



A conceptual framework of stress management intervention for medical students

Muhamad Saiful Bahri Yusoff¹, Mohd Jamil Yaacob², Nyi Nyi Naing³ and Ab Rahman Esa⁴

¹Medical Education Department, ²Psychiatry Department, ³Unit of Biostatistics & Research Methodology, School of Medical Sciences, Universiti Sains Malaysia, Kelantan, Malaysia.

⁴Public Health Department, Faculty of Medical and Health Sciences, Universiti Sultan Zainal Abidin, Kuala Terengganu, Terengganu, Malaysia.

ARTICLE INFO

Received : 29/01/2013
Accepted : 30/03/2013
Published : 01/09/2013

ABSTRACT

Teaching stress management skills for medical students has been echoed as an important educational component in medical education. Discussions about approaches to teaching stress management in medical education context are largely unexplored despite of a large number of articles have emphasized on its importance. This paper describes four elements in a framework as an approach to teaching stress management skills in medical education. As one moves through the framework, it provides a greater degree of insight on stress management ability as is acquired through one's awareness, experience and conscious effort that allow stressful situations to be handled effectively and efficiently. It may provide a useful educational framework for medical teachers to teach and assess stress management skills of medical students. It also may be used as an aid in planning, implementing and evaluating stress management programs in medical schools. The authors discuss about the implications of this framework for future research in medical education.

KEYWORD

DEAL model
Stress management
Medical education
Medical school
Medical student

© Medical Education Department, School of Medical Sciences, Universiti Sains Malaysia. All rights reserved.

CORRESPONDING AUTHOR: Dr Muhamad Saiful Bahri Yusoff, Medical Education Department, School of Medical Sciences, Universiti Sains Malaysia, Kelantan, Malaysia. Email: msaiful@kb.usm.my

Introduction

For the past two decades, many studies have reported on the impacts of bad stress, sources of stress, benefits of coping strategies, and various outcomes of stress management interventions on medical student mental health (1-6). Based on this information, we proposed a conceptual framework of stress management that is called as 'DEAL' (Detection, Evaluation, Action and Learning through self-reflection). The DEAL model was developed based on the interrelationship of stress, stressors and coping strategies in relation to affective, cognitive and psychomotor learning taxonomy.

Basically stress management intervention can be categorized into two major groups based on its approach which are self-change and environmental-change (7). The self-change approach is usually referred to personalized or individual stress management where individuals will learn on how to adapt and cope effectively with stressful situations through positive perception, positive ways of thinking, appropriate action and self-reflection. The environmental-change approach is referred to situational or organizational stress management where individuals try to change the stressful situation or environment to become less stressful rather than try to improve their coping abilities. The self-change approach involved self-

regulation to cope with stressors while environmental-change approach involved system-regulation to prevent and avoid from potential stressors. Both approaches play significant roles to improve persons' psychological health. However, the most practical approach is the self-change because it is within the person control. To change situation and environment is cumbersome because it is

beyond a person control. As Al-Quran mentions that, "Verily never will God change the condition of a people until they change it themselves." (8). This is more evident when all of stress management interventions for medical students used the self-change approach (1, 2). Likewise, the proposed framework was based on the self-change approach.

The interrelationships stress, stressors and coping strategies

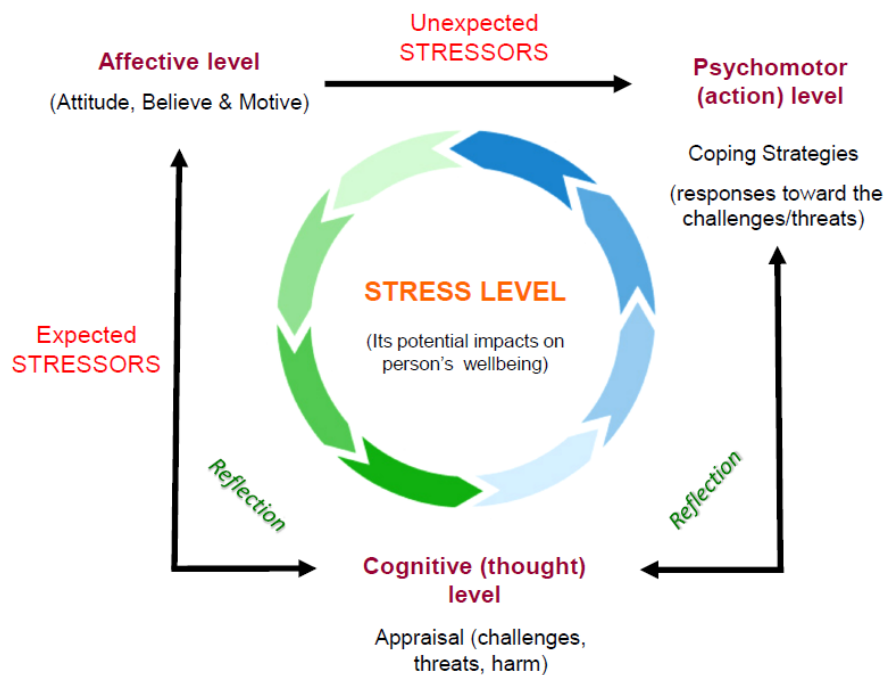


Figure 1: Interrelationship stress, stressors and coping strategies in relation to continual interplay between affective, cognitive, and psychomotor domains.

The interrelationships stress, stressors and coping strategies in relation to continuous interplay between affective, cognitive and psychomotor domains were illustrated in the Figure 1.

Based on the principle of internalization, affective is described as the process whereby a person's concern towards an object or stimulant passes from a general awareness level to a point where the concern is internalized and consistently guides or controls the person's behavior (9, 10). The affective component

involves in receiving and perceiving stimulants that interact with a person. Individuals' believes, attitudes, motives, intentions and values will influence the person's perception toward potential stressors. Expected stressor is described as a potential source of stress that can be predicted to happen for example examinations, getting poor marks or too much contents to be learnt within short period of time. Unexpected stressor is described as a potential source of stress that cannot be predicted to happen for example mother, father or beloved one passed away. The process of receiving and perceiving

external or internal stimuli as a threat or challenge to oneself is also known as primary appraisal (11, 12). How individuals perceive their ability towards overcoming demands play significant roles in determining a person's stress level (13). For example if a person perceived him/herself as capable to meet demands then he/she will be less bothered by stress. A study reported that persons' mental health was associated with their attitude towards demands (14). These facts suggest that individuals' attitude, motives and believes are important factors to regulate individuals emotion states.

Cognitive is described as a wide variety of mental process or skills that involves in acquiring knowledge and the development of intellectual ability through recall information from memory, comprehension of information, make sense of information by reasoning, application of information to certain situations, analyzing associations between different pieces of information, synthesis new information from raw data, evaluating information for continuous improvement and creating new idea from information obtained (15). The mental skills and abilities help individuals to appraise external or internal stimulus as real challenges, threats or harms and to decide on appropriate reactions towards the stimulus. If the individuals think about the stimuli in positive ways (as a challenge) then they were capable to meet the demand. However, if the individuals think the stimuli in negative ways (as a threat or harm) then they think they were unable to meet the demand in which will lead to stressful feelings. This process is also known as secondary appraisal (11, 12). The important lesson learnt is that ways of individuals think about stressful situations will determine their stress types either favourable stress or unfavourable stress (16).

Psychomotor is described as observable performance of skills that requires neuromuscular coordination (17, 18). The psychomotor involves in carrying out actions as responses towards the challenges or threats that were appraised at affective and cognitive level. The action taken was called as coping strategies either adaptive (positive) or non-adaptive (negative) coping. Adaptive coping strategies usually help in hastening recovery from stressful transactions, while non-adaptive coping strategies usually delay recovery from stressful transactions (19, 20). These facts suggest that how individuals cope with stressful situations will determine their psychological health state (21). Developing positive coping skills are depending on experience and practice (21, 22), as the old saying said, "practice make perfect."

The continual interplay between affective, cognitive and psychomotor domains with external or internal stimulants (potential stressors) affects individuals' stress level. Therefore persons' stress level are influenced by 1) attitude, motives and believes of the individuals towards stressors, 2) ways of the individuals perceive and appraise stressors, and 3) ways of the individuals cope with stressors. The person will be able to manage any stressful situations if they appraise (affectively and cognitively) stressors as challenges rather than threats or harms, and cope with adaptive coping strategies as responses towards the stressors. It is noteworthy that the persons' psychological wellbeing is depending on how they perceive, think and response towards stressful situations as a result of continuous interaction between them and environmental demands (either internal or external demands) (12).

The DEAL model

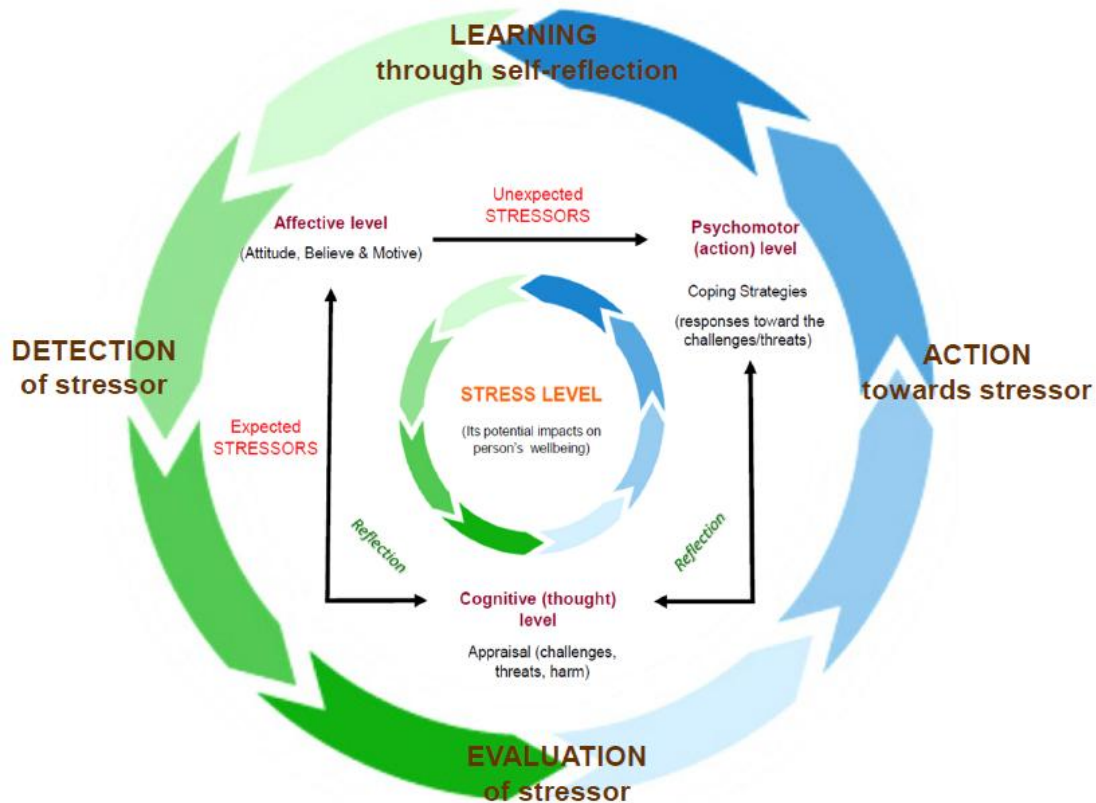


Figure 2: The DEAL model.

Figure 2 illustrated the relationships between DEAL model and the continuous interplay between affective, cognitive and psychomotor domains. Each of the DEAL components is linked with the person abilities; 1) detection is linked with the person abilities; 2) evaluation is linked with the affective domain, 3) action is linked with psychomotor domain and 4) learning through self-reflection is linked with the interplays of affective-cognitive-psychomotor.

The detection of stressors is referred to how individuals receive and perceive demands (i.e. potential stressors) that interact with them and that the reason it is linked with affective domain. In other word, it is alike a radar sensor to recognize potential threats that might harm them. Detection requires appropriate level of individuals' awareness, alertness and knowledge about potential stressors. Therefore this model postulates those who are aware, alert and had

adequate knowledge about their stressors (i.e. problems) will be less bothered by the stressors and as a result will enable them to manage the problems more effective. Early detection of potential stressors will help individuals to find ways to overcome them. Training is an important way to increase individuals' awareness, alertness and knowledge about potential stressors (23-32). The awareness, alertness and knowledge gained from the training will be able to guide them in handling stressful situations more effective. A study have reported that medical students who perceived academic as causing high to severe stress were at 16 times higher risk to develop psychological distress compared to those who perceived as causing mild to moderate stress (33). Therefore, one of the objectives of stress management intervention should be to increase knowledge and awareness of medical students about stress, its impacts and management.

The evaluation of stressor is referred to a process involving identification, description, comprehension, analysis, synthesis and judgment on perceived stressors. The evaluation requires mental abilities to performance all those processes and that the reason why it is linked with cognitive domain. All these processes will enable individuals to specify and filter stressors that really bothering them, thus will enable them to come out with appropriate solutions as responses towards the real stressors. An important factor for evaluation is individuals' ways of thinking about stressful situations. Training is an important way to guide individuals to develop positive ways of thinking (23-32). Studies have reported individuals who adopted planning and positive reinterpretation as coping strategies were associated with better psychological health (34, 35). From that notion, one of the objectives of stress management intervention should be to promote development of healthy mindset towards stressful situations.

The action towards stressors in the context of stress management is referred to coordination of emotion, mental and physical abilities to response towards stressful situations. In other word it is referred to ways of individuals cope with stressful situations. The coping strategies as responses towards stressful situations are depending on the affective and cognitive appraisal. Effective and appropriate usage of coping strategies will enable individuals to manage the stressful situations effectively and tactfully which eventually will help in reduction of distress feelings and long-term professional impairment (21, 36). Therefore, training and guiding medical students to adopt appropriate coping strategies was one of the objectives of the intervention in this study.

Learning through self-reflection is the most important component is this stress management intervention. In the context of stress management, it is described as a process whereby stress management ability is acquired through one's awareness, experience and conscious effort that allow stressful situations to be handled effectively and efficiently in future (37). It provides as a self-evaluation to improve

individuals' ability to manage stressful situations. The self-evaluation will enable individuals to consolidate and mastery stress management skills based on their experience and awareness. The expected outcomes of learning through self-reflection exercise are 1) developing clear understanding about stressors, 2) developing good understanding on how to cope effectively, 3) improving insights about one's strengths and weaknesses, 4) becoming more capable to handle stressful situations, and 5) realizing importance of self-reflection in strategizing self-improvement strategies that suit with personal needs, believes and abilities (37). Therefore, one of the objectives of stress management intervention should be on guiding medical students to develop self-improvement strategies to improve their stress management skills through self-reflection on their strengths and weaknesses.

Implications of the DEAL model

Implications of the DEAL model are 1) it addresses the flaws of current practice in stress management skills teaching which was lack of good educational framework; 2) it provides a common and structured educational framework for medical schools to set up their stress management programme for their students; 3) it provides a common and structured assessment blueprint to assess stress management competency among medical students; 4) it provides a common and structured tool to evaluate the effectiveness of stress management programme conducted in medical schools; 5) it provides a platform for researchers to make comparison on the effectiveness of the framework implemented in various parts of the world; 6) it provides a platform to determine which components of stress management programme produce therapeutic effects and which is more effective; 7) stress management intervention can be customised and personalised according to the learners' needs; 8) it may be a platform for medical schools to do collaborative research in this area; and 9) it can be adapted by other fields to start up research in this area. Continued research is required to look for the potential impacts of the DEAL model to improve

medical students' coping ability as well as its impacts on their wellbeing during medical training and after graduation. Continued research is also required to optimise its usefulness and applicability in various settings of education.

Conclusion

In the nutshell, the author believe that the DEAL framework will be able to knock unawareness condition into awareness, through the awareness will develop into attention, through the attention will develop into intention, and through the intention will develop into positive action that will lead to continuous development of individuals' stress management skills. Hopefully the stress management intervention developed based on this model will help medical students to cope effectively with stressful situations.

Reference

1. Yusoff MSB, Esa AR. Stress management for medical students: A systematic review. In: Lopez-Varela MA, editor. *Social Sciences and Cultural Studies - Issues of Language, Public Opinion, Education and Welfare*. Croatia: InTech; 2012.
2. Shapiro SL, Shapiro DE, Schwartz GER. Stress management in medical education: a review of the literature. *Academic Medicine*. 2000;75(7):748.
3. Dyrbye LN, Thomas MR, Shanafelt TD. Systematic review of depression, anxiety, and other indicators of psychological distress among US and Canadian medical students. *Academic Medicine*. 2006;81(4):354-73.
4. Dyrbye LN, Thomas MR, Shanafelt TD. Medical student distress: causes, consequences, and proposed solutions. *Mayo Clinic Proc*. 2005;80(12):1613-22.
5. Dyrbye LN, Thomas MR, Massie F, Power DV, Eacker A, Harper W, et al. Burnout and suicidal ideation among US medical students. *Annals of internal medicine*. 2008;149(5):334-41.
6. Yusoff MSB, Rahim AFA, Yaacob MJ. Prevalence and sources of stress among Universiti Sains Malaysia Medical Students. *Malaysian Journal of Medical Sciences*. 2010;17(1):30-7.
7. Michie S. Causes and management of stress at work. *Occupational and Environmental Medicine*. 2002;59(1):67.
8. Ali AY. *Altafsir.com: Al-Quran Translations. Sura Ar-Ra'd verse 11*. Amman, Jordan: the Royal Aal al-Bayt Institute for Islamic Thought; 2012. Available from: <http://www.altafsir.com/ViewTranslations.aspx?Display=yes&SoraNo=13&Ayah=11&toAyah=11&Language=2&LanguageID=2&TranslationBook=4>.
9. Krathwohl DR, Bloom BS, Masia BB. *Taxonomy of educational objectives: The classification of educational objectives. Handbook II: Affective domain*. New York: David McKay Co Inc; 1964.
10. Seels B, Glasgow Z. *Exercises in instructional design*: Merrill Pub. Co.; 1990.
11. Lazarus RS. Theory-based stress measurement. *Psychological Inquiry*. 1990;1(1):3-13.
12. Lazarus RS, Folkman S. *Stress, appraisal and coping*. New York: Springer; 1984.
13. Van Harrison R. Person-environment fit and job stress. In: Cooper CL, Payne R, editors. *Stress at work*. Chichester, UK: Wiley; 1978. p. 175-205.
14. Haoka T, Sasahara S, Tomotsune Y, Yoshino S, Maeno T, Matsuzaki I. The effect of stress-related factors on mental health status among resident doctors in Japan. *Medical education*. 2010;44(8):826-34.
15. Bloom BS. *Taxonomy of educational objectives: The classification of educational goals, Handbook I: The cognitive Domain*. New York: David McKay Co Inc.; 1956.
16. Linn BS, Zeppa R. *Stress in junior medical students: Relationship to personality and performance*. Journal of Medical Education. 1984.
17. *Mosby's Dental Dictionary 2nd ed*: Elsevier Inc.; 2008.
18. Simpson EJ. *The classification of educational objectives, psychomotor domain*. Report. Urbana: University of Illinois 1966. Report No.: ED 010-368.
19. Carver CS. You want to measure coping but your protocol too long: Consider the brief cope. *International journal of behavioral medicine*. 1997;4(1):92-100.
20. Carver CS, Scheier MF, Weintraub JK. Assessing coping strategies: A theoretically based approach. *Journal of Personality and Social Psychology*. 1989;56(2):267.
21. Mosley Jr TH, Perrin SG, Neral SM, Dubbert PM, Grothues CA, Pinto BM. Stress, coping, and well-being among third-year medical students. *Academic Medicine*. 1994;69(9):765-7.
22. Vitaliano PP, Maiuro RD, Russo J, Mitchell ES. *Medical student distress: A longitudinal*

- study. *Journal of Nervous and Mental Disease*. 1989;177(2):70-6.
23. Finkelstein C, Brownstein A, Scott C, Lan YL. Anxiety and stress reduction in medical education: an intervention. *Medical education*. 2007;41(3):258-64.
 24. Holtzworth-Munroe A, Munroe MS, Smith RE. Effects of a stress-management training program on first-and second-year medical students. *Journal of Medical Education*. 1985.
 25. Kelly JA, Bradlyn AS, Dubbert PM, St Lawrence J. Stress management training in medical school. *Academic Medicine*. 1982;57(2):91.
 26. Klamen DL. The Stress Management Workshop for Medical Students Realizing Psychiatry's Potential. *Academic Psychiatry*. 1997;21(1):42-7.
 27. Lee J, Graham AV. Students' perception of medical school stress and their evaluation of a wellness elective. *Medical education*. 2001;35(7):652-9.
 28. Michie S, Sandhu S. Stress management for clinical medical students. *Medical education*. 1994;28(6):528-33.
 29. Redwood SK, Pollak MH. Student-led stress management program for first-year medical students. *Teaching and Learning in Medicine*. 2007;19(1):42-6.
 30. Rosenzweig S, Reibel DK, Greeson JM, Brainard GC, Hojat M. Mindfulness-based stress reduction lowers psychological distress in medical students. *Teaching and learning in medicine*. 2003;15(2):88-92.
 31. Soskis DA. Teaching meditation to medical students. *Journal of Religion and Health*. 1978;17(2):136-43.
 32. Yusoff MSB, Rahim AFA. The impact of medical students well-being workshop on medical students' stress level: A preliminary finding. *ASEAN Journal of Psychiatry*. 2010;11(1).
 33. Yusoff MSB, Liew YY, Ling HW, Tan CS, Loke HM, Lim XB, et al. A study on stress, stressors and coping strategies among Malaysian medical students. *International Journal of Students' Research*. 2011;1(2):45-50.
 34. Moffat KJ, McConnachie A, Ross S, Morrison JM. First year medical student stress and coping in a problem-based learning medical curriculum. *Medical education*. 2004;38(5):482-91.
 35. Yusoff MSB, Ahmad Hamid AH, Rosli NR, Zakaria NA, Che Rameli NA, Abdul Rahman NS, et al. Prevalence of stress, stressors and coping strategies among secondary school students in Kota Bharu, Kelantan, Malaysia. *International Journal of Students' Research*. 2011;1(1):23-8.
 36. Park CL, Adler NE. Coping style as a predictor of health and well-being across the first year of medical school. *Health psychology*. 2003;22(6):627.
 37. Yusoff MSB, Esa AR. Medical Student Wellbeing Workshop: A stress management programme for medical students. Saarbrücken, Germany: VDM Verlag Dr Muller GmbH & Co. KG; 2011.