PERSPECTIVE

Managing Stress by Medical Students and Residents

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World Health Organization defines stress as a state of worry or mental tension caused by a difficult situation.[1] In broader terms, stress is the response of the body, mind, and behaviors from encountering environmental events (stressors), interpreting them, and making judgments about controlling or influencing them.[2] Stressors have the potential to produce *eustress* (good stress) and *distress* (bad stress).[3] Unfortunately, medical students and residents often encounter distress due to the multiplicity of stressors compounded by academic pressure.[4] Medical students and residents are often disproportionately affected by negative sequelae of *distress* that often include anxiety, depression, post-traumatic stress disorder (PTSD), higher rates of suicide, and precipitation of other mental disorders.[5] Distress also adversely affects academic performance.[6] Hence, it is of paramount importance for them to understand stressors, and learn effective means of coping with or effectively managing them so that *distress* can be converted into *eustress*, and they can enjoy their life while pursuing their medical journey and thrive academically. Therefore, the purpose of this article is to discuss the models of stress, types of stressors, types of coping, and discuss some effective means of coping which medical students and residents can incorporate into their lives.

The concept of stress is very old in Indian culture and predates its origin in the West. In *Samkhya yoga,* the cause of stress is *avidya,* or a faulty interpretation of reality.[7] This can ensue from:

a. *Asmita* or incorrect appraisal of one's body or mind's abilities

b. *Raga* or incorrect outcome appraisal due to attachment to the objects

c. *Dvesha* or incorrect appraisal of how much one dislikes the outcomes

d. *Abhnivesha* or a fear of death

In the West, it was only in 1932, that physiologist, Walter Cannon, first described stress as a "fight or flight" syndrome based on his work with animal models based on experiments of exposing animals to nonspecific stimuli.[8] This work was further extended by the work of Swedish physiologist, Hans Selye, and it led to a response-based conceptualization of stress in the 1930s to 1960s.[9]

In 1967, psychologists Thomas Holmes and Richard Rahe introduced the concept of stressors when they constructed a social readjustment rating scale.[10] This came to be known as the *event-based* conceptualization of stress and began giving specificity to stressors. While the earlier conceptualization of stressors focused on merely acute, one-time life events, today, stressors are more broadly conceptualized. These are generally classified into three categories: [11]

a. *Acute life events* which are discrete, observable, and objectively identified stressors such as starting medical school, taking professional exams in medical school, etc. These can be:

  i. *Recent* or within the past year, e.g., recent professional examination.

  ii. *Remote* or something beyond the past year such as physical abuse, sexual abuse, bad emotional experience at a professional examination long back, etc.

b. *Chronic stressors* which occur on a regular basis and are of the following types:

  i. *Persistent life difficulties* that occur when life events continue beyond six months, e.g., someone getting disabled after an accident

  ii. *Role strains* that occur in performing a particular role e.g., being a medical student and/or playing multiple roles at the same time (such as a student,

son/daughter, spouse, worker, etc.)

iii. *Chronic strains* that occur from the response of one social group to another e.g., harsh treatment by some medical college teachers toward their students or residents

iv. *Community-wide strains* or stressors that reside at the community level such as high academic pressure while studying in medical college

v. *Daily hassles* or everyday events such as rounds for residents or regular tutorials for medical students

c. *Non-events* such as nothing to do (e.g., boredom) or desired events that do not occur even if their happening was normative for people of a certain group (e.g., missing a professional exam due to illness) or an anticipated event not happening (e.g., wanting to graduate but there is a delay in the exams due to lockdown/strike, etc.)

The work on stressors was carried out further by Richard Lazarus by incorporating the concept of *coping* who presented the *transactional model* of stress consisting of four stages:[12]

a. *Primary appraisal* or judgment of whether one is in trouble or not

b. *Secondary appraisal* or assessment of controllability over the threat

c. *Coping* or application of means to deal with the threat

d. *Reappraisal* or reassessment of original threat

This work brought forth the role of *coping* and reified it as problem-focused coping and emotion-focused coping."Cope" is derived from the Latin word "colpus" meaning "to alter" and signifies dealing with and attempting to overcome problems and difficulties.

Research has identified two primary modalities of dealing with stressors: (1) *emotion-focused coping* in which the hypothalamus-pituitary-adrenal (HPA) axis is made calm through techniques such as meditation, relaxation, social support, hobbies, creative activities, etc. and (2) *problem-focused coping* in which the cerebral cortex is used to alter thinking and particularly controllability of stressors with techniques such as rational emotive therapy, cognitive behavioral therapy, learned optimism, introspection in yoga, Gestalt therapy, etc.[13]

Evidence for emotion-focused coping is found in the literature for common techniques such as mindfulness-based stress reduction (MBSR),[14,15] yoga,[16] social support,[17] and others. Meditation is the regular, purposeful practice of becoming aware of one's bodily sensations, thoughts, or other points of focus.[18] It is easy to do but requires repeated self-motivation and practice. Medical students and residents can become quite adept at doing meditation because of their well-developed power to focus. They must incorporate meditation and relaxation into their lives to manage stress effectively. Likewise, the role of social support or family and friends must be mobilized during their tenure in medical education. Oftentimes, because of the competitive nature of medical school, friendships take a back seat and must be replaced with cooperativeness.

The potential to apply problem-focused coping can also be effectively applied to medical students and residents because of their rigorous academic training. All it needs is channelization and proper focus. One of the techniques is rational emotive therapy (RET)[19] which requires disputing the irrational thinking process. We all fall into the trap of awfulizing or catastrophic thinking or thinking about extreme outcomes. All this is irrational and must be replaced with a moderate assessment of badness, statements of tolerance, acceptance of fallibility, and avoidance of extreme terms. It has been summarized as the ABCDE technique: A=Activating system identification (stressor), B= Belief system identification (irrational ones), C=Consequences (thinking about outcomes of engaging in irrational beliefs), D=Dispute irrational beliefs, and E=Effects (enjoying the benefits).

Likewise, the tenets of Cognitive Behavioral Therapy (CBT) can be applied as self-help which is a problem-solving approach.[20] In this, automatic negative thoughts behind anxiety are identified and restructured in the real-life context with positive thoughts. Another approach for problem-focused coping is developing learned optimism in which we must (1) think of problems as temporary and optimism as permanent, (2) failures as specific rather than general, and (3) not blame oneself for failures but attribute them to circumstances.[21] Introspection in yoga entails classifying worries into those to be faced, those to be tackled immediately, those to be deferred for dealing with later, and those to be ignored.[22] Finally, problem-focused coping based on Gestalt therapy[23] focuses on now and emphasizes the unity of self-awareness, behavior, and experience. This technique focuses on *what is* rather than *what should be* or *what could have been*.

So, in summary, stressors affect medical students and residents disproportionately. Hence, they must develop a higher awareness of what is causing them stress. Having identified these stressors, they must apply both emotion-focused coping and problem-focused coping techniques

in a regular way in their daily routine to effectively manage these stressors and negate the negative sequelae.

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