Original Research Article

Documenting factors related to examination stress among school children in Surat city

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ABSTRACT

Background: Academic examinations have been considered as one of the acute stresses experienced by students. Passing or failing has strong consequences, so examinations cause psychological stress for most students. This study designed to document stressors and anti-stressors related to exam and quantify the stress.
Methods: A cross sectional study using purposive sampling was carried out involving 387 secondary and higher secondary school students. Beck Anxiety Inventory (BAI) and semi-structured questionnaire was used to collect data.
Results: Among the respondents, 76.7% felt that exams should be taken. Worry (46.8%); fear of forgetting (24.3%), nervousness (14.7%) and fear (10.1%) were the common stressors. Exams were a positive opportunity to prove their mettle was shared by 23.3% students. Stress level was constant among 50.9% of participants irrespective of the level of their preparation. MCQ (51.2%) was the preferred examination pattern. In majority (74.4%) failing equated obtaining less marks. Fear of failing existed among 46.5% participants. Mean score for BAI was 10.15 with participants falling into mild (92.7%), moderate (6.5%) and severe (0.8%) stress categories. A total of 68% students felt that these stresses can be reduced. Preferred way to relax was talking to friends (55.6%), listening to music (53.5%) and watching TV (47%). Most helpful person was the mother (39%). Parental reaction to stress was generally supportive (63.6%). Professional counselling was taken by 2.6% students.
Conclusions: Exams were associated with worry, nervousness and fear. Fear of failure added to this stress. However, parents were generally supportive. Mean BAI score was 10.15.

Keywords: Exams, Stress, BAI

INTRODUCTION

Adolescence which is characterized by changes in the physical, cognitive, social and psychosexual domains also brings on by these changes make teenagers particularly vulnerable to life stresses, and school-related factors are an important source of daily stress. Studying for examinations and the examinations themselves, the need to reach certain grades, having too much to do, worry over the future, making choices about one's career, the amount to learn, the need to do well (both imposed by others and self-imposed) were found to be the most important sources of stress for senior high school students.[1]

Stress is one of the most important health and social problems.[2] Stress is an extremely adaptive phenomenon in human, contributing to his/her survival, activities, and performance.[3] Both negative and positive stressors can lead to stress. The intensity and duration of stress changes, depending on the circumstances and emotional condition of the person suffering from it and examples of stressors ranges from sensory input such as pain, to life experiences such as poverty. Besides releasing typical

stress metabolites, characteristic enzymes and hormones, primary factors of psychological stress situations, possible reactions and recognizable symptomatic organic changes also show multi factorial appearances exposure to psychological stressors can modulate the primary antibody response and increased permanent stress levels can lead to pathological organ changes, psychological alterations as well as psychosomatic diseases.[4] In humans, a range of stressful events have been associated with lowering the immune system functioning, including examinations, battle task, vigilance, sleep deprivation and divorce.

Academic examinations have often been used in stress research because they are predictable, standardized, and discrete examples of real-life stressors. They are associated with changes in the mental and physical health such as increasing anxiety, increasing negative mood and changes in the immune functioning and thus a significant impact.[3] Among academic stressors, 'tests/exams' were the chief sources of stress. Despite this, test/exams are important in the academic training as a standard for evaluation/ assessment.[5]

Examinations are the bane of students. However, they have an important role in evaluating students' learning outcomes and their mastery of a subject.[6] Students repeatedly take a variety of tests and examinations in the university. As passing and failing examinations generally has major consequences for future development, academic examinations have been considered as one of the most acute stressors experienced by the students. Responses to stressful situations can be observed on the physiological level.[7] When stress is perceived negatively or becomes excessive, students experience physical and psychological impairment.[8] Perceived stress and somatic complaints have been shown to increase during exam periods and so do sleeping problems. Students are known to alter their drug consumption during exam periods. Several studies showed that alcohol, caffeine, and nicotine consumption change under exam stress.[9] Few models "distraction model" and "execution focus model" are described in this regards in the literature.[10]

Improving examination performances of students and reducing their failures are among the key expectations of teachers and students in any educational system. Finding out contributing factors for student's exam performance is important so that remedial measures can be taken to achieve desired results. This study was designed to explore the current scenario and perception related to stressors and anti-stressors related to academic examination among high school students.

This study was designed with following objectives (1) to document stressors related to exam, (2) to quantify exam related stress, (3) to explore factors helpful in reducing exam related stress.

METHODS

A cross sectional observational study was carried out.

There exist a large number of schools in Surat city and many students study in the school. So, two schools were selected purposively to carry out this study during January 2015. School authorities were approached prior to conducting this study and their consents were obtained to carry out the study with the students studying in the schools. Those students who were absent on the day of data collection or denied for the participation were excluded from the study, otherwise all the students were enrolled as study participants. Two–three students denied for participation because they were called by the authorities for some task, rest all participated and supported this study.

To collect data a semi-structured questionnaire was prepared. To document stress levels accurately a standard scale called named BAI was included in our questionnaire without any modifications. Thus our questionnaire contained few attitude related questions along with the standard scale.

Students were informed about the type and the purpose of this study. Data was kept unlinked and anonymous. They were also informed about voluntary nature of participation of the study. They were explained about use of data obtained from them. Thus verbal ascent was taken from the students for the participation.

Seating of the students was arranged in such a manner that they had enough space to maintain privacy and they cannot look into others responses. Thus privacy as well as confidentiality was maintained during process of collection of the data. They were constantly explained with the questions and their meaning with examples and guided for the methods of answering the questions correctly.

Data thus collected of total 387 secondary and higher secondary school students was entered in Microsoft Excel spreadsheet and analysed with help of SPSS and Epi info software. At all the steps utmost care was taken to maintain confidentiality of data. Data access was kept minimal.

RESULTS

Socio demographic profile

In this study 60.4% of participants were boys and 36.9% were girls. Majority (32.3%) of representation was observed by students of standard 11th followed 9th (18.9%), 10th (13.7%), 7th (12.7%), 8th (12.7%) and 12th (2.4%) standards. Commonest (80.4%) religion followed by the study participants was Hinduism followed by Christianity (12.9%), Islam (5.9%) and Jainism (0.3%). Most (42.1%) belonged to general caste followed by

OBC (26.1%), ST (8.2%) and SC (7.5%). Average family size was 5.64±2.44. Both parents of majority of study participants had studied at least up to secondary school and above. Occupation of majority fathers was doing some private business (43.2%) followed by service (40.8%) whereas majority mothers were housewife (76.7%) with a few of them were engaged in service (14.2%)

Stressors among study participants

Among the study, participant's anxiety (46.7%) was the commonest problem perceived by them followed by feeling of nervousness (14.7%) and fear (10.1%) however a measurable proportion perceived exam as an opportunity to prove their mettle. Personal (70.1%) and parental (70.1%) dissatisfaction following failure in exams were recorded as major causes of exam related problems where disappointing teachers (33.3%), distortion of school's image (27.5%), lengthening of study duration (26.4%), loss of face to friends (17.9%) and society (8%) and social loss of face by parents (10.8%) also contributed (Table1).

Table 1: Distribution of stressors related to exam among study participants.
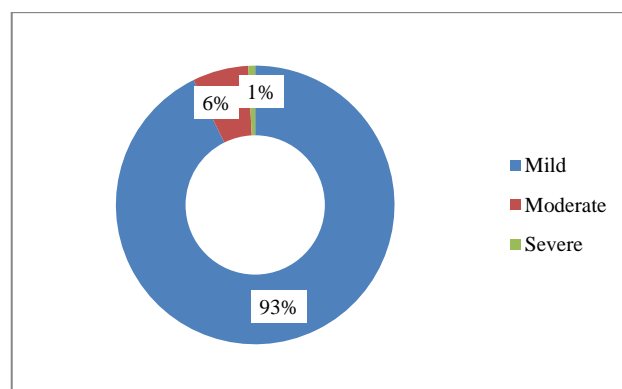
Variables	Frequency	%
How do they feel while exams		
Anxiety	181	46.8
Nervousness	57	14.7
Fear	39	10.1
Opportunity	90	23.2
Others	17	4.4
Not answered	3	0.8
What if one fails (multiple choices)		
Personal dissatisfaction	246	70.1
Parental dissatisfaction	246	70.1
Social face loss	28	8
Social Face loss for parents	38	10.8
Difficult to face friends	63	17.9
Disappointing teachers	117	33.3
Distortion of school's image	96	27.5
Increased duration of school	93	26.4
Nothing much	22	6.3
Other	7	2

Most (61.2%) of the students liked the examinations which was support by the opinion of majority (76.1%) that examinations should be conducted. Preferred pattern of examinations was reported to be multiple choice questions based (51.2%) followed by combination of multiple-choice questions and descriptive. It was notable that 74.4% of participants perceived meaning of failure as getting lesser marks than as expected by themselves. Almost three quarter (74.7%) reported that they had experienced the fear of failure in the examination. In the current study 10 (2.6%) participants reported that they

needed a professional help for combating with exam related stress.

Level of stress among the study participants

Stress levels were measured using BAI. Mean score for BAI was 10.15 with a standard deviation of 7.26. Majority of the participants were falling into mild (92.7%) followed by moderate (6.5%) and severe (0.8%) stress categories (Figure 1).

Figure 1: Distribution of study participants according to Beck Anxiety Inventory scores.

Table 2: Distribution of anti-stressors related to exam among study participants.

Variables	Frequency	%
Who can help		
Mother	151	39.2
Father	33	8.6
Grand parents	7	1.8
Teachers	44	11.4
Friends	131	34
Relatives	1	0.3
Doctor	1	0.3
Others	11	2.9
Missing	1	4
How do they reduce exam related stress		
Yoga	26	7.6
Exercise	33	8.7
Music	204	53.5
Talking to parents	148	38.8
Talking to friends	212	55.6
Talking to someone else	56	14.7
Watching TV	179	47
Consult doctor	9	2.4
Other	35	9.2

Anti-stressors among study participants

The most helpful person helpful while stress was reported to be mother (39.2%) followed by friends (34%), teachers (11.4%) and father (8.6%). Talking to friends (55.6%), watching television (47%), talking to parents (38.8%),

talking to someone else (14.4%), exercise (8.7%), yoga (7.6%), music (53.5%) and consulting a doctor (2.4%) were reported as tools helpful in reducing exam related stress (Table 2).

DISCUSSION

Among the study, participant's anxiety (46.7%) was the commonest problem perceived by them followed by feeling of nervousness (14.7%) and fear (10.1%) however a measurable proportion perceived exam as an opportunity to prove their mettle. In a study conducted by Koyama et al more than 40% of students experienced headache, stomach-ache/abdominal pain, stiff shoulder/ backache, constantly tired, constipation/ diarrhoea, and listlessness within the past month.[11] Nechita et al reported frustrations, conflicts and pressure as stressors among medical students.[12]

BAI scores

In the current study mean score for BAI was 10.15 with a standard deviation of 7.26. Majority of the participants were falling into mild (92.7%) followed by moderate (6.5%) and severe (0.8%) stress categories.

Cunningham et al reported a mean BAI score of 12.62±10.19 in a study conducted among high school students from three geographic locations: Calgary, Saskatchewan and Lethbridge.[13]

In a study conducted by Kim et al mean score of 4.8±SD 5.73 was reported among normal upper grade students of elementary school.[14]

Lupo et al reported mean BAI score of 9±8.7 among Israeli medical students.[15]

Anti-stressors

In the present study, talking to friends (55.6%), watching television (47%), talking to parents (38.8%), talking to someone else (14.7%), exercise (8.7%), yoga (7.6%), music (53.3%) and consulting a doctor (2.4%) were reported as tools helpful in reducing exam related stress.

Afzal et al in one the research said that, to manage anxiety, the medical students, used various methods: prayers and self-motivation (28.3%), sleep and relaxation (11%), watching TV and listening to music (10%), calling friends (8.5%) and revising more (6.7%).[16] In a study conducted among medical students Malathi et al suggested that yoga can be helpful in reducing stress among students.[17]

CONCLUSION

Exams were associated with worry, nervousness and fear. Fear of failure added to this stress. However, parents were generally supportive. Mean BAI score was 10.15.

The most helpful person helpful while stress was reported to be mother followed by friend and teacher. Talking to friends, watching television, talking to parents or someone else, yoga, music etc. were reported as tools helpful in reducing exam related stress. Thus, stressors and anti-stressors related to the examinations needs to be studied further in details and the better education pattern can be developed and implemented in the benefit of the larger community.

REFERENCES

1. Aurélio M, Peluso M, Savalli C, Cúri M, Gorenstein C, Andrade LH. Mood changes in the course of preparation for the Brazilian university admission exam – a longitudinal study. Rev Bras Psiquiatr. 2009;32:30–6.
2. Eskiocak S, Gozen AS, Yapar SB, Tavas F, Kilic AS, Eskiocak M. Glutathione and free sulphydryl content of seminal plasma in healthy medical students during and after exam stress. Hum Reprod. 2005;20(9):2595–600.
3. Shamsdin SA, Anvar M, Mehrabani D. The Effect of Exam Stress on Serum IL-6 , Cortisol , CRP and IgE Levels. Iran Red Crescent Med J. 2010;12(4):484–8.
4. Maduka IC, Neboh EE, Ufelle SA. The relationship between serum cortisol , adrenaline , blood glucose and lipid profile of undergraduate students under examination stress. Afr Health Sci. 2015;1–4.
5. Hettiarachchi M, Fonseka CL, Gunasekara P, Jayasinghe P, Maduranga D. How does the quality of life and the underlying biochemical indicators correlate with the performance in academic examinations in a group of medical students of Sri Lanka ? Med Educ Online. 2014;1(5):1–6.
6. Ng V, Hons BS, Koh D, Ph D, Mok BYY, Sc M, et al. Salivary Biomarkers Associated with. J Dent Educ. 2003;67(10):1091–4.
7. Koichi T, Yoshie S, Shoko I, Yasuka O, Etsuko M, Yukari Y. The effects of examination stress on salivary cortisol, immunoglobulin A, and chromogranin A in nursing students. Biomed Res. 2008;29(4):221–4.
8. Dayalan H, Subramanian S. Psychological Well-Being In Medical Students During Exam Stress— Influence Of Short-Term Practice Of Mind Sound Technology. Indian J Med Sci. 2010;64(11):501–7.

9. Zunhammer M, Eichhammer P, Busch V. Sleep Quality during Exam Stress : The Role of Alcohol, Caffeine and Nicotine. PLoS One. 2014;9(10).
10. Pradhan G, Mendinca NL, Kar M. Evaluation of Examination Stress and Its Effect on Cognitive Function among First Year Medical Students. J Clin Diagnostic Res. 2014;8:5–7.
11. Koyama A, Matsushita M, Ushijima H, Jono T, Ikeda M. Association between depression, examination-related stressors, and sense of coherence: The ronin-sei study. Psychiatry Clin Neurosci. 2014;68(6):441–7.
12. Nechita F, Nechita D, Pîrlog MC, Rogoveanu I. Stress in medical students. Rom J Morphol Embryol. 2014;55:1263–6.
13. Afzal H, Afzal S, Siddique S, Naqvi S. Measures used by medical students to reduce test anxiety. J Pak Med Assoc. 2012;62:982–6.
14. Malathi, Damodaran. Stress due to exams in medical students-role of yoga. Indian J Physiol Pharmacol. 1999;43(2):218–24.
15. Cunningham S, Gunn T, Alladin A, Cawthorpe D. Anxiety, depression and hopelessness in adolescents: a structural equation model. J Can Acad Child Adolesc Psychiatry. 2008;17(3):137–44.
16. Kim JW, Lee KS, Lee YS, Han DH, Min KJ, Song SH, et al. Factors associated with group bullying and psychopathology in elementary school students using child-welfare facilities. Neuropsychiatr Dis Treat. 2015;11:991–8.
17. Lupo MK, Strous RD. Religiosity, anxiety and depression among Israeli medical students. Isr Med Assoc J. 2011;13(10):613–8.