Karachi). A non-probabilistic convenience sampling procedure was used. Data collection was done over four weeks in May 2006 during Final Professional Viva Voce Examination. Survey questionnaire consisted of VAS and seventeen questions regarding life style, study style, psychological problems, and examination system. It also consisted of information regarding age and sex. Exam Anxiety was measured using Visual Analogue Scale (VAS); which is used in research to assess subjective states like anxiety and pain. It consists of 10 cm line the ends of which are marked with signs indicating the extremes of symptoms (Zero indicating no anxiety and 100 indicating maximum anxiety). Students were asked to mark the level of their maximum anxiety on the most appropriate point on the scale. The scale is divided into three categories (Zero to 30 for mild symptoms, 40 to 60 for moderate symptoms and 70 to 100 for severe symptoms).²⁰

Data were coded and analyzed using S.P.S.S software version 10.

Results

Two hundred self-administered questionnaires were distributed among medical students, out of which only 120 were received back and the response rate was 60%. There were 31 (25.8%) males and 89 (74.2%) females. Age of the medical students was 24.2±0.7 years.

The mean level of anxiety on VAS was 64± 28, 33±14.7 for male students and 72±31.2 for female students ($p < 0.05$).

While observing different factors contributing to exam anxiety, extensive course loads, lack of physical activity, long duration of exams and improper nutrition were the most frequently reported factors by medical students. All factors (Table) were more common among female students with statistically significant ($p < 0.05$) differences found in factors which included: studying all night before exams, feeling no control over exam situation, improper nutrition and lack of exercise.

Sixty seven students (55.8%) had no knowledge about exam taking and 84 (70%) had no knowledge about

Table. Results of questionnaire filled by medical students (n=120).

Factors contributing to Exam Anxiety	Total	Percentage	Male	Female	P Value
			n (%)	n (%)	
			Total = 31	Total = 89	
Extensive course loads	109	90.8%	25(80.6)	84(94.3)	0.23
Lack of Physical Exercise	108	90%	23(74.1)	85(95.5)	0.03
Long duration of exams	93	77.5%	22(70.9)	71(79.7)	0.49
Inadequate rest	90	75%	21(67.7)	69(77.5)	0.56
Irrational thoughts about exams & outcomes	79	65.8%	19(61.2)	60(67.4)	0.76
No control over exam situation	77	64.2%	10(32.2)	67(75.2)	0.02
Not studying	77	64.2%	17(54.8)	50(56.1)	1.02
Memorize text book	73	60.8%	17(54.8)	56(62.9)	0.92
Negative thinking & self-criticism	63	60.8%	16(51.6)	47(52.8)	1.12
Improper nutrition	64	53.3%	5(16.1)	59(66.2)	0.04
Do not recall & review	50	41.7%	11(35.4)	39(43.8)	1.61
Studying all night before exam	29	24.2%	2(6.4)	27(30.3)	0.02

anxiety reduction techniques. Only 25% of those who were aware implemented these techniques.

Discussion

Exam anxiety is the emotional reaction that some students face before exams. The fear is not irrational, but excessive fear interferes with performance. Many researchers suggest that a little worry is good for students because it keeps them task oriented; however excessive worry on the other hand can be very debilitating and interferes with the results if not managed appropriately.

This study supports many of the findings of previous studies; in that majority of the medical students experience some level of anxiety during exams.²¹ Female students have statistically significant ($p < 0.05$) high levels of anxiety as compared to males.^{4,12,18}

The results of the study show extensive course load and long duration of exams as the major contributors to exam anxiety. These findings are in disagreement with previous studies which showed psychological factor as the leading cause of exam anxiety.^{7,8,12} This may be due to the extensive course of Final Professional at this particular medical school including six major subjects: Medicine, Surgery, Paediatrics, Gynecology and Obstetrics, ENT and Ophthalmology contrary to only four or five subjects at other medical schools. The examination process is also very lengthy including nine Multiple Choice Question type theory papers and Viva Voce examination with multiple gaps in between leading to a total duration of about two or more months while in other medical school exams it hardly last longer than four weeks.

Life style related issues including lack of physical activity and improper nutrition is significantly more

common among female students as already reported by other authors.¹² This may be due to weight consciousness or psychological preponderance of females towards eating disorders.³ It was an open comment made by majority of students that they have to study for six to eight hours without any pause or rest for preparation of their exams which has been found to have a negative impact on health.⁶

Psychological factors including irrational thoughts about exams and result, negative thinking, self criticism and feeling of no control over exam situation were reported by sixty to sixty-five percent students. Female students significantly outnumber male students in having irrational thoughts about exams. These findings were similar to those reported by other authors^{11,22} indicating that among anticipated sources of stress those dealing with perceived failure are highly stressful.¹²

Lack of preparation, memorizing text books, studying all night before exams, not revising and reviewing (all indicating lack of strategic studying and time management) were reported by more than half of medical students as factors contributing to their anxiety during exams. These factors are reported to be significantly associated with academic performance in previous studies.⁶

Extensive course loads and comprehensive information required in today's academic curriculum necessitate effective study strategies for academic success.²³ All night studying before exams is significantly higher among female students, as compared to male students^{4,12,18} which could be explained by higher levels of stress reported in females as compared to males. Studying over night before exams creates fatigue and overall exertion among students which may lead to lower performance in examinations. A full night sleep is necessary for refreshing

students' mind and helps them enhance their overall performance.²⁴

Majority of students have no knowledge regarding exam-taking and anxiety- reduction techniques. Even those who know do not implement them. Moreover there are no counseling services available at the medical school to deal with students' issues. These services may be effective in helping students to improve their academic performance. The positive effect of such counseling services and stress management programs are frequently reported in literature.²⁵

This study has a number of limitations including generalizability. The low response rate is possibly contributed to responder bias as students who were more stressed due to pressure of exams did not respond. Alternatively, students who were least stressed may have decided that they have little to contribute and so did not respond. The number of female students has significantly increased in medical colleges since the onset of open merit system. Thus they were the majority of participants of this study which could also bias the study results. Future studies should use larger sample size, qualitative measurement of anxiety levels and comparison of group of students with higher and lower anxiety levels for contributory factors to validate the results.

Conclusion

This study highlights the factors contributing to Exam Anxiety in medical students in Pakistan. Females suffered from higher stress than males during exams. Extensive course load and long duration of exams were the most common contributory factors. Moreover students lacked knowledge regarding exam taking and anxiety reduction techniques.

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