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RESEARCH ARTICLE

Exam anxiety: Its prevalence and causative factors among Indian medical students

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ABSTRACT

Background: Medical students confront stress throughout their course. It has been reported that 60% of students suffer from anxiety and depression during their study period. The leading cause for anxiety is an examination stress. A poor academic performance has been observed in students with high test anxiety than in those with low test anxiety. **Aims and Objectives:** The present study was conducted to determine the prevalence of exam anxiety among medical students, to evaluate any significant difference in exam anxiety level between male and female students, and to assess the factors causing it. **Materials and Methods:** The present study was conducted on 300 medical students of three phases in the age group of 18-23 years. The prevalence of exam anxiety was determined by westside test anxiety scale. The factors causing exam anxiety included in the survey questionnaire were related to examination system, lifestyle, study style, and psychological problems. **Results:** The prevalence of high exam anxiety among Phases I-III were 37%, 28%, and 32%, respectively. The high exam anxiety level was more in males than in females. Examination system, lack of time management and extensive course load was the major contributing factors for anxiety related to the examination. **Conclusion:** Medical teachers need to be aware of the factors causing exam anxiety, and the university needs to develop curriculum and examination pattern keeping in view the difficulties students face.

KEY WORDS: Exam Anxiety; Prevalence; Causative Factors; Medical Students

INTRODUCTION

To produce an eminent, skilled and knowledgeable medical graduate, medical universities have developed a comprehensive course curriculum that includes didactic lectures, modeling, supervised practice, mentoring, and hands on training. Due to this, medical students confront stress throughout their course study. It has been reported that 60% of students suffer from anxiety and depression during their study period.[1] The leading cause for anxiety is an examination stress. A study conducted by Everly et al., showed that examination was the top stressor in 86% of students.[2]

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Anxiety may be defined as a subjective feeling of apprehension or dread about the present or the future accompanied by a number of autonomic signs and somatic symptoms such as palpitations, sweating, and tremors. When this condition manifests during the period of examination, it is referred to as exam anxiety or test anxiety.[3] Normal exam anxiety is essential, but high exam anxiety can affect an individual performance. A lower academic performance has been observed in students with high test anxiety than in those with low test anxiety.[4] A negative correlation between test anxiety and academic performance has been reported.[5]

The documented factors that can contribute to exam anxiety are inappropriate style of studying,[6] negative and irrational thinking about exams, outcome of exams,[7] inadequate rest, insufficient physical activity,[8] examination schedule, extensive course load,[9] and parental pressure.[10]

Most of the commonly used tools for assessment of exam anxiety contain items on physiological over-arousal with expectations of failure in exams. It has been found, from the studies, that physiological over-arousal without worry features are loosely associated with performance impairment.[11] Therefore, a tool containing cognitive worry items with self-assessed performance impairment items would be reasonable to assess test anxiety. The Westside test anxiety scale includes relevant cognitive and impairment factors without any physiological over-arousal features. It is a brief screening instrument with high face validity.[12] Exam anxiety among Indian medical students is least studied. Hence, the present study was conducted with the following objectives: (1) To determine the prevalence of exam anxiety among medical students with Westside test anxiety scale, (2) to evaluate any significant difference in exam anxiety level between male and female students, and (3) to assess the factors causing exam anxiety.

MATERIALS AND METHODS

The medical undergraduate course in India is of 4.5 years with 1 year rotatory internship. The 4.5 years period is divided into three phases as follows: (1) Phase I: 1 year duration and examination at the end of the year on preclinical subjects, (2) Phase II: 1.5 year duration and examination at the end on paraclinical subjects, and (3) Phase III: Further divided into two parts, part one for 1 year with examination at the end and part two for 1 year with examination at the end on clinical subjects. The present study was conducted on 300 medical students in the age group of 18-23 years of all three phases of Sri B. M. Patil Medical College and Research Centre, Vijayapur, India. From each phase, 100 students were included in the study. To avoid the gender bias, equal numbers of male and female subjects were selected. Informed consent was obtained from students for study participation. Subjects not willing to participate in the study were excluded. The study has been approved by the Institutional Ethical Committee.

Westside Test Anxiety Scale

We used Westside test anxiety scale to assess the exam anxiety among medical students. It is a 10 item instrument to cover self-assessed anxiety impairment and cognitions such as dread and worry, which can impair performance. This instrument includes six items on anxiety impairment, four on worry and dread, and none on physiological over-arousal. It is a self-rating five point scale from extremely or always true to not at all true. This instrument is simple, freely accessible, and has high face validity.[12] The scale has been divided into six grades: Low test anxiety (1.0-1.9), normal test anxiety (2.0-2.5), high normal test anxiety (2.5-2.9), moderately high test anxiety (3.0-3.4), high test anxiety (3.5-3.9), and extremely high anxiety (4.0-5.0). Scores of all 10 questions were added and divided by 10.

The probable factors causing exam anxiety included in the survey questionnaire were 15. They were related to examination system, lifestyle, study style, course curriculum, and psychological problems.

Protocol

The Westside test anxiety scale and the survey questionnaire containing probable factors causing exam anxiety were distributed among the students immediately after their final exams. The subjects were assured that the results will be kept confidential. They were advised not to discuss among themselves while filling the questionnaire.

Statistical Analysis

Data obtained were represented in percentage. The Z-test difference between two proportions was applied to determine the statistical significance. Statistical significance was established at $P < 0.05$. Data were analyzed using SPSS software.

RESULTS

Table 1 shows the prevalence of exam anxiety among Phases I-III students. The prevalence of high exam anxiety was more in Phases I and III students as compared to Phase II. The high exam anxiety level was more in males than in females.

The major contributing factors for exam anxiety in Phase I medical students were a lack of time management (78%), continuous examination with least gap (64%), and anxiety of oral examination (64%). These factors were found more in females than in males (Table 2).

Continuous examination with least gaps (76%) and inadequate rest (64%) was the major contributing factors for exam anxiety in Phase II medical students. There was no significant difference between males and females (Table 3).

In Phase III students' also continuous examination with the least gap (73%) was the leading contributing factor. Extensive course load (69%) and lack of time management (68%) were the other major factors causing exam anxiety (Table 4).

DISCUSSION

The present study has assessed the prevalence of exam anxiety and its causative factors among medical students.

Table 1: Prevalence of exam anxiety among medical students

Parameters	Westside test anxiety scale					
	1.0-1.9	2.0-2.4	2.5-2.9	3.0-3.4	3.5-3.9	4.0-5.0
All students (*n*=300)						
Total (%)	21.3	24	22.33	16.66	9.33	6.33
Male (%)	8.6	8.33	11.33	10.33	4.33	4.33
Female (%)	12.6	13	11	6.33	5	2
P value	0.112	0.063	0.897	0.076	0.699	0.102
Phase I (*n*=100)						
Total (%)	21	20	22	22	11	4
Male (%)	10	8	10	14	4	4
Female (%)	11	12	12	8	7	0
P value	0.806	0.315	0.629	0.143	0.335	0.037*
Phase II (*n*=100)						
Total (%)	21	26	25	12	9	7
Male (%)	6	14	16	7	4	3
Female (%)	15	12	9	5	5	4
P value	0.023*	0.648	0.101	0.537	0.727	0.695
Phase III (*n*=100)						
Total (%)	22	26	20	16	8	8
Male (%)	10	11	8	10	5	6
Female (%)	12	15	12	6	3	2
P value	0.629	0.36	0.315	0.272	0.46	0.136

Westside test anxiety scale: 1.0-1.9 (low test anxiety), 2.0-2.4 (normal test anxiety), 2.5-2.9 (high normal test anxiety), 3.0-3.4 (moderately high test anxiety), 3.5-3.9 (high test anxiety), 4.0-5.0 (extremely high test anxiety); *significant difference at $P<0.05$

Table 2: Factors causing exam anxiety in Phase I medical students

Factors causing exam anxiety	Total (%)	Male (%)	Female (%)	*P* value
Lack of time management	78	38	40	0.629
Continuous examination with least gaps	64	25	39	0.002**
Anxiety of oral examination	64	28	36	0.091
Studying all night before exam	50	20	30	0.041*
Do not recall and review	49	21	28	0.157
Negative and irrational thinking about exams	49	17	32	0.002**
Extensive course load	45	19	26	0.155
Inadequate rest	44	20	24	0.225
Inefficient studying	42	21	21	1.000
Frequent tests	40	19	21	0.683
More number of classes and home assignment	39	17	22	0.303
Lack strategic studying	36	20	16	0.403
Away from parents	31	13	18	0.277
Feelings of no control over exam situation	31	10	21	0.014*
Parental pressure	9	4	5	0.727

*Significant difference at $P<0.05$, **highly significant difference at $P<0.01$

Students who are suffering from test anxiety are likely to experience problems such as difficulty in concentrating while studying, confusion, and feeling tensed while looking at difficult questions, feeling blank, dizziness, sweating, and sleeplessness. All these factors can cause the student to feel more anxious that can affect his performance during exams. Marked stress during examination period has been reported among medical students.[13]

The data of present study shows that 32% (n = 300) students had high exam anxiety (moderately to extremely high). Among the three phases, the prevalence of high exam anxiety

Table 3: Factors causing exam anxiety in Phase II medical students

Factors causing exam anxiety	Total (%)	Male (%)	Female (%)	*P* value
Continuous examination with least gaps	76	39	37	0.639
Inadequate rest	64	33	31	0.677
Lack of time management	63	30	33	0.534
Studying all night before exam	63	31	32	0.836
Extensive course load	52	33	19	0.004**
Negative and irrational thinking about exams	52	23	29	0.226
Inefficient studying	47	26	21	0.314
Anxiety of oral examination	47	27	20	0.157
Away from parents	42	16	26	0.039*
Lack strategic studying	41	19	22	0.541
Do not recall and review	32	14	18	0.389
Feelings of no control over exam situation	19	13	6	0.07
More number of classes and home assignment	18	13	5	0.033*
Frequent tests	12	7	5	0.537
Parental pressure	11	8	3	0.105

*Significant difference at $P<0.05$, **highly significant difference at $P<0.01$

Table 4: Factors causing exam anxiety in Phase III medical students

Factors causing exam anxiety	Total (%)	Male (%)	Female (%)	*P* value
Continuous examination with least gaps	73	37	36	0.822
Extensive course load	69	33	36	0.516
Lack of time management	68	34	34	1.000
Studying all night before exam	61	32	29	0.538
Inadequate rest	60	32	28	0.413
Inefficient studying	50	23	27	0.422
Negative and irrational thinking about exams	43	19	24	0.310
Do not recall and review	41	19	22	0.541
Lack strategic studying	40	22	18	0.413
Anxiety of oral examination	38	18	20	0.680
Away from parents	35	10	25	0.001**
Feelings of no control over exam situation	28	15	13	0.656
More number of classes and home assignment	23	16	7	0.029*
Frequent tests	20	12	8	0.315
Parental pressure	4	3	1	0.305

*Significant difference at $P<0.05$, **highly significant difference at $P<0.01$

(moderately to extremely high) was observed more among Phase I (37%) and Phase III (32%) as compared to Phase II (28%) students. A substantial stress from the beginning of the course with more concern for academic performance may be the cause for high levels of exam anxiety among Phase I medical students.[14,15] Clinical training, extensive course load, and anxiety regarding the future, i.e., getting appropriate postgraduate seat, may be the reasons for high prevalence among the Phase III students. High level of exam anxiety (among all students) was more in males than in females (wide Table 1). This finding is in contrary to other studies, where female students have higher levels of exam anxiety than males.[7,9] Westside test anxiety scale was found to be a very simple and best tool for screening students suffering from exam anxiety.

Examination pattern was the leading contributing factor for exam anxiety in most of the students of all phases. Continuous examination with least gaps made students more exhausted. They seek some gap in between the exams so that they can relax and concentrate more on studies. However, another study found that long duration of exams with more gaps also causes exam anxiety.[9] Lack of time management was found to be the leading contributing factor in Phase I students (78%). The same has been reported by 63% of Phase II and 68% of Phase III students. A study has shown that students

with high test anxiety performed well when time pressure was removed.[16] Many students also had anxiety for oral examination. This was observed more among Phase I (64%) than among Phase II (47%) and Phase III (38%) students. A reduction in the anxiety level due to oral examination was observed as the students passed from Phase-I to Phase III. These students may perform well in their theory part, but could not do so in *viva voce* examination. The performance of students can be improved, if moral support is given during their oral exams. The studies suggested that praising students when they perform well can have salutary effect on subsequent performances.[17] Conducting frequent tests (12-40%) were also observed to cause anxiety related to exam.

Extensive course load (69%) was the major contributor for exam anxiety in Phase III students. This finding was in agreement with that of other studies.[9] This may be because of two factors: (1) Phase III students have to study major clinical subjects, the syllabus of which is very vast, and (2) they have to undergo more clinical training and get less time for academics. This factor was also reported by 52% of Phase II students, among whom males were significantly ($P < 0.01$) more than females.

Psychological factors such as negative and irrational thinking about exams and feelings of no control over exam situation were the major contributors for exam anxiety in other studies.[7,18] In our study, these factors were reported by 43-52% of students, among whom female was significantly more than males. Another study reported the same findings.[13]

Lack of strategic and inefficient studying and not reviewing and revising study material were found to cause exam anxiety in 36-50% students. There was no significant difference between males and females. These were due to lack of time management that was the major contributing factor among all students. Studying all night before the exam was observed among 50-63% of students. This was observed more among female students than among their male counterparts. This finding was in agreement with other studies.[6,9] It is necessary to encourage students to promote personal health with regular physical activity and adequate sleep.[14] About 44-64% of students reported that inadequate rest was a contributing factor for anxiety related to exams. This was observed more among Phases II and III students as compared to Phase I students. This difference may be due to the commencement of clinical training from Phase II onward. Attending more number of classes and getting assignments to be done as homework were other reasons for inadequate rest.

Most of the students in our university are from distant places. In our country, children are more attached to their parents and other family members. We found that living away from parents caused exam anxiety in 31-42% students, among them were females than males. This was observed more in Phase II students than in Phases I and III students. This can be overcome by the faculty members by keeping a good relationship with the students. We also assessed the role of parental pressure in causing exam anxiety. We could find parental pressure as a contributory factor for exam anxiety in only 4-9% students.

The students with poor performance associated with high exam anxiety should be identified by medical teachers. The sources of anxiety related to exam among students are to be detected and must be helped to cope with stress. The teachers have to take a special care to reduce the anxiety of students using anxiety reducing techniques.

CONCLUSION

The present study showed that prevalence of high exam anxiety was more in Phases I and III students. Males were affected more than females. The examination system, lack of time management, and extensive course load were the major contributing factors for anxiety related to the examination. Medical teachers need to be aware of the factors causing exam anxiety, and the university needs to develop curriculum and examination pattern keeping in view of the difficulties students face.

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