CHAPTER 1

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Stress is a common life experience which is inevitably faced by most individuals in various areas of living, at varying levels and across cultures. One of the groups that is likely to be more vulnerable to stress is that of college students, particularly students pursuing professional education such as medical education. Medical education is indeed a strenuous course of study as it requires students to manage multiple demands imposed on them which include vast curriculum, rigors of clinical training and pressure to develop professionalism.

Medical education has always been under constant purview of researchers as it keeps evolving in innovative ways in an effort to produce efficient medical professionals. Therefore, research on stress and well-being of medical students cannot be expected to reach a saturating point because an evolving education system will always pose new challenges, stresses, and old problems in new forms that a student has to deal with and resolve.

1.1. Stress in Medical Student Population

Empirical evidence exists with regard to the many sources of stress a medical student is disposed with. The most common stressors in medical education can be traced to academics, such as heavy course load (Dahlin, Joneborg, & Runseson, 2005, Yusoff et al., 2010; Shah, Hasan, Malik, & Sreeramareddy, 2010; Yusoff et al., 2011; Supe, 1998) frequent exams (Yusoff et al., 2010; Shah et al., 2010; Sreeramareddy et al., 2007; Yusoff et al., 2011; Sharma et al., 2014; Brahmbhatt et al., 2013) worries about marks and fear about succeeding in exams (Aktekin et al., 2001; Nuallong 2010; DinhDo & Tasanapradit, 2008; Gade et al., 2014).

Stress can also arise from patient and clinical responsibilities. Common stressors in clinical situations involve patient interactions (Frith, 1986) dealing with death and suffering (Frith, 1986; Sohail, 2013; Chang, Eddins-Folensbee, & Coverdale, 2012) long hours of clinical training (Chang et al., 2012), and having to care for sick and dying patients (Wolfe, 1994; El-Gilany, Amr, Awadalla, & El-Khawaga, 2008).
Most of the stress arising from faculty relations is related to being subjected to harassment and belittlement (Firth, 1986; Radcliffe & Lester, 2003; Nora et al., 2002; Wolf, Scurria & Webster, 1998; Nagata-Kobayashi et al., 2006; Gágyor et al., 2012).

Considering the fact that medical students spend about 29% more time studying than students in other courses (Helmers, Danoff, Steinert, Leyton, & Young, 1997), it won’t be surprising if they report of higher stress in personal and social aspects of their lives. The common stressors related to personal lives of medical students are insufficient amount time for relaxation and recreational activities (Wolf, 1994; Morrison, 2001; Aktekin et al., 2001; Ball & Box, 2002; Stewart et al., 1999; Sreeramreddy et al., 2007; Sharma et al., 2014; Reang & Bhattacharjya, 2013), problematic interpersonal relations (Frith, 1986; Huebner, Royer, & Moore, 1981; Johari & Hassim, 2009; Mane, Krishnakumar, Niranjan, & Hiremath, 2011) and financial problems (Wolf, 1994; Ross, Cleland, & Macleod, 2006; Sharif et al., 2004; Al-Dubai et al., 2011; Nandi, Hazra, Sarkar, & Mondal, 2012).

Professional identity related stress may arise from concerns such as lack of confidence to competently perform future clinical roles (Dahlin et al., 2005; Dahlin et al., 2007), portraying a demeanour of confident and competent future professional (Radcliffe & Lester, 2003), and worries about future (Aktekin et al., 2001; Sohail, 2013).

Inability to effectively deal with stress may result in serious psycho-social-emotional-health consequences such as depression and other psychological morbidity (Guthrie et al., 1995; Clark & Zeldow, 1998; Dyrybe, Thomas, & Shanafelt, 2006; Sreeramareddy et al., 2007; Aarif & Mishra, 2009), anxiety (Lloyd & Gartrell, 1984; Vaidya & Mulgaonkar, 2007; Vitaliano, Russo, Carr, & Heerwagen 1984), and risk for suicide (Tyssen, Vaglum, & Gronvold, 2001; Sobowale, Zhou, Fan, Liu, & Sherer, 2014) in medical students.

1.2. Psychosocial and Academic Factors Determining Stress in Medical Students

The way stress impacts individuals is determined by the role of various psychosocial, academic and personal factors. These factors such as coping, social support, resilience, optimism, perceived academic control and academic motivation may increase or decrease the stress levels in varying degrees.
Problem based coping is negatively related to stress and distress in medical students (Wolfe, 1998; Mosley et al., 1994; Vitaliano et al., 1989; Stewart et al., 1995; Stewart et al., 1997; Park & Adler, 2003; Sreeramareddy et al., 2007), while maladaptive emotion focused coping and avoidant based coping is positively associated with stress and distress (Vitaliano et al., 1989; Chan, 1992; Mosley et al., 1994; Stewart, Betson, & Marshall et al., 1995; Stewart, Betson & Lam et al. 1997; Park & Adler, 2003; Sreeramareddy et al., 2007).

Social support also has an important role in mitigating the negative effects of stress. While the general literature for protective effects of social support is vast, the evidence for the same in medical students is comparatively less. However, social support from family peer and faculty has been found to protect medical students against the negative effects of stress (Foorman & Lloyd, 1986; Kim & Cho, 2012; Chang et al., 2012; Peng et al., 2012; Jeong et al., 2010; Nandi et al., 2012)

Resilience, the capacity to withstand and bounce back form times of adversity is important in the context of higher education which is filled with continuous academic demands, wherein some students have to thrive against many risk factors such as stress, poor economic conditions and academic failures. Few studies (Peng et al., 2012; Kim & Cho, 2012; Kjeldstadli, et al., 2006) in medical students have demonstrated that resilience is associated with lesser stress, better mental health and higher life satisfaction.

Optimism means generalized positive outcome expectancies while pessimism is generalized negative outcome expectancies (Scheier & Carver, 1985). Optimistic college students are likely to do better when faced with stress have lesser physical symptoms and have higher psychological well-being than pessimists or low optimists (Scheier & Carver, 1985; Aspinwall & Taylor, 1992).

Likewise, in the context of medical students, though there are few studies, findings of these studies show that optimism is related to fewer psychological problems (Pritchard, Wilson, & Yamnitz, 2007), lesser anxiety (Singh & Jha, 2013) and higher psychological well-being (Souri & Hasanirad, 2011), and pessimism is related to lesser general health in medical students (Banihashemian, Seyf, & Moazzen. 2009). Apart from psychosocial factors, academic factors such as academic motivation, and academic locus of control may influence stress in medical students.
Locus of control is the degree to which people perceive control over their lives, and the environment they are in (Lefcourt, 1976). People with an internal locus of control take responsibility for outcomes of any event. On the other hand people having an external locus of control view life as an outcome of circumstances which are out of their control.

In the academic context when a student perceives that he is in control of his studies, or he has more of internal locus of control, stress experienced might be less as he is better able to manage the events related to his studies.

Perceived academic control, a concept similar to locus of control specifically refers to the level of influence students think that they yield on their academic outcomes, and responsibility they assume for consequent academic outcomes (Perry, 1991). Higher perceived academic control is associated with lesser course related anxiety and boredom (Perry et al., 2003), higher academic performance (Perry, Hladkyj, Pekrun, & Pelletier, 2001), and better college adjustment (Hladkyj, Pelletier, Drewniak, & Perry 1998; Hladkyj, Perry, Hall, Ruthig, & Pekrun, 2003).

Locus of control has been sparsely examined in medical students and few studies which have examined locus of control in medical students have studied only health locus of control (e.g., Wolf, Vonalmen, Faucett, Randall, & Franklin 1991; Shamseddeen, et al., 2006).

Motivation, which is the driving force that makes one strive towards achieving a certain goal or desired outcome is important in higher educational context such as medical education, as it determines the extent to which a student puts forth to achieve educational goals. Active, independent, self-directed learning requires motivation.

Intrinsic motivation is known to be associated with good course performance (Moneta, & Siu, 2002), better academic persistence (Vallerland & Bissonnette, 1992) and lesser procrastination (Senecal, Koestner, & Vallerland, 1995).

Intrinsic motivation is also associated with positive psychological health and parameters of well-being like good affect and self-actualization. However, it is also negatively related to ill being, depressive and anxiety symptoms (Kasser & Ryan, 1996; Niemiec, Ryan, & Deci, 2009). On the other hand, extrinsic motivation is negatively
related to well-being and learning outcomes (Timmermans, Vansteenkiste, & Lens 2004; Niemiec et al., 2009).

Autonomous motivation is beneficial for medical students as shown by Sobral’s (2003) study which revealed that medical students with higher autonomous motivation had higher academic success as revealed by academic persistence and achievement. Another study of medical students (Park et al., 2012) revealed that extrinsic identified regulation and amotivation were positively related to medical student stress while intrinsic motivation to know, to accomplish things and extrinsic external motivation were negatively associated with stress.

Amotivation has been found to be related to lower persistence in academics (Vallerand & Bissonnette, 1992), stress (Baker, 2004), high boredom and poor concentration (Vallerand et al., 1993).

Most of the studies conducted in the medical student population have examined psychosocial factors or academic factors in isolation. Unlike earlier studies, this study examined the relative influence of these factors in a single framework, in order to decide which among the various factors have more influence in determining stress.

Apart from the linear or more direct relationships of various psychosocial and academic factors with stress already outlined, these factors may also interact among themselves in myriad ways to affect stress.

Evidence has pointed that optimism is positively related to adaptive coping and negatively related to avoidant coping (Scheier, Weintraub, & Carver, 1986; Scheier et al., 1989). In addition, evidence exists for mediating role of coping in the relation between optimism and distress (Billingsley et al., 1993; Carver, Scheier, & Weintraub, 1989). However, less evidence is present for the mediating role of optimism on the relation between coping and distress (David, Montgomery, & Bovjerg, 2006). Hence, the reverse possibility still needs to be established. Therefore, this study purports to investigate mediating effects of dispositional optimism on medical students’ stress.
Direct effects of optimism in reducing student stress are well established (Scheier & Carver; 1985; Aspinwall & Taylor, 1992). However, in the educational settings, factors such as perceived academic control can mediate the relationship between optimism and adjustment enhancing the beneficial effects of optimism on adjustment. In fact, perceived academic control can be easily targeted to be changed in short duration, while optimism may take longer time to change (Ruthig, Haynes, Stupnisky, & Perry, 2009).

Therefore, this study investigated whether perceived academic control will mediate the relation between dispositional optimism and students’ stress to ascertain whether academic control can provide additional protection in addition to the obvious effect of optimism in reducing stress and fostering psychological health.

Academic motivation is important in directing students’ academic outcomes. However, the benefits of achievements a motivated student gains may be lost if he/she doesn’t have resilience towards stress and academic setbacks (Martin, 2002). Therefore, Martin (2002) has proposed a model of motivation including resilience for student enhancement. There is limited research on influence of resilience on academic motivation in dealing with academic setbacks or stress. Hence, this study investigated whether resilience will mediate the relationship between academic motivation and stress.

1.3. Need for the Study

During the time, this study was conceptualized; there were only few Indian studies that have investigated stress in medical students (Supe, 1998; Vaidya & Mulgaonkar, 2007; Shah, Trivedi, Diwan, Dixit, & Anand, 2009). But, in the past three to four years there have been many studies on stress in medical students (which will be reviewed later). A countable few of these studies have examined stress in all years of medical education. Further, most of these studies have focused only on influence of coping and have not examined other psychosocial and academic factors that could have a definitive role in stress outcomes. Other studies done elsewhere have also mostly focused on one or two psychosocial factors that may yield effects on stress in medical students. Therefore, this study purported not only to compare stress in various areas among students studying in all four years of medical education, but also to comprehensively examine varied psychosocial and academic variables that could influence stress positively.
and negatively. In addition, these factors may not have only direct effects, but may be interrelated to each other while accounting for the effects they have on stress. Hence, interrelations among some of these variables are also investigated. Findings from this study is proposed to improve understanding about the predominant stress areas experienced by students that could vary by year of study and help in deciding the stress areas to be addressed by year wise. It was also envisaged that this study findings would provide a frame work of the most impactful factors in the context of stress in medical students that could be subjected to intervention. Implications, if found important can also be used to make changes at the policy level of the college.