ORIGINAL RESEARCH PAPER
Volume-6 | Issue-11 | November-2017 | ISSN No 2277 - 8179 | IF : 4.176 | IC Value : 78.46
INTERNATIONAL JOURNAL OF SCIENTIFIC RESEARCH

PERCEIVED STRESS AND COPING STRATEGIES IN UNDERGRADUATE MEDICAL STUDENTS

Medical Science

Hassan Sami	Medical Student, College of Medicine, King Faisal University, Saudi Arabia
Ibrahim Adil Hassan	Medical Student, College of Medicine, King Faisal University, Saudi Arabia
Sajjad Hussain	Medical Student, College of Medicine, King Faisal University, Saudi Arabia
Koomail Saeed	Medical Student, College of Medicine, King Faisal University, Saudi Arabia
Hussain Ali	Medical Student, College of Medicine, King Faisal University, Saudi Arabia
Mohammad Ayoob*	Assistant Professor, Department of Clinical Neurosciences, College of Medicine, King Faisal University, Saudi Arabia *Corresponding Author
Abdul Sattar Khan	Department of Family and Community Medicine, College of Medicine, King Faisal University, Saudi Arabia

ABSTRACT

Background: Medical education is challenging as medical students have to confront varied stressors such as academic pressures, work over load, and issues pertaining to professional competence.

Aims: The present study aimed to examine perceived stress and coping strategies among medical students in Saudi Arabia

Methods: This cross-sectional study consisted of 165 medical students from King Faisal University, Saudi Arabia. Stress was measured by using Cohen's Perceived Stress Scale, (PSS -10) (Cohen, 1983 & Cohen and Williamson, 1988)) and coping styles was measured by using Coping strategy inventory, Short Form (Addison, et al., 2007).

Result: One way analysis of variance revealed significant difference between coping behavior of participants with three levels of perceived stress in terms of problem-focused engagement, emotional focused engagement and emotional focused disengagement. Implications for reducing the effect of perceived stress among undergraduate medical students and future research directions are discussed.

KEYWORDS

Perceived stress, Coping strategies, Medical students, Saudi Arabia

Introduction

In recent past there is a growing appreciation of the stresses involved in medical education. High level of stress among medical students has been documented in various studies conducted in different contex (Assadi et al., 2007; Dyrbye LN et al., 2007; Mehanna Z, & Richa S. 2006). Many sources of stress were found among medical students such as academic pressures (Morrison 2001; Radcliffe and Lester 2003), heavy work load and long hours of professional training (Aktekin et al. 2001; Shah et al. 2009), relation with faculty, poor confidence in one's clinical competence and concerns about developing a professional image (Dahlin et al. 2005; Radcliffe & Lester, 2003). Additional stressors that include lack of social support from college, less amount of time for recreation, restricted opportunities for social and financial concerns (Aktekin et al. 2001; Kaur, 2007; Morrison 2001).

The latest American College Health Association (ACHA, 2014) reported that nearly half of students showed more than average or tremendous stress within the last 12 months. For those enrolled for higher education, stressors are related to independent living, developing new relationships and peer groups, issues with roommates, increased academic burdens, or concerns about finances (Hicks & Heastie, 2008). Higher levels of stress among college students have been associated with a number of adverse effects such as increased risk of illness, insomnia, eating disorder, increased utilization of health services, and depression (Brooks, Girgenti, & Mills, 2009; Matheny, Ashby, & Cupp, 2005; Osberg & Eggert, 2012; Roddenberry & Renk, 2010; Sawatzky, et al., 2012).

The high amount of stress may cause negative effect on students' mental and physical health (Houtman, et al., 2007). Mental problems resulted from stress, among others; include depression and high levels of anxiety. On the other hand, stress may cause physical health problems such as high blood pressure and disturbed metabolism (Al-Dubai, et al., 2011). Stress also has a negative impact on academic performance, as reported by more than one in three college students (ACHA, 2014). However, less is known about the difference in reported perceived stress and related coping strategies among medical students.

Coping has been viewed as reducing factor that may assist an individual in psychosocial adaptation during stressful events (Walton, 2002). Coping has been defined as the "cognitive and behavioral efforts to master, reduce, or tolerate the internal and/or external demands that are created by the stressful transaction" (Lazarus & Folkman, 1984). Among college students, an inability to cope with stress may lead to avoidant coping, or avoidance of dealing with the stressor (Taylor, 1998), which can include risky behaviors common in college students, such as drinking, smoking, use of energy drinks, and overeating or bulimic behaviors (ACHA, 2012; Dumalo, et al., 2000; Economos et al.,2008; Labrie, et al., 2012; Matheny et al., 2005; Pettit & DeBarr, 2011). Students with higher levels of stress are more likely to practice avoidant coping (Dumalo, et al., 2000), which may contribute to depression and anxiety (Staten, Hall, & Lennie, 2012) and other adverse physical and psychological responses to stressors (Holahan & Moos, 1987). Conversely, active coping strategies, those which are designed to change the nature of the stressor itself or how one thinks about it, are thought to be more beneficial when dealing with stress (Holahan & Moos, 1987). Interestingly, broad distinctions of such coping strategies may have limitations for understanding stress and coping (Taylor, 1998), particularly among college students, whereas it may be necessary to operationalize avoidant and active coping strategies differently. As previously mentioned, college students are prone to participation in risky behaviors (ACHA, 2012; Dumalo, et al., 2000; Economos et al., 2008; Labrie, et al., 2012; Matheny et al., 2005; Pettit & DeBarr, 2011), which are often linked to avoidant coping strategies, but it should not be assumed that these behaviors are always in response to a stressor (i.e., coping strategy). Therefore, there is a need to investigate a variety of more specific coping strategies among college students.

Reviews of research literature have shown that limited studies have examined perceived stress and coping strategies among medical students in Saudi Arabia. Specifically, very few studies have investigated relationship between stress and coping. Thus, the primary goal of this research is to examine perceived stress and coping strategies among medical students in Saudi Arabia

METHOD

Sample and Study design

The present study consisted of 165 (88 male and 77 female) medical students studying in college of medicine King Faisal University, Al-Hasa, Saudi Arabia. A cross sectional study design was used and convenient sampling was employed for data collection.

Measures

In order to achieve the goals of the present study, the different measures were used. Stress was measured by using Cohen's Perceived Stress Scale, (PSS -10) (Cohen, et al., 1983; Cohen &Williamson, 1988). Coping styles was measured by using Coping strategy inventory, Short Form (Addison, et al., 2007). Demographic questionnaire prepared by the researcher was also include in the study.

Demographic Questionnaire: The information about demographic profile of the participants was collected with the help of questions related to their age, sex, marital status, and academic year. In addition, information about their family were include area of residence, family type, education level of parents, family occupation, income, housing status etc.

Perceived Stress Scale: Perceived Stress Scale (PSS) was developed by Cohen et al., (1985). It is designed to measure the degree to which respondents found their lives "unpredictable, uncontrollable, and overloading" (Cohen & Williamson, 1988). The scale also includes a number of direct queries about current levels of experienced stress. As a result of factor analysis, a shorter version of the PSS scale was developed (Cohen & Williamson, 1988) by the authors of the original PSS. The PSS10 was derived by dropping four items from the original scale. Cronbach's alpha coefficient for the PSS10 was .78. Individual scores on the PSS can range from 0 to 40 with higher scores indicating higher perceived stress. Scores ranging from 0-13 would be considered low-stress. Scores ranging from 14-26 would be considered moderate stress. Scores ranging from 27-40 would be considered high perceived stress levels. The Perceived Stress Scale has been shown to have a high degree of reliability and validity. In the present study reliability coefficient was .78.

Coping Strategies Inventory, Short Form: Coping styles were measured by using the Coping Strategies Inventory Short Form (Addison, et al., 2007), a validated 16-item instrument used to measure engagement and disengagement coping styles. Engagement occurs when a person actively confronts a stressor (eg, “I tackle the problem head on.”). Disengagement occurs when a person avoids a stressor (eg, “I try not to think about the problem”). Each item was evaluated by using a 5-point Likert scale (1 = never, 2 = seldom, 3 = sometimes, 4 = often, and 5 = almost always). Scores within each 8-item sub-scale were summed (range: 8–40). Cronbach's α is 0.59 for the disengagement scale and 0.70 for the engagement scale in the Jackson Heart Study cohort (Addison, et al., 2007). In the present study the reliability coefficient was .78 for the engagement scale and .29 for the disengagement scale.

Procedure

After seeking required permission from concerned colleges and university authorities, the participants were personally contacted. They were briefed about the purpose of research and questionnaire used in the study. After seeking consent of the student, a suitable time and date was fixed for data collection. Before administering the questionnaire, the purpose of the study was again explained to the participants and they were assured that their responses will be kept confidential and will be used for research and academic purpose only. A good rapport was build with the participants for getting correct responses. Necessary instruction and guidelines were provided to them for properly filling the questionnaire. After this, the questionnaires were provided to them and they were requested to fill-up the questionnaire as per the instructions given in the questionnaire, After completion of the questionnaire participants returned the questionnaire and they were thanked for their participation and cooperation.

Data Analysis

The data entry and analysis was performed using Statistical Package for Social Sciences software package (SPSS Inc., Chicago, IL, USA) version 22. Descriptive statistics was used to describe the major socio-demographic and background information about the subjects. One-way analysis of variance was used to examine the difference in perceived stress, and coping strategies of different groups of participants.

Result

On the basis of the severity of perceived stress, participants of the present study were categorized into low, moderate and high perceived stress groups on the basis of criteria of the scale. There were 18 (10.9%) participants in low perceived stress group, 118 (71.50%) in moderate perceived stress group and 29 (17.6%) student in high perceived stress group. Mean scores and *SDs* of participants experiencing three levels of perceived stress (i.e., low, moderate and high) for different measures of coping along with the analysis of variance *F* values are presented in Table 1.

Results show significant differences between mean coping scores of three groups of participants for problem focused engagement F (2, 162) = 3.98, $p < .05$, emotional focused engagement F (2, 162) = 8.04, $p < .01$, and emotional focused disengagement F (2, 162) = 10.43, $p < .01$, Mean scores clearly indicate that participants with high perceived stress showed greater reliance on problem-focused engagement (M = 12.66, SD = 3.44), emotional focused engagement (M = 13.03, SD = 2.63), and emotional focused disengagement (M = 14.59, SD = 3.10) in comparison to the participants with moderate (Mean scores = 11.74, 11.50, 12.55; *SDs* = 3.26, 2.92, 2.98 respectively) and low (Mean scores = 9.98, 9.56, 10.50; *SDs* =3.14, 3.20, 3.31 respectively) perceived stress. However, difference between mean scores of three groups of participants were not found significant for the problem focused disengagement.

Table 1 ***Means, Standard Deviations and Analysis of Variance of Methods of Coping for Perceived stress***

Methods of Coping	Perceived stress			F (2, 162)
	Low (n = 18)	Moderate (n = 118)	High (n = 29)	
Problem Focus Engagement Mean	9.89	11.74	12.66	3.98*
SD	3.14	3.26	3.44	
Problem Focused Disengagement Mean	11.67	12.22	13.24	2.35
SD	3.63	2.33	3.20	
Emotional Focused Engagement Mean	9.56	11.50	13.03	8.04**
SD	3.20	2.92	2.63	
Emotional Focused Disengagement Mean	10.50	12.55	14.59	10.43**
SD	3.31	2.98	3.10	

*$p < .05$. **$p < .01$.

Discussion

Present study examined role of coping strategies adopted by the students in their perceived stress. As coping is a major tool to deal with the stress, it was hypothesized that coping behavior of participants with different levels of perceived stress will be significantly different. In order to examine whether coping behavior of students with different levels of perceived stress, result of one-way analysis of variance (Table 1) revealed significant difference between coping behavior of students with three levels of perceived stress in terms of problem-focused engagement, emotional focused engagement and emotional focused disengagement. Student with higher perceived stress showed greater reliance on problem-focused engagement, emotional focused engagement and emotional focused disengagement in comparison to the students with moderate and low perceived stress.

Present findings show that students adopted both the problem-focused coping and emotional-focused coping for combating the perceived stress. These findings are in line with some of the studies conducted recently (Ayoob, M, Singh, T. &Jan, M. 2011). Although previous studies have shown problem-focused coping consistently associated with better health (Wijndaele, 2007; Black & Vandiver, 1998; Boutevre, Maurel, & Bernaud, 2007; Sherbourne, Hays & Wells, 1995; Smari & Valtysdottir, 1997), whereas emotional-focused coping has been associated with poor health (Smari & Valtysdottir, 1997), present findings partially support the relationship of problem-focused coping observed in above studies. However, problem-focused coping appears to be effective simply because it removes daily stressors. Although daily stressors are only small they have been associated with lowered mood in university students (Wolf, Elston, & Kissling, 1989). Perhaps

more significantly, daily stressors can develop into major stresses, thus increasing the potential for increased stress, anxiety and depression (Holahan, Holahan, Moos, Brennan, & Schutte, 2005). The removal of these stressors therefore decreases the likelihood of experiencing distress. In addition, problem-focused coping may be negatively associated with psychological distress as it requires individuals to set and accomplish goals. As a consequence individuals are provided with a sense of mastery and control, thus reducing their anxiety and stress (Folkman, 1997).

In the present study emotion-focused coping methods have been found a significant association with perceived stress. Emotion-focused coping incorporates a number of diverse coping styles that have been shown to be both adaptive and maladaptive (Billings & Moos, 1984; Bouteyre, Maurel, & Bernaud, 2007; Crockett, Iturbide, Torres, McGinley, Raffaelli, & Carlo, 2007; Penland, Masten, Zelhart, Fournet, & Callahan, 2000; Wijndaele, Matton, Duvigneaud, Lefevre, De Bourdeaudhuij, & Duquet, 2007). In general, the coping strategies that focus on negative emotions and thoughts appear to increase psychological distress (e.g. venting of emotions and rumination), whereas coping strategies that regulate emotion (e.g. seeking social support, affect regulation and acceptance) appear to reduce distress. Emotion-focused coping appears to vary in its effectiveness as it incorporates a number of diverse coping styles. Coping styles that regulate emotion are effective as they prevent people from dwelling on their negative emotions and ensure they take proactive steps to resolve their negative emotions (Carver, Scheier, & Weintraub, 1989). For example, seeking social support is effective as it encourages students to seek advice from others regarding suitable coping strategies in which to engage (Bouteyre, Maurel, & Bernaud, 2007).

The present study suffered from a number of limitations. First the data of the present study were collected from Alhasa region of Saudi Arabia only. Data gathered in this context may therefore be unique, and it is entirely possible that a replication of this study in a different part of the country might yield different findings. Second, the convenience sampling method of Kashmiri students is not likely to be representative of all medical students studying in other parts of the country. Therefore, further study needs representative samples in order to establish the generalizability of findings on medical students studying in other parts of the country. Third, all measures used in the present study were based on the participant's self-reports. Self-report questionnaires are always susceptible to biased responses from individuals who prefer to endorse socially desirable answers. Fourth, the cross-sectional design used in the present study does not allow drawing conclusions regarding causality. Longitudinal research will be needed to support such conclusions. Fifth, sample size of the present study was relatively small and homogeneous which also limits generalization.

Despite the above limitations, the present investigation contributes substantially and uniquely to research on stress and coping strategies of students. Findings from this study have broadened our understanding of the stress process and its role in health and psychological well-being of medical students. This study also provided a comprehensive assessment of stress among medical student, covering issues related to perceived stress and coping. Moreover, the study advanced knowledge of stress faced by medical students by testing numerous theoretical and empirically based hypotheses proposed by previous researchers. Thus, this study lays the groundwork for future research on perceived stress of student population. Present findings also suggest a need for developing culturally effective outreach and intervention programs for medical students. Further research is needed to develop culture-centered and culture-specific health promotion strategies and to explore their effectiveness, as to better serve the other subgroups in order to improve their health and psychological well-being. In addition, more culturally specific questionnaires are needed to assess the health related problems among medical students. Further validation of the measurements of stress and coping is also necessary. As the measures of the present study were developed in western countries, these measures lack their validity in the Saudi culture. Finally, longitudinal studies may be another recommended research direction to study perceived stress and coping strategies in medical students.

References

1. Addison, C. C, Campbell-Jenkins, B. W, Sarpong, D. F, Kibler J, Singh M, Dubbert P, et al. (2007). Psychometric evaluation of a Coping Strategies Inventory Short-Form (CSI-SF) in the Jackson Heart Study cohort. International Journal Environmental Research and Public Health; 4(4):289–95.
2. Aktekin, M., T. Karaman, Y.Y. Senol, S. Erdem, H. Erengin and M. Akaydin (2001). Anxiety, depression, and stressful life events among medical students: A prospective study in Antalya, Turkey. Medical Education, 35(1), 12–7.
3. AL-Dubai, S, A, Al-Naggar, R. A., Alshagga, M.A., & Rampal, K.G. (2011), "Stress and coping strategies of students in a medical faculty in Malaysia", Malaysian Journal of Medical Science, 18, No. 3, pp. 57-64.
4. American College Health Association. (2012). Healthy Campus 2020. Available at: http://www.acha.org/HealthyCampus/student-obj.cfm. Accessed April 1, 2013.
5. American College Health Association. (2014). American College Health Association-National College Health Assessment II: Reference group executive summary Spring 2014. Available at: www.acha.org. Accessed March 6, 2014.
6. Assadi S. M, Nakhaei M. R, Najafi F, Fazel S. (2007). Mental health in three generations of Iranian medical students and doctors –A cross-sectional study. Social Psychiatry Epidemiology, 7; 42: 57-60.
7. Ayoob, M., Singh, T., & Jan, M. (2011). Acculturative stress and Coping Strategies among Kashmiri students in Bhopal. Indian Journal of Health and Well-being, 2 (1), 69-73.
8. Billings, A., & Moos, R. (1984). Coping, stress, and social resources among adults with unipolar depression. Journal of Personality and Social Psychology, 46(4), 877-891.
9. Blake, R., & Vandiver, T. (1988). The association of health with stressful life changes, social supports, and coping. Family Practice Research Journal, 7, 205-218
10. Bouteyre, E., Maurel, M., & Bernaud, J. L. (2007). Daily hassles and depressive symptoms among first year psychology students in France: The role of coping and social support. Journal of the International Society for the Investigation of Stress, 23(2), 93-99.
11. Brooks, P. L., Girgenti, A., & Mills, M. (2009). Sleep patterns and symptoms of depression in college students. College Student Journal, 43(2), 464-472.
12. Carver, C., Scheier, M., & Weintraub, J. (1989). Assessing coping strategies: A theoretically based approach. Journal of Personality and Social Psychology, 56(2), 267-283.
13. Cohen, S., Kamarck, T., & Mermelstein, R. (1983). A global measure of perceived stress. Journal of Health and Social Behavior, 24, 385– 396.
14. Cohen, S. and Williamson, G. (1998). Perceived Stress in a Probability Sample of the United States. Spacapan, S. and Oskamp, S. (Eds.). The Social Psychology of Health. Newbury Park, CA: Sage
15. Crockett, L. J., Iturbide, M. I., Torres, R. A., McGinley, M., Raffaelli, M., & Carlo, G. (2007). Acculturative stress, social support, and coping: Relations to psychological adjustment among Mexican American college students. Cultural Diversity and Ethnic Minority Psychology, 13(4), 347-355.
16. Dahlin, M., N. Joneborg & B. Runseson (2005). Stress and depression among medical students: A cross-sectional study. Medical Education, 39(6), 594–604.
17. Dumlao, J., Erdmann-Sager, D., Murray, D., Phan, E., Soukas, N., & Yokozuka, N. (2000). Stress at college: Effects on health habits, health status and self-esteem. College Student Journal, 34(2), 11.
18. Dyrbye LN, Thomas MR, Eacker A, Harper W, Massie FS Jr, Power DV, et al. (2007). Race, ethnicity, and medical student wellbeing in the United States. Archives Internal. Medicine; 167: 2103-9.
19. Economos, C., Hildebrandt, L., & Hyatt, R. (2008). College freshman stress and weight change: Differences by gender. American Journal of Health Behaviors, 32(1), 16-25.
20. Gohm, C. L., Corser, G. C., & Dalsky, D. J. (2005). Emotional intelligence under stress: Useful, unnecessary, or irrelevant? Personality and Individual Differences, 39, 1017-1028.
21. Hicks, T., & Heastie, S. . (2008). High school to college transition: A profile of the stressors, physical and psychological health issues that affect the first-year on-campus college student. Journal of Cultural Diversity, 15(3), 143-147.
22. Houtman I, Jettinghoff K, & Cedillo L. (2007),"Protecting Workers' Health Series No. 6: A modern hazard in a traditional working environment: Advice to employers and worker representatives", Geneva (CH): World Health Organization.
23. Holahan, C. J., Holahan, C. K., Moos, R. H., Brennan, P. L., & Schutte, K. K. (2005). Stress generation, avoidance coping, and depressive symptoms: A 10-Year Model. Journal of Consulting and Clinical Psychology, 73(4), 658-666.
24. Holahan, C. J., & Moos, R. H. (1987). Personal and contextual determinants of coping strategies. Journal of Personal Social Psychology, 52(5), 946-955.
25. Kaur, J.S. (2007). Effect of Stress on Medical Students. International E-Journal of Science, Medicine & Education, 1(1), 52–3.
26. Lazarus, R. S., & Folkman, S. (1984). Stress, appraisal, and coping. New York: Springer
27. Labrie, J., Ehret, P., Hummer, J., & Prenovost, K. (2012). Poor adjustment of college life mediates the relationship between drinking motives and alcohol consequences: A look at college adjustment, drinking motives, and drinking outcomes. Addictive Behaviors, 37, 379-386.
28. Matheny, K. B., Ashby, J. S., & Cupp, P. (2005). Gender differences in stress, coping, and illness among college students. The Journal of Individual Psychology, 61(4), 365-379
29. Mehanna Z, Richa S. (2006). Prevalence of anxiety and depressive disorders in medical students. Transversal study in medical students in the Saint-Joseph University of Beirut. Encephale; 32:976-82.
30. Morrison. J. (2001). Editorial: more on medical student stress. Medical Education, 35(7), 617–8.
31. Osberg, T. M., & Eggert, M. (2012). Direct and indirect effects of stress on bulimic symptoms and BMI: The mediating role of irrational food beliefs. Eating Behaviors, 13(1), 54-57.
32. Pettit, M. L., & DeBarr, K. A. (2011). Perceived stress, energy drink consumption, and academic performance among college students. Journal of American College Health, 59(5), 335-341.
33. Penland, E., Masten, W., Zelhart, P., Fournet, G., & Callahan, T. (2000). Possible selves, depression, and coping skills in university students. Journal of Personality and Individual Differences, 29, 963-969.
34. Radcliffe, C., Lester, H., (2003). Perceived stress during undergraduate medical training: a qualitative study. Med. Edu. 37 (1), 32–38.
35. Roddenberry, A., & Renk, K. (2010). Locus of control and self-efficacy: potential mediators of stress, illness, and utilization of health services in college students. Child Psychiatry Human Development, 41(4), 353-370.
36. Shah, C., R.S. Trivedi, J. Diwan, R. Dixit & A.K. Anand (2009). Common stressors and coping of stress by medical students. Journal of Clinical and Diagnostic Research, 3(4), 1621–26.
37. Spada, M. M., Nikcevic, A. V., Moneta, G. B., & Wells, A. (2008). Metacognition, perceived stress, and negative emotion. Personality and Individual Differences, 44, 1172-1181.
38. Sawatzky, R. G., Ratner, P. A., Richardson, C. G., Washburn, C., Sudmant, W., & Mirwaldt, P. (2012). Stress and depression in students: The mediating role of stress management self-efficacy. Nursing Research, 61(1), 13-21.
39. Staten, R. T., Hall, L. A., & Lennie, T. A. (2012). The relationship among young adult college students' depression, anxiety, stress, demographics, life satisfaction, and coping styles. Issues in Mental Health Nursing, 33(3), 149-156.

40. Sherbourne, C., Hays, R., & Wells, K. (1995). Personal and psychosocial risk factors for physical and mental health outcomes and course of depression among depressed patients. Journal of Clinical Psychology, 63, 345-355.
41. Smari, J., & Valtysdottir, H. (1997). Dispositional coping, psychological distress, and disease control in diabetes. Personality Individual Difference, 22, 151-156.
42. Taylor, S. (1998). Coping strategies. MacArthur Research Network on SES & Health. Available from: http://www.macses.ucsf.edu/research/psychosocial/coping.php
43. Walton L. Robin. (2002). A Comparison of Perceived Stress Levels and Coping Styles of Junior and Senior Students in Nursing and Social Work Programs. Doctor of Education Dissertation. College of Graduate Studies, Marshall University.
44. Wijndaele, K., Matton, L., Duvigneaud, N., Lefevre, J., De Bourdeaudhuij, I., & Duquet, W. (2007). Association between leisure time physical activity and stress, social support and coping: A cluster-analytical approach. Psychology of Sport and Exercise, 8(4), 425-440.
45. Wolf, T. M., Elston, R. C., & Kissling, G. E. (1989). Relationship of hassles, uplifts, and life events to psychological well-being of freshman medical students. Behavioral Medicine, 15(1), 37-45.