

Full Length Research Paper

Stress level and coping strategies of college students

Sanjeev Kumar^{1,2*} and J. P. Bhukar^{3,4}

¹House Number 32, LNIPE, Mela Road Shakti Nagar, Gwalior, M.P., Pin code 474002, India.

²Department of Physical Education Pedagogy, LNIPE, India.

³Department of Physical Education Pedagogy, LNUPE, Mela Road Shakti Nagar, Gwalior, M.P.,
Pin code 474002, India.

⁴Department of Sports Psychology, LNIPE, India.

Accepted 26 November, 2012

The aim of this study was to investigate the stress levels and coping strategies of professional students belonging to Physical Education and Engineering professions. A sample of 60 subjects was randomly selected from the Physical Education and Engineering Institute, India. Each profession group had 30 subjects (15 boys and 15 girls) with age range of 21±3 years. Stress scores due to: 1) frustration and inhibition, 2) overload and 3) compulsive, time-urgent and aggressive behavior were measured for the selected subjects using the questionnaire developed by Daniel et al. (1979). The second questionnaire developed by George and Everly and used by Heyward (1991) was also administered to the students to measure their coping strategy. Data were analyzed using SPSS 17 version. Two way analysis of variance (ANOVA) showed that stress due to all the stimuli was significantly higher among girls in comparison to boys of their profession. Coping strategy was higher in boys than girls of their respective profession, but Physical Education girls had higher coping strategy than boys and girls of Engineering. Therefore, it can be concluded that Physical Education students had better coping strategy than engineering students.

Key words: Frustration and inhibition, overload, time-urgent and aggressive behavior coping strategy.

INTRODUCTION

In education system, adolescents are those receiving education in junior high schools, senior high schools, vocational high schools, colleges or universities. Due to fast physical changes and mental development at this stage, students may sometimes experience incompatibility of their mental development with their physical changes or with the social environment and thus suffer from problems arising from inadequate adaptations. These problems may further cause psychological troubles and even induce deviant behaviors. In modern society, stress has become a part and parcel of life. Pinel (2003) defines stress as a physiological response to perceived threat. It therefore has negative effects on life's pressures and events

(Benson and Stuart, 1992) and can generally be viewed as a set of neurological and physiological reactions that serve an adaptive function (Franken, 1994). Holmes and Rahe (1967) indicated that any life change that requires numerous readjustments can be perceived as stressful.

Teens of today face many challenges that parents and traditional educators may not have had to experience when they were growing up. Due to numerous pressures of the 21st century, adolescents are having difficulty in coping, and are requesting for educational programs in schools to help teach them how to cope with such stressors (Frydenberg et al., 2004). Many students face stress as they try to mix up busy lives, school, and work; while they are trying also to have time with family and friend. For some student, stress becomes almost a way of living. However, it is really dangerous to let stress become student's way of living in college, because some stress levels can lead to a terrible effect that changes completely student's life and it may result to failure. When

*Corresponding author. E-mail: Sanjeev_mundair@gmail.com.
Tel: +919435469108.

the brain is familiar with stress, a physical reaction is triggered and it easily damages the memory, which may lead to further mental reactions or misconduct. A student's life is subjected to different kinds of stressors, such as the pressure of academics with an obligation of success, uncertain future and difficulties envisaged for integration into the college system. These students face social, emotional and physical and family problems which may affect their learning ability and academic performance (Fish and Nies, 1996; Chew-Graham et al., 2003). Stress levels among college students are higher than those of people at any other stage of life, a poll has found. In addition, the poll found that college students have a higher predisposition toward experiencing depression sometime during their four years at college (David, 2009).

A healthy lifestyle is an essential companion to any stress-reduction program. Stress occurs when pressure exceeds beyond its perceived ability to cope. Stress is the body's reaction to a change that requires a physical, mental or emotional adjustment or response. Today, stress levels among children have been going up dangerously high due to the pressure of their academic and large amount of syllabus content in a limited span of time and too much expectation from parents. High level of stress is likely to ultimately affect the health of the students (Elizabeth, 2003). Pertinent to the gender differences in stress experiences, Nolen-Hoeksema (1990) and Weissman et al. (1996) noted that across many nations, cultures and ethnicities, women are about twice as likely as men to develop depression which is linked to anxiety. They reported further that women face a number of chronic burdens in everyday life as a result of their social status and roles relative to men, and these strains could contribute to their higher rates of depressive anxiety. Depression has a strong relationship to anxiety as prolonged stress can lead to depression (Sarafino, 2002).

Coping strategies are known to influence an individuals' experience of stress. For most students, managing stress during college can be extremely challenging. However, learning how to manage stress may help students cope with every day social and academic pressures, and thus have a better college experience. Effective time management strategies increase academic performance (Campbell and Svenson, 1992) and are frequently suggested by academic assistance personnel as aids to enhance achievement for college students. Although programs emphasize starting large tasks well before due dates, breaking down large tasks into small ones, and doing small tasks on a regular schedule, students regularly ignore these techniques and find themselves in great distress before exams (Brown, 1991).

The variety of the learned component stress management techniques can find expression in the social learning theories which include behavior modification, biofeedback, cognitive restructuring and even relaxation

techniques such as meditation. The concept of coping is based on three theoretical components namely: physiological, cognitive and learned. Physiologically, the body's systems have their own ways of coping with distressing events. Threats or challenges that an individual perceives in the environment can cause a chain of emotional arousal and neuroendocrine events that involve the secretion of catecholamine (epinephrine, norepinephrine) and corticosteroids (Frankenhaeuser, 1986). Studies from United Kingdom that have examined coping strategies of medical students with the stresses of undergraduate education have generally identified the use of alcohol as a coping strategy (Guthrie et al., 1995; Campbell et al., 1998), but some studies have reported the use of other substances such as tobacco and drugs (Miller and Surtees, 1991; Ashton and Kamali, 1995). A study from Pakistan reported that sports, music and hanging out with friends were common coping strategies (Shaikh et al., 2004). Being able to manage responsibilities, problems, or difficulties in a calm and thoughtful manner is one way of coping. Students are being pressured frequently by a variety of factors which cause them to have stress in one or more ways (Strong et al., 2008).

In today's education systems ranging from elementary to tertiary level, students are faced with several challengers. College students must realize that college can be demanding because of the amount of homework that is due in a short amount of time and therefore, it is easy to become overwhelmed. College has quizzes, tests, papers, exams, and project etc. If time is not managed correctly to insure that all of these tasks are completed, many students will experience stress. According to Macmillan Social Sciences library research, it was found that 70% of college students say that their grades have a direct effect on their level of stress. Study conducted by Aasra (www.aasra.info/articlesandstatistics.html) reported that depression among youth has increased from 2 to 12% in the last five years. Globally 3 out of every 5 visits to the doctor are for stress related problems. 76% people under stress say that they have sleeping disorders and 58% suffer headaches. 85% of people under stress tend to have strained relations with family and friends. 70% of people under stress say they have become short-tempered. A NIMHANS study says 36% techies in India (Bangalore) show signs of psychiatric disorder. Globally 1 out of every 10 students suffers significant distress. 66% of CEO's in India are stressed out and 11% find it too much to handle. 72% of students in India are unaware of how to deal with stress and its ill-effects. In 2006 alone, 5,857 students committed suicide owing to exam stress. 27.6% of IT professionals in India are addicted to narcotic drugs. College is a life changing experience for any person that wants to continue their learning experience, and since this is such a momentous occasion there are adjustments that must be made by students in order to

succeed in college. With such drastic changes people going to college will be put under stress, and they will have to make certain decisions to make their college experience a doable one. College students are at a critical period where they will enter adulthood because after completing study they need a good job for supporting their family and they are expected to be the elites in the society. Thus, they should enhance their stress management abilities so as to live a healthy life after entering the vocation. Therefore, the purpose of this study was to assess the stress level of Physical Education and Engineering students belonging to two different Universities of India.

MATERIALS AND METHODS

Sixty undergraduate residential students (boys and girls) of physical education and engineering Institute from, India were randomly selected as subjects for the study during 2009 to 2010. Each Profession group had 30 subjects (15 Boys and 15 Girls) with age ranged from 21 ± 3 years and all the subjects voluntarily participated. All students who participated in the study were informed about the objectives of the study. Approval for conducting the study was obtained from the Directors of Institutes. Stress scores due to 1, frustration and inhibition = 2, overload = 3. Compulsive, time-urgent and aggressive behavior was measured for the selected subjects using the questionnaire developed by Daniel et al. (1979). Second questionnaire developed by George and Everly used by Heyward (1991) was also administered on all the subjects to measure their coping strategy. Responses of questions were filled up prior to six month of final examination, so that the actual examination stress would not affect the responses of the students.

In the first questionnaire there were, thirty questions and subjects were asked to give their response by choosing one of the option out of four that is "almost always true", "usually true", "usually false" and "almost always false". By using the scoring key, scores were obtained for each subject on each of the three sources of stress. In the second questionnaire, fourteen questions and subjects were required to reply either in "yes" or "no" option. By using the scoring key, scores for each of the subjects were calculated for coping level towards stress.

After obtaining the scores of each of the subject on stress due to all three sources and on the coping strategy, the data was analyzed using SPSS (Statistical Package for the Social Sciences). A descriptive statistics tool was applied to the responses of students of both professions with regard to different levels of coping strategies, two-way analysis of variance (ANOVA) was used to compare the various sources of stresses between gender and profession. In case of F- value significant LSD (Least Significant Difference) post hoc means comparison was used.

RESULTS

It can be seen in Table 1 that the F-ratio for gender in all four variables that is, frustration and inhibition, overload, time urgent and aggressive behavior, and coping strategy, is significant at 0.05 level.

To find out whether stress from all the different stimuli were higher in girls or boys, and also to find out whether coping strategy was higher in girls or boys of their respective profession, post-hoc analysis was done by

using the least significance difference (LSD) test. The findings are presented in Table 2.

It is evident from Table 2 that stress level of girls arising due to different stimuli that is, frustration and inhibition; overload; time-urgent and aggressive behavior were higher than that of boys, irrespective of their profession. Whereas, coping strategy of boys was significantly higher than that of girls. The mean stress values due to different stimuli and coping strategy of boys and girls are shown in Figure 1.

In addition, descriptive statistics was applied to the responses of students of both professions with regard to their different level of coping strategies and the findings are presented in Table 3.

In Physical Education profession, 80% boys and 68% girls were having adequate or good coping strategy, whereas in the Engineering profession, 62% boys and 50% girls had adequate or good coping strategy. Further, in both professions none of the students had excellent coping strategy. Coping strategy of both professional groups are shown in Figure 2.

DISCUSSION

The main purpose of this study was to examine the stress level of physical education and engineering students belonging to two different universities of India. The findings of the present study revealed that stress was higher in girls in comparison to boys because of the fact that girls were expected to observe social customs and restrictions in Indian society comparatively more than boys. One of the reasons could be that girls had less freedom and choice in comparison to boys. The girls usually are busy throughout the day due to hectic life style and in addition, they are not supposed to leave the hostel after 7.30 pm every day, whereas boys had more choice of activity and freedom to go outside up to 10.00 pm every day. Research conducted by Steenberger et al. (1993) and Ronald (1993) also reported that girls have higher level of stress than their male colleagues. Stress from high expectations of teachers, parents, and self is usually an agony for students studying in schools (Cheng, 1999). Supe (1998) reported that there is considerable amount of stress in medical college students. The young student population has always been vulnerable to stressful life conditions especially in pursuit of higher professional education in a highly competitive environment (World Health Organization, 1994; Saipanis, 2003).

Coping strategy of boys and girls in Physical Education profession was found to be better than that of boys and girls in Engineering profession. It may be due to the reason that Physical Education students participate regularly in various physical activities that could manage their stress. Engineering students had more pressure due to their academic and large amount of syllabus content in

Table 1. Two way ANOVA for the data on stress due to different stimuli and coping strategy.

Variable	Source of variation	df	SS	MSS	F-ratio	Sig.
Frustration and inhibition	Gender	1	107.45	107.45	9.712	0.004*
	Profession	1	27.56	27.56	2.378	0.143
	Interaction	1	00	00	00	1.0
	Error	56	650.12	11.95		
Overload	Gender	1	97.76	97.76	4.852	0.048*
	Profession	1	.26	0.26	0.017	0.942
	Interaction	1	86.50	86.50	3.62	0.063
	Error	56	133.75	23.7		
Time-urgent and aggressive behavior	Gender	1	64.08	64.08	4.36	0.043*
	Profession	1	21.80	21.80	1.49	0.242
	Interaction	1	4.26	4.26	0.26	0.54
	Error	56	845.00	14.85		
Coping strategy	Gender	1	1745.12	1745.12	4.278	0.049*
	Profession	1	42.56	42.56	0.089	0.812
	Interaction	1	42.56	42.56	0.089	0.812
	Error	56	23533.21	421.71		

*Significant at .05 level of significance.

Table 2. Mean and (\pm SD) stress scores of boys and girls due to different stimuli.

Variable	Boys	Girls	Mean diff.	CD at 5% level
Frustration and inhibition	27.19(\pm 3.49)	29.67(\pm 3.29)	2.48*	1.78
Overload	28.67(\pm 4.42)	31.32(\pm 5.78)	2.65*	2.513
Time-urgent and aggressive behavior	28.59(\pm 3.61)	30.63(\pm 4.82)	2.04*	1.989
Coping strategy	62.79(\pm 18.10)	49.87(\pm 21.56)	12.92*	10.604

Table 3. Percentage of physical education and engineering students showing different levels of coping strategy.

Variable	Physical education students (%)		Engineering students (%)	
	Boys	Girls	Boys	Girls
Inadequate	20	32	38	50
Adequate	42.6	36	32.4	26.7
Good	37.4	32	29.6	23.3
Excellent	0	0	0	0

a small amount of time. Anxiety, academic alienation and future academic prospects taken together also added to the difficulties experienced by Engineering students. Another reason may be that Engineering students literally got no opportunity to participate in physical or recreational activities. Most college students usually feel overwhelmed because they are not managing their time correctly and are doing everything at the last minute. If a

college student has excellent time management and is responsible to make correct decisions then college will be less challenging and will promote good stress in their lives. The findings of this study are in consonance with the study conducted by Pines et al. (1981) who cited women's sensitivity to the school aspects of life and work as the reason why women considered people a greater source of stress in their work than men did.

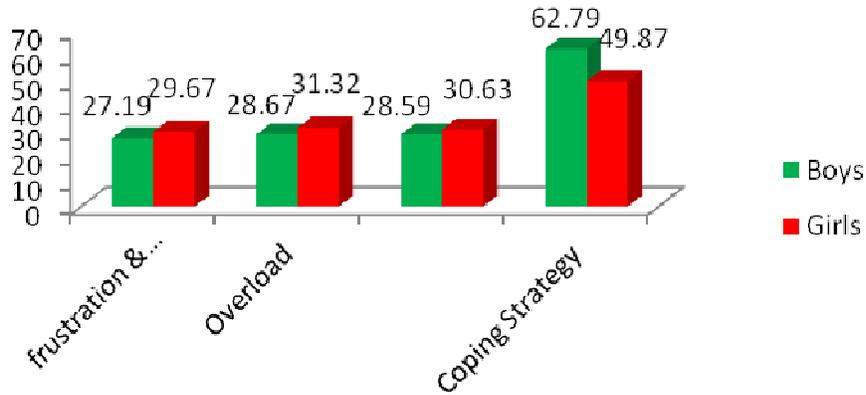


Figure 1. The mean stress values due to different stimuli and coping strategy.

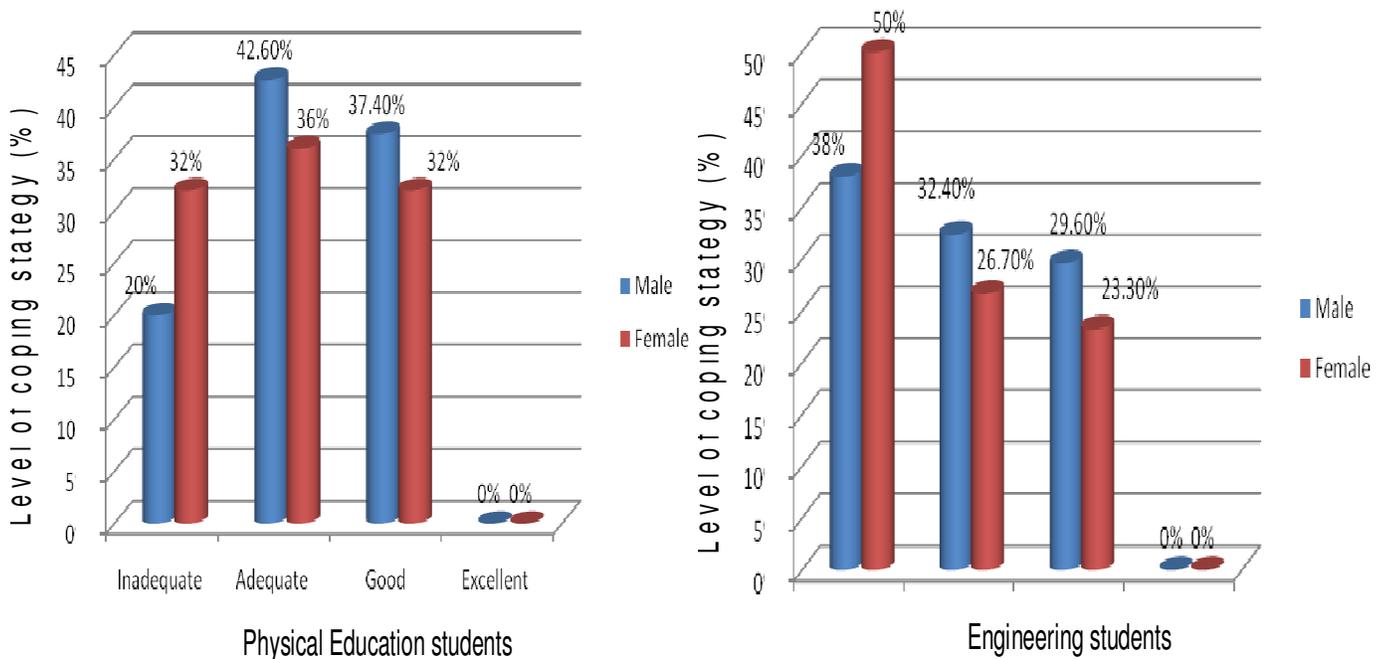


Figure 2. Graphical representation of coping strategy of boys and girls.

Several studies indicated a need for programs in college and schools that students can cope with. This is something that can be done either during classes such as health, psychology, or physical education, or through after college and school programs. Physical activities, sports and socialization are indispensable for individual growth and to foster personal development (Azariah and Reichenback, 2001; Durkin et al., 2003). Sports, music and arts could be made a part of the optional curriculum. Different stress management techniques such as meditation, support groups, games etc., help in better adoption of coping skills, improved knowledge of stress and enhanced ability to resolve conflicts (Shapiro and

Schwartz, 2000). ‘Stress management’ and ‘Time management’ taught along with first and second year curricula may assist students in dealing with stress due to study loads (Lee and Graham, 2001). Students who did not develop healthy coping strategies were more likely to experience a higher risk of health problems and anti-social behaviors. For example, students can begin having issues with depression, anxiety, stress overload, and social conflicts. Depending on the psychological health of the individual, each student needs different ways of understanding and managing stress and conflicts; therefore, college and school-based programs may be needed to teach these strategies to students to help

improve the outcomes of their future. Ways to provide this service include student support groups, mentoring programs, and counseling services. College students should pay attention to their physical and mental health and examine their emotions at all times to avoid onset of stress-induced depression or physical disorders. In face of stress, they can take a different perspective and learn to cope with it by changing their views. Stress-induced emotions can be self-managed. These outreach programs for students may provide resources and specialized programs that teach coping strategies for a healthy lifestyle and to overcome stress we need to balance academic demands and the social demands of college. Socializing and being surrounded by positive people is an important aspect of overcoming stress.

Conclusion

It is clear from the finding of this study that girls had higher level of stress than boys as the girls have more challenges to follow Indian orthodox customs, prevailing in the society. When stress affects the brain, with its many nerve connections, the rest of the body feels the impact as well. So it stands to reason that if your body feels better, so does your mind. Exercise and other physical activity produce endorphins—a chemical in the brain that act as natural painkillers—and also improves the ability to sleep, which in turn reduces stress. Meditation, acupuncture, massage therapy, even breathing deeply can cause your body to produce endorphins. And conventional wisdom holds that a workout of low to moderate intensity makes you feel energized and healthy.

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. Finding of this study also indicate that coping strategy of physical education students are better than students of engineering profession because of more opportunities of performing physical activities. Brown (1991) found that life events were more likely to cause students to seek medical advice if the students were low in physical fitness, as compared to students high in physical fitness. Therefore, College faculty and parents need to attend specific training and conferences regarding stress management to guide the students on how to manage their stresses in an effective way. 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.

ACKNOWLEDGEMENTS

The authors would like to express their sincere thanks to Maj. Gen. SS. Pawar (VSM Retd.), Vice Chancellor of LNUPE and Mr. Sanjeev Jain, Director of Madhav Institute of Technology and Science Gwalior, India, for their constant support in collecting data from subjects. They would also like to thank Professor JP Verma, Head of Computer science and Statistics, LNUPE, Gwalior, for provision of valuable suggestions and use of appropriate statistical tools, encouragement and guidance to carry out this study.

REFERENCES

- Aasra, Registered with Commissioner Trust ,Govt. of Maharashtra,Registration No. E 2047. www.aasra.info/articlesandstatistics.html.
- Albert M, Monika F (2001). Voluntary physical activity prevents stress-induced behavioral depression and anti-KLH antibody suppression. *Am. J. Phys. Regul. Integr. Comp. Physiol.* 281:484-489.
- Ashton CH, Kamali F (1995). Personality, lifestyles, alcohol and drug consumption in a sample of British medical students. *Med. Educ.* 29:187-192.
- Azariah S, Reichenback L (2001). Youth development in Pakistan. Technical report No. 21. Islamabad: Population Council.
- Benson H, Stuart EL (1992). *The Wellness Book: The comprehensive guide to maintaining health and treating stress-related illness*. New York: Carol Publishing Group.
- Brown RT (1991). Helping students confront and deal with stress and procrastination. *J. Coll. Student Psychother.* 6(2):87-102.
- Campbell M, Guthrie E, Black D, Bagalkote H, Shaw C, Creed F (1998). Psychological stress and burnout in medical students: a 5-year prospective longitudinal study. *J. Roy Soc. Med.* 91(5):237-243.
- Campbell RL, Svenson LW (1992). Perceived level of stress among university undergraduate students in Edmonton, Canada. *Percept. Mot. Skills* 75:552-554.
- Cheng CS (1999). *Life Stress of and Guidance for Adolescents*. Taipei: Psychological Publishing Co., Ltd.
- Chew-Graham CA, Rogers A, Yassin N (2003). 'I wouldn't want it on my CV or their records': medical students' experiences of help-seeking for mental health problems. *Med. Educ.* 37:873-880.
- Daniel AG, George SE (1979). *Controlling stress and tension; A Holistic Approach*, Reprinted by Permission of Prentice Hall, Englewood Cliff, New Jersey, pp. 62, 67-68,108-109.
- David M (2009). Student life independent newspaper in Washington University in St Louis. 30 October.
- Durkin SR, Bascomb A, Turnbull D, Marley J (2003). Rural origin medical students: How do they cope with the medical school environment? *Austr. J. Rural Health* 11:89-95.
- Elizabeth V (2003). *The Hindu*, "Concern over high stress levels among students.
- Fish C, Nies MA (1996). Health promotion needs of students in a college environment. *Public Health Nurs.* 13:104-111.
- Franken RE (1994). *Human Motivation*. 3rd ed. Belmont, CA: Brooks/Cole Publishing Company.
- Frankenhaeuser M (1986). A psychological framework for research on human stress and coping. In M.H. Appley and R. Trumbll, eds. *Dynamics of stress: Physiological, psychological, and social perspectives*. New York: Plenum.
- Frydenberg E, Lewis R, Bugalski K, Cotta A, McCarthy C, Luscombe-Smith N (2004). Prevention is better than cure: Coping skills training for adolescents at school. *Educ. Psychol. Pract.* 20:117-134.
- Guthrie EA, Black D, Shaw CM, Hamilton J, Creed FH, Tomenson B (1995). Embarking upon a medical career: psychological morbidity in first year medical students. *Med. Educ.* 29:337-341.
- Heyward VH (1991). *Advanced fitness Assessment and exercise Prescription*. Human Kinetics Books, Champaign, Illinois, USA.

- Holmes TH, Rahe RH (1967). The social readjustment rating scale. *J. Psychosom. Res.* 11:213-218.
- Lee J, Graham AV (2001). Students' perception of medical school stress and their evaluation of wellness elective. *Med. Educ.* 35:652-659.
- Miller P, Surtees PG (1991). Psychological symptoms and their course in first year medical students as assessed by the Interval General Health Questionnaire (I-GHQ). *Br. J. Psychiatry* 159:199-207.
- Nolen-Hoeksema S (1990). Sex differences in depression. Stanford, CA: Stanford University Press.
- Pinel JPT (2003). *Biopsychology* (5th ed). United States of America: Allyn and Bacon.
- Pines A, Aronson E, Kafry D (1981). *Burnout: From tedium to personal growth*, New York: The Free Press.
- Ronald BW (1993). A survey of university health centers in Western Canada. *J. Am. Coll. Health* 42:71-76.
- Saipanis HR (2003). Stress among medical students in a Thai medical school. *Med. Teach.* 25:502-506.
- Sarafino EP (2002). *Health Psychology: Biopsychosocial Interactions*. United States: John Wiley and Sons, Inc.
- Shaikh BT, Kahloon A, Kazmi M, Khalid H, Nawaz K, Khan N (2004). Students, stress and coping strategies: a case of Pakistani medical school. *Educ. Health (Abingdon)* 17:346-353.
- Shapiro SL, Schwartz GE (2000). Stress management in medical education. *Acad. Med.* 75:748-759.
- Steenberger BN, Allan J, Ralph A (1993). Research in college health: Analyzing and communicating results. *J. Amer. Coll. Health* 42:99-104.
- Strong B, Devault C, Cohen TF (2008). *The marriage and family experience: Intimate relationships in a changing society* (10th ed.). Belmont, CA: Thomson Learning, Inc.
- Supe AN (1998). A study of stress in medical students at Seth G.S medical college. *J. Postgrad. Med.* 44(1):1-6.
- Weissman MM, Bland RC, Canino GJ, Faravelli C, Greenwald S, Hwu HG, Joyce PR, Karam EG, Lee CK, Lellouch J, Lepine JP, Newman SC, Rubio-Stipec M, Wells JE, Wickramaratne PJ, Wittchen H, Yeh EK (1996). Cross-national epidemiology of major depression and bipolar disorder. *JAMA* 276(4):293-299.
- World Health Organization (1994). *The health of young people: A challenge and a promise*. Geneva: WHO.