

Review Article

## Academic Stress, Anxiety, Remedial Measures Adopted and Its Satisfaction among Medical Students: A Systematic Review

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Received: 03/06/2016

Revised: 22/06/2016

Accepted: 27/06/2016

### ABSTRACT

Students have different types of stressors, and these stressors lead to anxiety and poor performance in the scholastic skills. A number of remedial measures are adopted by students in order to reduce these stressors and anxiety. This study aims to determine the relationship between academic stress, anxiety and academic performance along with remedial measures adopted.

**Methods:** A Pub Med, SCOPUS and Google scholar (2002-2016) literature review was undertaken to define sources of academic stress, anxiety, remedial measures adopted and its satisfaction to reduce academic stress and anxiety among nursing students.

**Results:** We identified 62 relevant articles. The most frequently noted form of academic stress and anxiety is academic stressors, social stressors, personal stressors, year of study, gender and teacher's stress. Use of effective stress reduction techniques is benefitted for students to reduce academic stress, anxiety and improve academic performance.

**Conclusions:** This article highlights the prevalence of academic stress and anxiety due to excessive competition, study of new subjects, change in environment, come far from their homes and family and study in university among nursing students. Therefore this article also stated that use of remedial measures is highly benefitted to students to reduce their stress and anxiety and to improve academic performance. This article recommended that the college should arrange the necessary environmental conditions to reduce the student's academic stress and anxiety.

**Keywords:** Academic stress, Anxiety, Academic Performance, Remedial measures.

### INTRODUCTION

Academic performance is the output of education of a student who achieves their educational goals in an institution. Academic performance is measured by continuous assessment and examinations but there is no general agreement on how it is best tested or which aspects are most important - declarative knowledge e.g. facts or procedural knowledge e.g. skills. [1]

The factors that affect academic performance include social economic status, admission points and institution background. Another factors that influence

high academic achievements of post graduates and undergraduates includes family support, deep learning, early revision, learning in small groups, learning in skills lab, mind mapping, attendance to lectures, prioritization of learning needs, learning from mistakes. [2]

Academic stress is conceptualized as interactions between student's environment stressors, cognitive appraisal and coping with physiological and psychological response to stress and stressors related to academics. [3] Academic stress is most often problem in all countries and cultures. In

some societies it is very severe because they want to get academic success for their social mobility, family pride and respect, which results in very high demands and pressure of academic performance in the students. [4]

Academic stressors are events in life of the students that affect their mental health as well as academic performance. Normally excessive assignments, peer competition, examination and time management issues are universally accepted for academic stressors. [5]

Students have different types of stressors e.g. financial stress, academic pressure from teachers and parents, time and health related issues. [6] This stress leads to academic, cognitive, social and physical changes. Sometimes mild stress is beneficial for academic tasks and performance while progressive high stress leads to anxiety and depression. [7]

Increasing academic stress results in anxiety, anger, depression, as well as it decreases the self-confidence and self-esteem. A Research study suggested that depression, anxiety, low self confidence and low self-esteem can decrease their academic performance by disturbing their thinking. [8] For post graduate and undergraduate nursing students clinical setting is also a learning environment. As they are learning in this environment they may experience stress and anxiety. As anxiety increases it can decrease clinical performance of students. [9]

Remedial measures are the coping strategies adopted by the students to decrease the academic stressors and improve the academic performance. [10] There are many models e.g. Problem focused and emotional focused model that are developed for measuring coping strategies. [11]

Time management and leisure activities had greater effects on academic stress. Females have effective time management but also have high academic

stress and anxiety than males. Males have high satisfaction by leisure activities than females. [12]

The Extra- curricular Activities are used to make equilibrium between studies and play. [13] A person should never underestimate the importance of Extra-curricular activities. Extra- curricular activities help students to learn modern and new things according to their own interest beside from academic studies. The process allows the students to ignore their academic work. Extra- curricular activities helps persons to build leadership qualities in a student, these will be useful in their further life. Therefore students must study hard as well as actively participate in Extra-curricular activities. [14]

Studying in group is also a one of the best way to cope with academic stress among students. By this method a student can understand about his doubt very quickly with the help of their peer group. Also, the presence of their friends gives psychological encouragement to students during stress. Study smart is the best way to cope with academic stress rather than study hard. [15]

## **MATERIALS AND METHODS**

Relevant articles on the topic of academic performance, academic stress, anxiety, remedial measures adopted to reduce academic stress and anxiety were identified by searching with related SCOPUS, GOOGLE SCHOLAR and Pub Med (2002-2015). Titles and abstracts of these articles obtained from the database searches were reviewed to ensure that they were related to academic stress, anxiety, academic performance and remedial measures. Articles falling outside of the searched date range, not written in English, or not pertaining to academic stress, anxiety, academic performance and remedial measures were excluded. Information from these 62 articles was extracted.

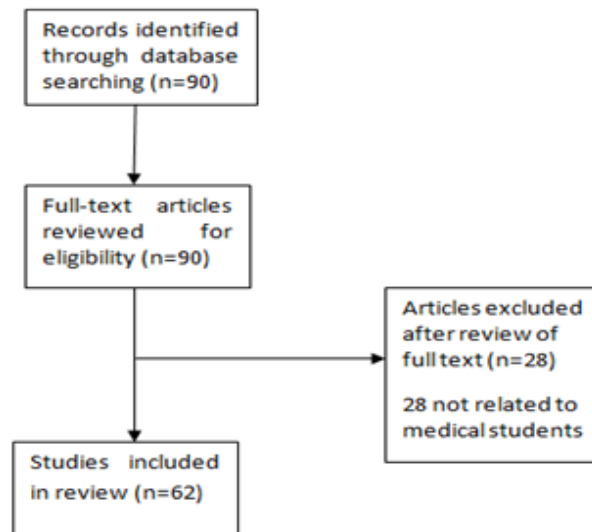


Fig. 1: Flowchart of review selection process and result

## RESULTS

### Academic Stress -and Academic Performance

Academic sources of stress are most stressful among nursing students. A study found that the most stressful category among these was academic sources of stress for all the students due to the pressure comes from the burden, course and procedures for academic evaluation. Personal and familiar factors were considered as less stressful stressors. [16] Academic Related and Social-related Stressors caused for severe and high stress, with insignificant differences between gender and residency. [17] The predominant themes were: perceptions of clinical practice, coping, personal issues, and balancing school, work, and personal life. Implications and recommendations for curriculum design, ensuring students understand program expectations prior to admission, and enhancing accessibility to mental health/support services need to be considered. [18]

According to stage wise academic stress is found more in second and third year students rather than first year students and who have excellent academic performance at previous class. A study was suggested that medical students perceived stress. In Second and Third MBBS students stress was found to be significantly more rather

than First MBBS levels ( $p < 0.05$ ). Stress was found to be significantly more in students having more than 95% of marks at 12<sup>th</sup> Standard as compared to others. It was found that with longer time spent in school psychophysical situation of girls and boys was deteriorating because the psychophysical stress from classes to classes was increasing. [19]

Female students have more academic stress as compare to male students. [20] A study was done to assess psychophysical stress among medical students of senior secondary schools during the years of education. The psychophysical stress of students in compared classes differed for both sexes. It was greater in girls in successive classes. The objective stressful situations and the personal experiencing of this stress increased among girls from year to year. [21] Females experienced higher self-imposed stress than males and had more physiological reactions to stress. With regards to control of time available, planning and organizing tasks and time control. Female students were also more recognized for taking good lecture notes, proof reading work, and having the ability to recall more facts from lectures than the male students. [22]

Teachers play a vital role in perceiving students academic stress. Findings of a study show that the faculty

members perceived the students to experience a higher level of stress and to display reactions to stressors more frequently than the students actually perceived. This could result simply from the faculty observing the students only during their moments of stress in the classroom. [23]

Respondent's status and interaction of status and stressors emerged as the two strongest predictors of their behavioral, emotional, physiological, and cognitive reaction to stressors. All the five stressors attained statistical significance in the model except for cognitive reaction. These variables explained 49% of variance in behavioral reaction, 28% for emotional reaction, 22% for physiological reactions, and 21% for cognitive reactions. [24]

Among private and government institutions the academic stress is significantly more in the students of private institution as compared to government institution. A study Results indicated that magnitude of academic stress was significantly higher among the Private institute students whereas Government institute students were significantly better in terms of their level of adjustment. However, inverse but significant relationships between academic stress and adjustment were found for both the group of students and for each type of institute. [25]

High level of academic stress, depression, anxiety and no use of extracurricular activities lead to poor academic performance among students. A study was done to find out relationship between stress and academic achievement of medical students. The results of this study show strong indicators of poor academic performance include high levels of stress, anxiety and use of non-functional coping mechanisms. [26]

Academic stress affects academic performance of students. As stress increases academic performance of the students also increases. A study found positive correlation between stress and academic achievement. Significant difference exists in the academic achievement of students having high,

moderate and less stress. Students with high and moderate stress performed better than the students having less stress. [17] Another study also reveals that respondents with a high and severe stress level were observed to have higher CGPA (cumulative grade point average). [17]

Some studies also stated that as academic stress increases academic performance of the students decreases. A study was done to assess stress and academic achievement among undergraduate students in university Putra Malaysia. It found that there is a significant but weak negative relationship between undergraduate students' stress level and their academic achievement. [27]

### **Anxiety Due To Academic Stress**

Students with anxiety problems tend to show lower levels of academic achievement, self-efficacy, and self-concept. Anxiety reduction requires the work of students, teachers, and parents. [28] Mindfulness Meditation, metacognition, coping, teacher involvement, and test question order are anxiety reduction strategies explored. Problem based learning is a teaching method proven to increase students' levels of positive metacognition. [29]

As students anxiety increases their academic performance decreases. Findings of a study shows that a negative correlation between anxiety, depression, and worry, and academic performance with  $r = -0.43$  for anxiety and depression, and  $r = -0.42$  for worry. As students' levels of anxiety, depression, and worry increased, academic performance decreased. High levels of anxiety and depression also contributed to higher levels of worry in students. [30]

There is no significant difference between anxiety level and the gender of students. Mainly students perceive more anxiety during their examination or test time. A study reported that generally students expressed anxiety during examination which is seen as physiological, psychological and behavioural changes and abnormality. Also, at  $P < 0.05$ , chi square

(X<sup>2</sup>) = 2.144, difference (df) = 3 and P value 0.543, there was no statistical difference between gender and academic performance of students. [31]

Among students self confidence, optimism, family support, peer support etc. plays a vital role in improving academic performance of the students. A study was conducted on Anxiety, Optimism and Academic Achievement among Students of Private Medical and Engineering College and results shows that anxiety had a significant negative relationship with optimism and academic achievement, whereas a significant positive relationship was found between optimism and academic achievement. [32]

### **Remedial Measures**

Remedial measures are the coping strategies adopted by the students to decrease the academic stressors and improve the academic performance. Remedial measures include Yoga/Meditation, Extracurricular activities, Playing indoor/outdoor games, Sharing problems with parents and friends etc. [33]

Leisure participation is considered as an effective remedial measure to reduce stress and anxiety. A study findings revealed that significant relationships existed between leisure participation and leisure satisfaction (P=0.004 <0.05), leisure participation and life satisfaction (P=0.002 <0.01), and leisure satisfaction and life satisfaction (P=0.000<0.01) of university students in Kenya. [34]

Pranayama and aerobics have remarkable effect to relax mind and body. A study results shows that there was significant reduction of anxiety and well being score. [35] Yoga training helped to reduce examination anxiety, depression and academic stress. [36]

Higher time management and lower perceived stress were associated with high levels of academic achievement. However, time management was the most significant predictor of academic achievement and perceived stress. A co relational study was done to assess time Management and its

relation to Students' Stress, Gender and Academic Achievement among Sample of Students and the findings of the study showed that there was statistically significant negative relationship between time management and perceived stress. Females reported higher time management compared to their males counter mates. [37]

Progressive Muscle Relaxation is effective in reducing academic stress anxiety and improving academic performance of students. A study was conducted to assess effectiveness of progressive muscle relaxation in reducing academic stress. The results shows that the posts test mean score is significantly lower than pre-test score which clearly proves that Progressive Muscle Relaxation is effective in reducing academic stress in classroom situation for the students. [38]

Another stress reduction techniques were given by Seyedfatemi N & Tafreshi M et al. (2007) experienced stressors and coping strategies among Iranian nursing students and found that majority of the students use the social support strategies, (59.6%), trying to keep up friendships or make new friends" (54.4%); the spiritual strategy, "praying" (65.8%); the seeking diversions strategy, "listening to music" (57.7%), the relaxing strategy "day dreaming" (52.5%), professional support strategies "getting professional counseling" (74.6%) and "talking to a teacher or counselor" (67.2%) and the humorous strategy "joking and keeping a sense of humor" (51.9%) were used by the nursing students. [39-41]

Conducting assertive training in institutions decreases student's anxiety, stress, and depression. [42,43] College age is most sensitive stages of one's life plus the fact that conducting such training programs besides their safe and low cost nature are effective and practical. [44,45] A study found that a significant difference between the mean score for assertiveness in the experimental group before (101.6 ± 9.1), immediately after (96.47 ± 10.84), and 2 months after (95.41 ± 8.37) implementing



the training program ( $P = 0.002$ ). There is no significant difference in the mean score for anxiety and stress between two groups before the assertiveness training program; however, 2 months after the intervention, the mean score for anxiety in the experimental group was found significantly lower than the control group. As for the mean score for depression, no significant difference between two groups before training; however, despite the decrease in the mean scores for depression in the experimental group following the intervention, the difference was not significant ( $P = 0.09$ ).<sup>[46]</sup>

This is important for a student to use self-care and stress management skills education in nurse preparatory programs for use in both academic preparation and in future careers.<sup>[47,48]</sup> A study was done to Compare Mental Health Characteristics and Stress between Baccalaureate Nursing Students and Non-Nursing Students and result shows that Nursing students were found to have significantly more stress, anxiety, sleep disturbances, and stress-related illnesses than the general student body.<sup>[49-51]</sup>

A program of MBSR (mindfulness based stress reduction) was effective when it was used with nursing students in reducing measures of depression, anxiety and stress, and increasing their mindful awareness.<sup>[52,53]</sup> MBSR shows promise for use with nursing students to address their experience of mild depression, anxiety and stress, and to increase mindfulness in academic and clinical work, warranting further study.<sup>[54]</sup> A study finding reveals that Compared with WL participants, MBSR participants reported significantly greater decreases in depression, anxiety and stress, and greater increase in mindfulness.<sup>[55]</sup>

Guided reflection is effective in reducing anxiety in nursing students.<sup>[56]</sup> This method can be used for reducing test anxiety and increasing learning and academic progress among students.<sup>[57]</sup> A study was conducted to assess The effect of guided reflection on test anxiety in nursing

students and shows the Mean  $\pm$  SD of t anxiety scores increased to  $36.48 \pm 9.34$  three months after the intervention in the control group ( $P = 0.1$ ). However, in the intervention group, the Mean  $\pm$  SD anxiety scores reduced immediately after ( $16.31 \pm 8.61$ ) and three months after ( $27.72 \pm 10.09$ ) the intervention, compared to before the intervention ( $35.47 \pm 10.66$ ) ( $P < 0.001$ , paired T-test).<sup>[58]</sup>

## CONCLUSION

In this era of education academic stress, anxiety increases day by day which leads to reduce academic performance due to excessive competition, study of new subjects, change in environment, come far from their homes and family and study in university among nursing students. Therefore this article also stated that use of remedial measures e.g. yoga, meditation, leisure activities, time management, playing etc. is highly benefited to students to reduce their stress and anxiety and to improve academic performance. This article recommended that the college should arrange the necessary environmental conditions to reduce the student's academic stress and anxiety. The teachers should focus on reducing the academic stress by providing mentors classes, time scheduling activities, changing teaching method and providing extracurricular activities.

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How to cite this article: Sharma B, Kumar A, Sarin J. Academic stress, anxiety, remedial measures adopted and its satisfaction among medical students: a systematic review. Int J Health Sci Res. 2016; 6(7):368-376.

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