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SHORT PAPERS

Stress, Coping, and Well-being among Third-year Medical Students

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Background. Medical school is recognized as a stressful environment that often exerts a negative effect on the academic performance, physical health, and psychological well-being of the student. **Method.** Stress, coping, depression, and somatic distress were examined among 69 third-year students completing a psychiatry clerkship in 1992–93 at the University of Mississippi School of Medicine. Stress was assessed using the Medical Education Hassles Scale–R. Coping was assessed using the Coping Strategies Inventory. Depression was assessed using the Center for Epidemiologic Studies–Depression Scale, and somatic distress was assessed using the Wahler Physical Symptoms Inventory. Statistical methods included correlational analysis and hierarchical regression. **Results.** Clinical levels of depression were found in 16 (23%) of the students, and 39 (57%) endorsed high levels of somatic distress. Stress accounted for a large percentage of the distress variance (i.e., 29% to 50%). Coping efforts contributed significant variance to the prediction of distress above and beyond that accounted for by stress alone, especially in relation to depression. Coping efforts classified by Engagement strategies were associated with fewer depressive symptoms, while coping efforts classified by Disengagement strategies were associated with higher levels of depressive symptoms. **Conclusions.** Because students who employed coping efforts characterized by Engagement strategies suffered from fewer depressive symptoms, the results suggest that training in these types of strategies may be a useful intervention to lessen the negative consequences of stress among medical students. *Acad. Med.* 69(1994):765–767.

Several studies have shown that the intense pressures and demands of medical education can have detrimental effects on the academic performance,[1] physical health, and psychological well-being of the student.[2] In addition to studying the major stressors encountered in medical school (e.g., mastery of large amounts of complex material, long hours, limited time for self and family), some researchers have attempted to assess the cumulative impact of less intense, minor stressors, or *hassles*. Wolf et al.,[2] for example, found that hassles were significantly correlated with psychological well-being and, in fact, were more strongly associated with mood than were major stressors.

The associations observed among stress, academic performance, and health underscore the importance of successful adaptation to the medical school environment. Moreover, adaptive or maladaptive skills developed during medical school may lay the groundwork for later professional adjustment.[3] The long-term psychosocial well-being of physicians is of particular concern given their higher than average rates of mental illness, chemical dependency, and suicide.[4]

The somatic and psychological effects of stress are generally thought to be determined by more than just exposure to stressful events. Rather, psychological and behavioral processes are thought to act as mediators, buffering the individual from the negative effects of stress. One such mediator, central to stress theory, is that of coping. Coping refers to the cognitive or behavioral efforts employed to manage, reduce, or control stress.[5] Despite the potential importance of coping, few investigations have examined its role in attenuating the impact of stress encountered during medical education.

The present investigation examined the effects of coping on the well-being of third-year medical students. Although each year of medical education is characterized as having unique stresses, the third year has been singled out as one of the most inherently stressful, particularly as it marks the transition from the lecture-based basic science curriculum to direct patient care.[1]

METHOD

Students

The study participants were 69 third-year medical students at the University of Mississippi Medical Center (UMMC). The students completed a battery of questionnaires upon completion of a six-week psychiatry clerkship. The sample consisted of 47 men (68%) and 22 women (32%). The students were 24 to 37 years of age (average age 26); 67 (97%) were

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Table 1

Zero-order and Partial Correlations among 69 Third-year Students' Scores on Scales for Stress, Coping, Depression, and Somatic Distress, University of Mississippi Medical Center, 1992–93*

	Zero-order Correlation		Partial Correlations Controlling for Stress	
	CES–D	WPSI	CES–D	WPSI
Stress				
Hassles Frequency	.54†	.71†	—	—
Hassles Intensity	.23	.31‡	—	—
Coping				
Engagement strategy				
Cognitive-Restructuring	−.35†	.13	−.44†	.15
Problem-Solving	−.31‡	.16	−.49†	.01
Social Support	−.12	.15	−.31‡	.09
Express-Emotion	.15	.31‡	−.08	.14
Disengagement strategy				
Wishful-Thinking	.35‡	.54†	.13	.34‡
Problem-Advoidance	.40†	.24§	.32‡	.11
Self-Criticism	.36‡	.25§	.24§	.05
Social Withdrawal	.31‡	.18	.29§	.13

*The students were assessed during their six-week psychiatry clerkship using the following scales: the Medical Education Hassles Scale–R, for the frequency and intensity of stressful hassles; the Coping Strategies Inventory, which categorizes coping responses into four Engagement strategies and four Disengagement strategies; the Center for Epidemiologic Studies–Depression Scale (CES-D), for depression; and the Wahler Physical Symptoms Inventory (WPSI), for somatic distress.

†$p < .001$; ‡$p < .01$; §$p < .05$.

white; 36 (52%) were single; and 33 (48%) were married.

Measures

Stress was assessed using the Medical Education Hassles Scale–R,[2] a self-report inventory designed to assess both the frequency and the intensity of stressful hassles associated with medical education. Coping was assessed using the Coping Strategies Inventory (CSI),[6] an 85-item self-report inventory designed to assess coping thoughts and behaviors in response to stress. This inventory categorizes coping responses into eight primary factors: the four Engagement strategies of Problem-Solving (direct attempts to eliminate the source of stress by altering the situation), Cognitive-Restructuring (cognitive strategies employed to manage stressful situations by altering their meaning), Social Support (seeking support from others), and Express-Emotions (expression of feelings about the stressor); and the four Disengagement strategies of Problem-Avoidance (behavioral or cognitive avoidance of the stressor), Wishful-Thinking (wishful thoughts or fantasies that draw attention away from the stressor), Social Withdrawal (avoidance of others), and Self-Criticism (blaming or criticizing oneself). Well-being was assessed using a measure of depressive symptoms, the Center for Epidemiologic Studies–Depression Scale (CES–D),[7] and a measure of somatic complaints, the Wahler Physical Symptoms Inventory (WPSI).[8]

RESULTS AND STATISTICAL ANALYSIS

Preliminary analyses revealed that 16 (23%) of the students reported clinically significant levels of depression (CES–D mean of 11.48, SD, 7.13). In addition, 39 (57%) of the students reported high levels of somatic complaints relative to a normative student population (WPSI mean of .66, SD, .42). Hassles Frequency and Intensity scores were similar to those reported by others (Hassles Frequency mean of 41.96, SD, 19.89; Hassles Intensity mean of 1.37, SD, .26).

Correlations were calculated among the Hassles Scale–R, the CES–D, and the WPSI (see Table 1). Hassles Frequency was highly correlated with both the CES–D and the WPSI. Hassles Intensity was positively correlated with the WPSI and approached significance with the CES–D.

Simple (zero-order) and partial correlations were calculated among the eight CSI subscales, the CES–D, and the WPSI. The partial correlations show the relationships among coping, depression, and physical symptoms independent of stress (see Table 1).

Finally, the relative contribution of coping to the prediction of CES–D and WPSI scores was examined using hierarchical regression. Coping added significantly to the prediction of CES–D scores, accounting for 15% ($p < .001$) of the total explained variance. Coping did not contribute unique variance to the prediction of WPSI scores.

DISCUSSION

Consistent with prior research, a sizable number of the sample reported clinically significant levels of depression, and more than half endorsed high levels of somatic distress. The students reporting the greatest stress experienced the highest levels of depression and physical complaints.

Perhaps the most important finding, however, was that coping contributed significant variance to the prediction of distress above and beyond that accounted for by stress alone. This was especially evident in the prediction of depression. Coping efforts classified by Engagement strategies were negatively associated with symptoms of depression. In contrast, coping efforts classified by Disengagement strategies were positively associated with symptoms of depression. A number of coping strategies were also associated with somatic complaints; however,

only Wishful-Thinking remained correlated with WPSI scores after removing the large percentage of variance already accounted for by hassles frequency.

These findings support theoretical arguments regarding the hypothesized benefits of approach relative to avoidance coping strategies.[5] Although no coping strategy is considered adaptive or maladaptive by itself, Engagement strategies are more likely than Disengagement strategies to modify stressful situations and may be associated with more adaptive outcomes. Vitaliano and colleagues[9] reported a similar pattern of correlations between depression and coping in a sample of medical students. The present findings are even more striking, however, as the contribution of coping was demonstrated even after controlling for the effects of stress.

Limitations of the present study should be noted. First, unique characteristics of the student sample (e.g., ethnicity) may limit generalizability. Second, the present study combined stress-coping responses of students who completed clinical rotations in a variety of sequences and did not address potential changes in the types of stressors encountered or the types of coping strategies employed over the year (e.g., as students gained clinical experience). Future studies may wish to compare stress-coping responses of students completing rotations in other disciplines and may want to take into account rotation length and rotation sequence. Finally, the cross-sectional nature of the investigation limits conclusions regarding causality. Impaired coping may be both a cause and a result of psychological distress. Future investigations will need to utilize longitudinal designs to better account for these complex and dynamic interactions.

The results of the present study suggest that coping-skills training may be a useful intervention to mitigate the negative effects of stress among medical students. Although a number of medical schools in the United States and Canada report the use of health promotion programs for their students,[10] few studies have examined the efficacy of such programs at reducing the negative effects of stress.[11] The present findings support the use of interventions that attempt to modify Disengagement coping strategies and that promote the use of Engagement strategies, in addition to the use of more traditional stress-management techniques. The types of adaptive or maladaptive coping skills developed during medical school may well have consequences for long-term professional adaptation or impairment.[3]

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