Implementation Of Stress Coping Skills Programme In Dental Students' Curriculum To Improve The Validity Of Their Assessment

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Abstract: The key dictum to build reliability (and validity) for any assessment is to have multiple tests on multiple content areas by multiple examiners using multiple tools in multiple settings. Moreover, stress coping skills will have positive impact on all the domains which in turn give a boost to positive tendencies, viz., increasing their attentiveness in class, concentration, and learning and thereby reduce the altered performance due to stress. As a result, the CIV (noise in the assessment) is reduced and hence the validity of assessment is improved. Psychologist and Psychometricians are to be appointed in every institute. [Saxena R et al NJIRM 2013; 4(5) : 149-158]

Key Words: Stress, Dental Students, Curriculum, Validity, Assessment

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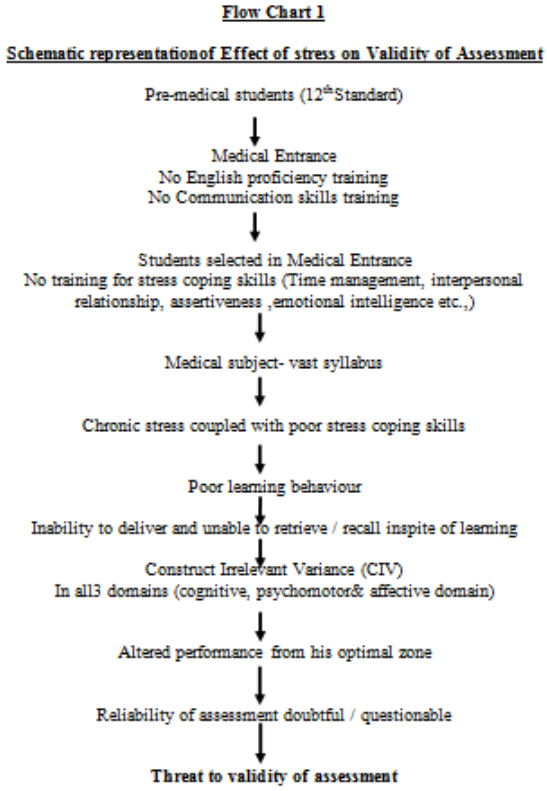
Introduction: A description of setting and the assessment problem: Medical entrance examination in India tests only the subject knowledge of the candidates. Communication skills, interpersonal skills, emotional intelligence, attitude, ethics, values and language proficiency (education in schools is mostly in regional language whereas in medical colleges, it is in English) are not tested. On admission to the medical course, the selected candidates are under heavy pressure of high expectations of performance. The resulting stress has a negative impact on all the three domains; cognitive, psycho-motor and affective. As a consequence, they are unable to perform at optimal levels in their examinations. Their altered performance creates Construct Irrelevant Variance (CIV) which poses a threat to validity in all types of assessment. In all methods of assessment, the biggest threats to validity are due to construct under representation and construct irrelevant variance predictably poor stress coping skills of the students are also one of the contributing factors for threats to validity, because stress badly affects all domains1.

Moreover, the environment prevailing in medical institutions is not stress free, as may be seen from high tuition fees; poor hostel, recreation, library facilities. Teachers are not trained in Medical Education Technology. Add to this the woes of low pay packets and very poor teacher–student ratio. Poor teacher –student ratio is the main constraint for quality assessment.

Flow chart 1: Schematic representation of effect of stress on validity of assessment



Modern techniques of assessment, viz., OSPE & OSCE require more teachers for assessment. There is no mentorship programme for selected students who are facing the challenge of the new learning

environment besides new campus with its stressors. All the above factors aggravate the stress level in students

The present assessment pattern of medical education in MUHS (Maharashtra University of Health Sciences) includes three Formative Assessments {Internal Assessments -IA} and one Summative assessment{final University Assessment – UA}.IA (Theory & Practical) carries a weight age of 30 marks and UA (Theory & Practical)carries170 marks (total 200 marks per subject).

There is no gap between two theory papers and between Theory &Practical in IA and UA. This heightens the stress level in students. Less time for revision of syllabus and lack of sleep also pose a threat for performance and Construct Irrelevant Variance (CIV) is the outcome.

Problems in Internal Assessment (IA):-There is no uniformity in the pattern of IA followed by different Colleges. IA is viewed as an examination without external examiner and is prone to abuse. A number of academic frauds specifically related to IA have been reported both in the media as well as scientific literature[2], Arora report[3].

Problems persisting in Final summative Assessment (UA):- It limits the assessment process to only 'end of the course' setting with chance and luck of the student playing major roles as it has more weightage.

Marker reliability becomes an important consideration especially with essay type questions. A variability of 6 to 15 marks has been reported even between the same examiners marking the same script twice[4].

The whole emphasis is on the product of learning. It fails to make distinction between students who is very studious and regular from one who reads only a month before the examination. Practical skills cannot be evaluated for want of time, material and other logistics. There is no emphasis on assessment of attitudes, communication skills, ethics and interpersonal skills. Even when they are assessed, the setting is very artificial and has no way of eliminating 'masquerading' by the students[4].

As per Bloom's taxonomy, cognitive domains are represented in a ladder form starting from the lowest rung as follows: Knowledge → Comprehension → Application→ Analysis→ Synthesis→ Evaluation. These are altered by stress and hence a threat to the validity of assessment.

An analysis of the problem focussing on validity issues and any other relevant challenges: This study will analyse the effects of stress on the performance of the students and its consequent impact on the validity of assessment.

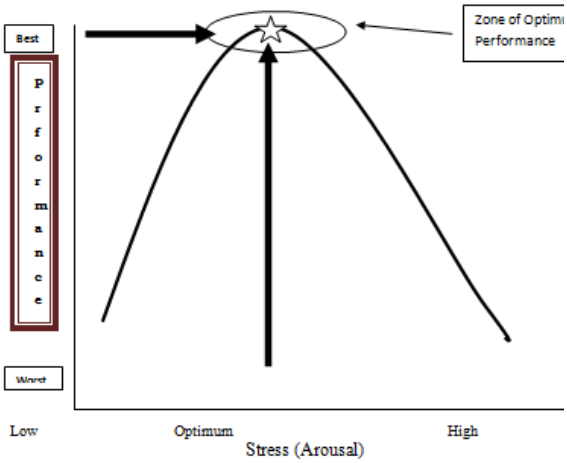
Most of the time stressed up students showed altered performance which is a threat to the validity of assessment (mainly CIV). For instance, if 4 assessors are required to assess the intensity of moon light on a full moon night, at various times on likert scale, the assessment would depend on whether the sky is clear or not.

The passing clouds, with their variation in shape, structure, colour, thickness and wind movement would alter the assessment. The assessment made by the 4 assessors would vary significantly though intensity of moonlight remains constant. Similarly, stress could be likened to the passing clouds that would pose a threat to validity in all types of assessment.

Stress is one of the factors creating Construct Irrelevant Variance (CIV). Stress affects all the three domains: cognitive, affective and psycho-motor. Studies have revealed that stress hampers optimum performance as shown in Figures 1a & 1b.

As per guidelines of MUHS, three different types of assessment form part of IA and UA in our college: (a) Oral Examination (b) Written-LAQ, SAQ &MCQ&(c) Practical Assessment

Figure 1 (a): Zone of Optimal Performance :
The Relationship Between Stress and Performance
From Field Manual 22-51 Leader's Manual for Combat Stress C
ebookbrowse.com/msl-201-l12a-stress-management-pdf-d4246
Stress vs. Performance



Drawbacks of Oral Examination from the perspective of stress: Lack of objectivity: Since the student's identity is not anonymous, results are frequently affected by extraneous factors like outward appearance, body language gender, accent and confidence. Students from vernacular medium who have difficulty in speaking English are often judged on language and vocabulary rather than knowledge. Students' level of confidence has been stated to be a key factor influencing the scores[5]. Students who are more susceptible to stress have lowered confidence levels due to anxiety, have an altered performance.

Figure 1(b):
The Relationship Between Stress and Performance

From Field Manual 22-51 Leader's Manual for Combat Stress Control
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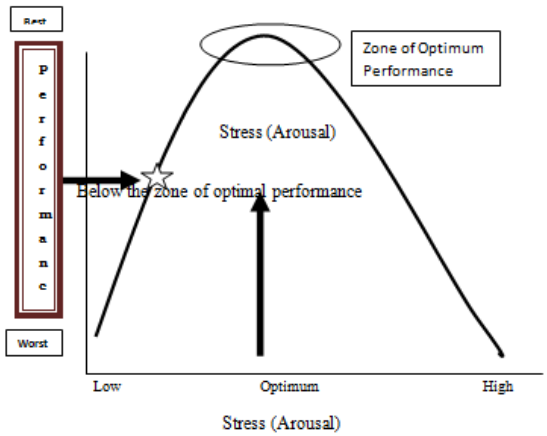


All these seem to bring in an element CIV in the process. The viva also suffers from several errors including the 'halo effect', where the judgement of one attribute influence other attributes. For example, student who speaks more and fluently may score more though his content knowledge may be poor[6].

Lack of reliability: The reproducibility of scores is affected by differences in examiner judgements, difficulty level of questions asked, candidate anxiety and test conditions. The environment in which the examination is conducted also has a bearing on the performance of the candidate. Examiner-student encounter is often confrontational, rather than comfortable. Anxiety and mental fatigue on the part of the student that interfere with student performance may not give a true indication of the student's ability. Similarly, emotions and fatigue on the part of the examiner do affect the outcome of the assessment[7].

Gibbs *et al,* lists problems of examiners as: balancing the need to ask challenging questions with the need to help the examinee relax; encouraging the examinee to talk while keeping him/ her on track; discriminating between what the examinee says and how he /she says it; making a sound judgement on the basis of a small amount of evidence. There are three problems which create stress for examinees: a lack of skill in what is an infrequently experienced type of assessment; the unpredictability of questions which make preparation more difficult; and the variability in the time spent by examiners in assessing each candidate.

Generally examiners tend to focus on what students do not know rather than trying to gauge what they know. It is a tendency of most examiners to ask questions related to their special areas of interest[8]. These flaws attribute to CIV and thereby become a threat to validity of assessment. Assessment is valid when it allows students to fully demonstrate what they know about the subject they have been studying. All these flaws of Oral

Examination attribute directly or indirectly to stress of students and thereby form a threat to validity of assessment.

Written (Theory) assessment: LAQs, SAQs& MCQs. **Long Answer or Essay Questions (LAQs):** Written assessment methods can be used to assess a student's comprehension and ability to analyse, synthesize and organize information. Unfortunately, we often end up testing recall abilities and factual knowledge. Bloom's Taxonomy of educational objectives list out different levels of knowledge which can be tested hierarchically. When a student is under stress, his above abilities are disturbed resulting in altered performance and hence, a threat to validity of assessment. If the reading level of achievement test items is inappropriate for students, reading ability becomes a CIV variable which is unrelated or only minimally related to the construct intended to be measured, thereby introducing CIV[9].

Reading level issues may be particularly important for students taking tests written in their non-native language. By using complex sentence structures, challenging vocabulary, and idiosyncratic jargon, we run the risk of underestimating the achievement of any student whose first language is not English.[1]

Potential CIV issues in stressed up students relate to the quality of handwriting, which can be a negative bias, writing skill (when writing is not the main construct of interest); skill in the use of grammar, spelling, punctuation (when these issues are not the primary construct); and so all such extraneous characteristics of the written response can unduly influence the essay reader in a negative manner adding CIV to the scores and thereby reducing evidence for validity.

Short answer questions (SAQs): These are used in situation where reliability of scoring and objectivity is preferred. They are good at assessing specific content areas. They are usually used to test 'must know areas'. Under stress, the objectivity of the answer is compromised and thereby reducing evidence for validity. In both the above assessments students complain that scores often get influenced by extraneous factors such as colour of ink, even word spacing and handwriting.

Multiple choice questions (MCQs): The nature of marking is objective as there are clear right and wrong answers. Such tests often motivate students to learn better than traditional examination, but they carry the risk of encouraging superficial or test directed learning; hence a careful design is warranted. Mostly there are 3 to 5 options. Rodriguez[10] in his meta-analysis concluded that the validity remains the same when reducing the number of options from 5 to 3 and from 5 to 4 to 3.While guessing is generally not a major issue on long tests, composed of well –crafted multiple –choice test items with at least three options[10,11] random guessing of correct answers on multiple – choice test items can introduce CIV, because the student's propensity to guess is a personality factor which is not directly related to the achievement construct intended to be measured[12,4,2]. Poorly crafted items writing, may introduce CIV by providing clues to the correct answer or by leading other students to answer incorrectly in spite of the fact that they actually know the correct answer[13]. Students who are under stress are unable to recall knowledge and unable to make critical decision. Hence, they are easily misguided by distracting choices. This would create a threat to validity of assessment.

Practical Examination: It is also conducted in a traditional manner in our college and includes the flaws of oral examinations as mentioned above. All the domains are affected by stress and its impact on poor performance on creates altered performance and hence a threat to validity of assessment.{'Knows', 'knows how', 'shows' and 'does' of Miller's Pyramid

How have other people addressed this problem? Medical education has deleterious consequences. Trainees (students, interns, and residents) suffer high levels of stress,

which lead to alcohol and drug abuse[14], interpersonal relationship difficulties,[15] depression and anxiety,[16] and even suicide.[17] Medical students have mean anxiety scores one standard deviation above those of non-patients, and their depression levels increase significantly throughout the first year of medical school.[18]Stress may also harm trainees 'professional effectiveness: it decreases attention,[19] reduces concentration, [20] impinges on decision-making skills,[21] and reduces trainees' abilities to establish strong physician–patient relationships.[22,23,24] Students main concerns are academic performance and/or test anxiety[25,26,27,28,29,33-36] . High levels of stress can impair declarative memory, concentration, and learning[37-41]. Thus, high levels of stress can make it more difficult for students to concentrate and comprehend information.[30]

Validity refers to the appropriateness of the interpretation that we draw from assessment scores. Validity is now considered a unitary concept which requires collection of evidence to infer its degree. This evidence is in the form of content, criteria, educational impact of testing, construct and reliability. Construct is considered the most important evidence related validity[42]. This is rightly so because patients do not approach a doctor to see if he can palpate the abdomen as per a protocol or if he can recognize the causes from a list provided-rather they approach a doctor to have their problem diagnosed , confirmed and treated. Thus clinical competence and problem solving constructs assume more importance compared to isolated clinical skills. It may also be noted that valid inferences require a reliable result.[43] Kane calls construct and reliability the cornerstones of validity (Table-1).

Table 1: Five major sources of Test Validity: Evidence Based on Messick (1989) and AERA,APA&NCME (1999)

1. Content – relationship between test content and the construct of interest; theory; hypothesis about content; independent assessment of match between content sampled and domain of interest; solid, scientific, quantitative evidence.
2. Response Process – analysis of individual responses to stimuli; debriefing of examinees; process studies aimed at understanding what is measured and the soundness of intended score interpretations; quality assurance and quality control of assessment data
3. Internal structure-data internal to assessments such as: reliability or reproducibility of scores; inter-item correlations; statistical characteristics of items; statistical of item option function; factor studies of dimensionality; Differential item functioning (DIF) studies
4. Relations to other Variables – Data external to assessments such as; correlations of assessment variable(s) to external, independent measures; hypothesis and theory driven investigations; correlation research based on previous studies, literature
   a. Convergent and discriminant evidence: relationships between similar and different measures
   b. Test – criterion evidence : relationships between test and criterion measure (s)
   c. Validity generalization: can the validity evidence be generalized?
   d. Evidence that the validity studies may generalize to other settings.
5. Evidence Based on Consequences of Testing – intended and unintended consequences of test use; differential consequences of test use; impact of assessment on students , instructors , schools, society; impact of assessments on curriculum ; cost/benefit analysis with respect to trade-off between instructional time and assessment time.

Lack of validity: Assessment is valid when it allows students to fully demonstrate what they know about the subject they have been studying. When the oral examination is used to test only lower cognitive levels, it fails to serve its purpose.[44] One study (Evans et al, 1966) showed that as many as 76% of questions asked are based on recall rather than on higher levels of understanding. Some

authors feel[45] that examiners merely act as 'quiz masters' and abilities routinely being tested in oral examinations could easily be tested in a written examination. Generally examiners tend to focus on what students do not know rather than trying to gauge what they know. And it is a tendency of most examiners to ask questions related to their special areas of interest [46].

It is important to look for evidence for validity. Do the questions comprehensively cover course content? Are student performances in oral examination markedly different from their performances in the theory examinations? Is the examination pattern promoting deep learning and not encouraging rote learning? It is important to continuously evaluate the manner in which the examination is conducted and examiners are assessing candidates, so that the obvious flaws can be rectified at each step. Students must be familiar with the pattern of the exam and all attempts must be made to alleviate their anxiety levels. The examination must be conducted in a fair and transparent manner. Students must be confident that the judgements based on this exam are sound, reliable and fair. All students must be given equal time and opportunity to display their learning. It is a good idea to videotape the examination for future use in case of appeal against the exam process. The presence of more than one examiner usually ensures 'fair play' [47] however this may limit the content that is being tested. Putting one examiner at each place and testing more content may give more generalized results. Questioning is an art and examiners need to learn how to move in a structured manner to higher levels of questions which test understanding. Examiners need to be trained how to move from asking factual information to questions which gauge problem solving and decision making ability [48]. While it is difficult to maintain the same difficulty level of questions across candidates, some sort of consensus needs to be arrived between the examiners before the start of the examination to maintain uniformity. Most of the times, assessors are not trained enough to assess with reference to stress level of students. They themselves are not trained to handle their own stress and how to reduce stress of students in practical examination. Still we have not reached to assist students without creating stress informal assessments and 360^0 feedback, self-feedback, teachers' feedback portfolios will provide help in the real assessment [4].

The relationship between Stress and Performance: To increase performance, the right amount of stress helps you reach the "zone of optimal performance" {Figure 1a & 1b—From Field Manual 22-51}. But there comes a point at which too much stress, just like too little, makes you unable to perform. Your reflexes are slow and you don't respond fast enough. Too much stress or arousal, on the other hand, may cause you to freeze up or become paralyzed with fear or anxiety. For example, have you ever had trouble unlocking a door when you were badly frightened? Or, as you are about to take an exam, have you ever felt that you have suddenly forgotten everything you learned that semester? Medical College Admissions Test (MCAT), faculty development, use of modern teaching methods with aids and Stress coping skills programme for students and faculty are implemented in institutions abroad to address this problem and being considered in few institutes in India

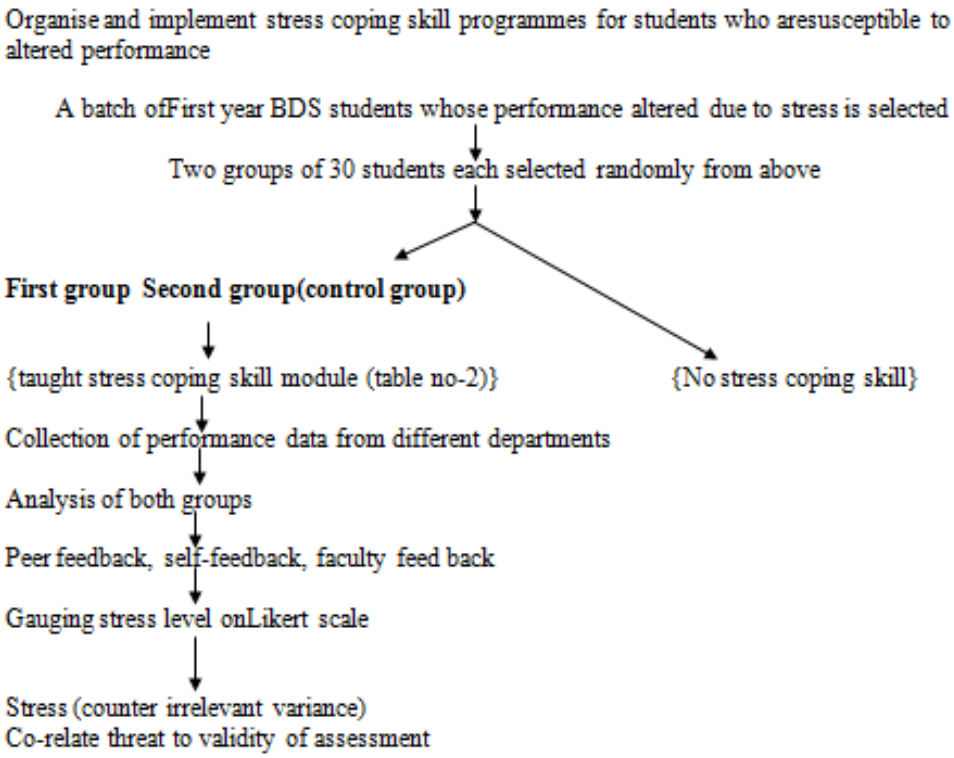
A proposed solution, with an explanation of how the elements of solution address the issues you identified in step 3. Stress coping skills will reduce the deleterious effect of stress on students as discussed above. Thus, it is necessary that they should develop positive stress coping skills right from the initial days of their medical career. This will help to improve their performance in all the domains and competencies. We have to train our faculty to use all modern methods of assessment, viz., OSCE/OSPE, use of portfolio in learning and assessment, student feedback, assessment of professionalism and ethics, use of blueprinting in assessment, Mini- Clinical Evaluation Exercise (Mini-CEX), performance test etc. Validity and reliability of a test are

very intricately related. To be valid, a test has to be reliable. A judge cannot form a valid inference if the witness who is being examined is unreliable. Thus reliability is a witness who is being examined is unreliable. Thus reliability is a precondition for validity. But let us caution that it is not the only condition. Medical Entrance Examinations need to be revamped. It should be conducted in a holistic manner to select candidates with the most suitable competencies for the medical profession, viz., communication skills, interpersonal skills, emotional intelligence, attitude, ethics, values and English language proficiency for developing a desirable professionalism.

The selected candidates should then be empowered with stress coping skills so that learning process and their performance will not alter due to stress during the medical course. This would certainly reduce the problem of altered performance and thereby improve the validity of assessment. Psychologist and Psychometrics are to be appointed in every medical institute. I propose a research project to find a solution to the above problem **(Flow chart-2).** The first step would be to conduct a need based assessment with the help of pre-validated Questionnaires to find students who are stress susceptible and prone for altered performance in examinations. Test group will be intervened by stress coping skills module (Annexure-1).

Flow chart 2: Schematic presentation of Proposed Research Project:

Altered performance of students due to stress, a threat to assessment of validity



Conclusion: The key dictum to build reliability (and validity) for any assessment is to have multiple tests on multiple content areas by multiple examiners using multiple tools in multiple settings. Moreover, stress coping skills will have positive impact on all the domains which in turn give a boost to positive tendencies, viz., increasing their attentiveness in class, concentration, and learning and thereby reduce the altered performance due to stress. As a result, the CIV (noise in the assessment) is reduced and hence the validity of assessment is improved. Psychologist and Psychometricians are to be appointed in every institute.

References

1. Steven MD, Rachel Y. Assessment in Health professions Education by Downing and Yudkowsky(eds), (2009). In: Assessment of Health professional education. Newyork& London
   Gitanjali, B. Academic dishonesty in Indian medical colleges . J Postgrad Med(2004); 50:281-4.
2. Probe into RGUHS marks scandal :Arora report. Available at http:// www.expressbuzz.com/edition/story .aspx?artid= BLrxPX6B3ek=&rt (accessed on 24 October 2008).
3. Tejinder Singh Anshu. Internal assessment revisited. In: Principles of Assessment in Medical Education (eds) Tejinder Singh and Anshu, 2012, New Delhi, Jaypee Brothers Medical Publishers (P) Ltd, 43-48.
4. ThomasC.S, MellsopG,Callendar J,Crawshaw J, Ellis P.M, HallA. MacDonald J, Silverskiold P & Romans-Clarkson S. The oral examination: A study of academic and non-academic factors. Med Educ, (1992); 27: 433-9.
5. Evans L.R, Ingersoll R.W. & Smith E.J. The reliability, validity and taxonomic structure of the oral examination. J MedEduc (1966).41,651-657
6. Gibbs, G, Habeshaw,S, &Habeshaw, T. Interesting ways to assess your students . Bristol: Technical Educational Services Ltd.(1988): 53
7. Mitchell J.M. Medical education and American special boards. J Med Educ(1959). 34 555-560
8. AbediJ. Language issues in item development. In S.M. Downing &T.M.Haladyna (Eds.), Handbook of test development.Mahwah, NJ: Lawrence Erlbaum Associates.(2006): 377-398
9. RodriguezM.C. Three options are optimal for multiple-choice: A meta-analysis of 80 years of research.EducMeas : Issues Pract(2005): 24 3-13.
10. Haladyna& Downing. How many options is enough for a multiple –choice test item? EducPsycholMeas, 1993:53,999-1010.
11. Downing S.M. Guessing on selected – response examinations. Medical Education, 2003; 37:670-671.
12. Downing, S.M. The effects of violating standard item writing principles on tests and students: The consequences of using flawed test items on achievement examinations in medical education. Advances in Health Sciences Education, 2005;10:133-143
13. Johnson N, Michels P, Thomas J. Screening tests identify the prevalence of alcohol use among freshman medical students and among students' family of origin. J South Carolina Med Assoc. 1990;86:13–4.
14. Gallegos K, Bettinardi-Angres K, Talbott G. The effect of physician impairment on the family. Maryland Med J. 1990;39:1001–7.
15. Pitts FN, Winokur G, Stewart MA. Psychiatric syndromes, anxiety symptoms and responses to stress in medical students.Am J Psychiatry. 1961;118:333–40.
16. Salt P, Nadelson C, Notman M. Depression and anxiety among medical students. Paper presented at APA Annual Meeting, Los Angeles, CA, 1984.
17. Richings JC, Khara GS, McDowell. Suicide in young doctors.Br J Psychiatry.1986;149:475–8.
18. Vitaliano P, Maiuro R, Russo J, Mitchell E. Medical student distress: a longitudinal study. J NervMent Dis. 1989;177:70–6.
19. Smith A. Stress and information processing. In: Johnston M, Wallace L, et al (eds). Stressand Medical Procedures, Oxford Medical Publications, Oxford, England: Oxford University Press, 1990:184.
20. Askenasy J, Lewin I. The impact of missile warfare on self-reported sleep quality. Sleep. 1996;19:47–51.
21. Lehner P, Seyed-Solorforough M, O'Connor M, Sak S, Mullin T. Cognitive biases andtime stress in team decision making. IEEE Trans Systems, Man & Cybernetics. 1997;27: 698–703.

22. Klein G. The effect of acute stressors on decision making. In: Driskell J, Salas E (eds).
Stress and Human Performance. Mahwah, NJ: Lawrence Erlbaum, 1996:48–88.
23. Pastore FR, Gambert SR, Plutchik A, Plutchik R. Empathy training for medical students. Unpublished manuscript, New York Medical College, 1995.
24. Khoo TK, Tan TS. Burnout, depression, and quality of life in medical students. Mayo Clin Proc. 2007;82(2):251-2
25. Segall P. The rewards of chronic illness. West J Med. 2001 Nov;175(5):347-8.
26. Yakovishin VM. On becoming blind while a medical student. Can Med Assoc J. 1984 1;131(5):503-4.
27. Garland et al. Development of a multi-dimensional measure of resilience in adolescents: the Adolescent Resilience Questionnaire. BMC Medical Research Methodology 2011, 11:134.
28. Andrews PW and Thomson AJ, The brighter side of being blue: Depression as an adaptation for 157nalysing complex problems.Psychol Rev. 2009; 116(3): 620–654.
29. Shallcrossa AJ, Troya AS, Bolandb M, and Maussa IB. Let it be: Accepting negative emotional experiences predicts decreased negative affect and depressive symptoms.BehavResTher. 2010; 48(9): 921–929.
30. Martin B, On being a happy academic, Australian Universities review 2011:53(1); 50-6.
31. Palmer A, Rodger S, Mindfulness, stress, and coping among university students. Canadian Journal of Counseling 2009, 43:3; 198-212.
32. Webb AR, Young RA, Baumer JG. Emotional Intelligence and the ACGME Competencies. J Grad Med Educ. 2010;2(4):508-12.
33. Birks Y, McKendree J, Watt I. Emotional intelligence and perceived stress in healthcare students: a multi-institutional, multi-professional survey. BMC Med Educ. 2009 Sep 17;9:61.
34. Cohn MA, Fredrickson BL, Brown SL, Mikels JA, Conway AM. Happiness unpacked: positive emotions increase life satisfaction by building resilience. Emotion. 2009;9(3):361-8.
35. Vaglum P. Life satisfaction and resilience in medical school—a six-year longitudinal, nationwide and comparative study. BMC Med Educ. 2006;19:6-48.
36. Ahmer S, Yousafzai AW, Bhutto N, Alam S, Sarangzai AK, Iqbal A. Bullying of medicalstudents in Pakistan: a cross-sectional questionnaire survey. PloS One.2008;3(12):e3889.
37. Wood DF. Bullying and harassment in medical schools.BMJ. 2006;30:664-5.
38. Baldwin DC Jr, Daugherty SR, Eckenfels EJ. Student perceptions of mistreatment and harassment during medical school.A survey of ten United States schools. West J Med.1991;155(2):140-5.
39. Daugherty SR, Baldwin DC Jr, Rowley BD. Learning, satisfaction, and mistreatmentduring medical internship: a national survey of working conditions. JAMA. 1998(15):1194-9.
40. Daugherty SR, Baldwin DC Jr, Rowley BD. Learning, satisfaction, and mistreatment during medical internship: a national survey of working conditions. JAMA. 1998(15):1194-9.
41. DowningS.M. Validity on the meaningful interpretation of assessment data. Med Educ, 2003;37:830-837
42. KaneM.T. An argument-based approach to validation. Psychological Bulletin, 1992;112:527-535
43. Evans, L.R., Ingersoll, R.W., & Smith, E.J. The reliability , validity and taxonomic structure of the oral examination . J Med Educ1966;41:651-657
44. JayaWickramarajah, P.T.Oral examinations in medical education.MedEduc.1985;19:290-293.
45. Mitchell, J.M.Medical education and American specialty boards. J Med Educ.1959;34:555-560.
46. ThomasC.S, Mellsop G, Callendar J et al. Training in the art of asking questions at oral examinations.Annals of the Royal

College of Physicians and Surgeons of Canada, 1989;22,213-6.
47. DesMarchais JE, Jean P and Delome P. Training in the art of asking questions at oral examinations. Annals of Royal College of Physician and Surgeons of Canada 1989;22:213-6.

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Annexure -1

Stress Coping Skills Module For BDS Students

Unit I –Stress
- Introduction to Stress,
- Stress Continuum ,
- Overload and Stress, BurnoutStress, a Bio-Psycho-Social Response

Unit II - Stress
- Determinants of coping stress, Good and Bad Stress
- Different Kinds of Stress, Balancing of Stress
- Chronicity of Stress

Unit III – Physiology of Stress
- The Nervous System ,The Neuroendocrine system, Physiology of the Stress Response, Responses to stress ,Theories of Stress ,Stress : A Working Model

Unit IV – Stress and Disease
- Cardiovascular Disease ,Hypertension ,Asthma, Backache, Rheumatoid arthritis, Headaches
- Diabetes mellitus ,Skin Ailments ,Obesity and Stress,Peptic ulcers ,Stress and Negative Mood , Depression and Anxiety ,Cancer, Insomnia

Unit V – Personality as a stress variable
- Types of personality ,Illness – prone personality ,Personality characteristics as moderators of stress response

Unit VI – Source of stress
- Environmental stressors ,Personal stressors ,Domestic stressors, Stress at work, Caregiver stress ,Corporate Stress, Computer Stress ,Stress in the Social Environment, Age and Gender related Stress

Unit VII – Health Damaging and health promoting behaviour
- Smoking ,Alcoholism ,Drugs, Eating ,Overwork

Unit VIII – Health promoting Behaviour
- Exercise ,Healthy diet, Sleep,Relaxation

Unit IX – Cognitive
- Assertiveness training,A positive Attitude, Thought Stopping,
- Time management
- Conflict Resolution,
- stress and productivity curve

Unit X - Behavioural coping strategies
- Crisis and Change ,Goal Setting ,Coping in the Institute
- Dealing with work stress ,Lifestyle changes, Laughter

Unit XI - Relaxation systems
- The Relaxation – Meditation response ,Techniques of relaxation, Breathing Biofeedback
- Progressive muscular relaxation ,Autogenic relaxation, Visualization,

Unit XII - Meditation systems
- Methods of Meditation
- Schools of Meditation ,Transcendental meditation, Sahaja Yoga ,Zen Buddhism, Sufi meditation, Tai chi ,Osho Philosophy and Meditation, Vipassana, Yoga, Spirituality, Sleep

Unit XIII - Behaviour Modification
- Operant conditioning ,Classical conditioning ,Cognitive Restructuring, Stress Inoculation Training, Observational Learning, Psychodrama