

INDIVIDUAL DIFFERENCES IN THE STRESSOR-STRAIN RELATIONSHIP:
THE ROLE OF ABILITY-BASED EMOTIONAL INTELLIGENCE

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Brennan Daniel Cox

Certificate of Approval:

Philip Lewis
Professor
Psychology

Adrian Thomas, Chair
Associate Professor
Psychology

Daniel Svyantek
Associate Professor
Psychology

Joe F. Pittman
Interim Dean
Graduate School

INDIVIDUAL DIFFERENCES IN THE STRESSOR-STRAIN RELATIONSHIP:
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Brennan Daniel Cox

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THESIS ABSTRACT

INDIVIDUAL DIFFERENCES IN THE STRESSOR-STRAIN RELATIONSHIP: THE ROLE OF ABILITY-BASED EMOTIONAL INTELLIGENCE

Brennan Daniel Cox

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Researchers have uncovered several individual characteristics and situational variables that help explain and predict how, why, when, and which individuals will be affected by a potentially stressful encounter. Still, there remains a considerable need for research devoted to identifying, empirically testing, and explaining how relevant individual and situational variables impact individuals' responses to stress. Recent findings suggest that emotional intelligence (EI) may play a role in the stress process; however, these studies have relied on the oft-criticized *trait* conceptualization of the EI construct. Recommendations have been made for future researchers to use measures from the *ability* framework of EI.

The present study evaluated the role of ability-based EI in college students' stress experience. The primary aims were (a) to determine if ability-based EI operates on

stressors and strains in the same manner as trait-based EI and (b) to assess whether ability-based EI accounts for additional variance in stressors and strains beyond the variance accounted for by more established constructs (i.e., hardiness and social support). Participants (undergraduate college students, $n = 150$) completed the leading ability-based EI measure as well as measures of perceived stressors, psychological strain, physiological strain, and behavioral strain (i.e., absenteeism and grades).

Ability-based EI was not related to participants' perception of stressors or their experience of psychological strain, physiological strain, or behavioral strain in terms of absenteeism. Of the seven scores derived from the ability-based EI measure (i.e., total EI, strategic EI, experiential EI, emotion perception, emotion facilitation, emotional understanding, and emotion management), only the emotional understanding branch score was correlated with the measure of students' academic performance (i.e., grades). Emotion management moderated the stressor-strain relationship for psychological strain and the relationship between perceived stressors and physiological strain was moderated by emotion perception, emotion facilitation, and emotion management. Ability-based EI did not moderate the relationship between stressors and behavioral strain. None of the ability-based EI scores explained additional variance in the stress variables after accounting for the variance explained by hardiness and social support. Based on these results, it is recommend that future investigators of ability-based EI consider the more specific emotional abilities rather than one's global assessment of ability-based EI.

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I. INTRODUCTION

Stress is unavoidable. Indeed, as Selye wrote years ago, “No one can live without experiencing some degree of stress all the time” (1976, preface). Despite the prevalent nature of stress, individuals can achieve an optimal level of stress with which they can function comfortably in their day-to-day living. Though, quite paradoxically, finding and achieving one’s ideal state of stress may prove to be a stress-inducing venture. This realization, that we cannot avoid stress and often invite it upon ourselves, has proven to be rather problematic. Consider the former cover story for *Time* magazine that recognized the persistent and self-inflictive nature of stress by labeling it the “epidemic of the eighties” and the leading health problem for the future (Wallis, Mehrtens, & Thompson, 1983). Few can argue that we as a society are any less concerned about stress today than we were over 20 years ago, which explains the sustained popularity of stress research (Ptacek & Pierce, 2003). Much of this research, expectedly, relates to stress at work..

Stress at the Individual Level

Work stress affects individuals in a number of ways. Physiologically, stress has been linked to health problems ranging from general somatic complaints to cardiovascular disease (French, Caplan, & Harrison, 1982). Work stress also affects individuals psychologically, leading to feelings of anxiety and depression (Kushnir & Melamed, 1991), negative emotions (Schaubroeck, Cotton, & Jennings, 1989), emotional exhaustion (Ashforth & Humphrey, 1993), feelings of hostility (Shaw & Weekley, 1985),

as well as an overall impairment in psychological well-being (Hecht, 2001). To complicate things further, many individuals resort to maladaptive behaviors when dealing with work stress, such as procrastinating (Senécal, Julien, & Guay, 2003), decreased commitment (Allen, Herst, Bruck, & Sutton, 2000), performing less or less well (Westman & Eden, 1992), intending to quit (Zellars, Hochwarter, Perrewe, Miles, & Kiewitz, 2001), and quitting outright (Breaugh, 1980). Although such behaviors provide temporary relief to stressful occasions, they often cause more harm than good by affecting not only the health and habits of individuals, but also the welfare of those around them, including entire organizations.

Stress at the Organizational Level

Stress-related outcomes add up to substantial costs for employers. Estimates of the financial impact of stress on organizations approach \$68 billion annually, with stress claims accounting for up to 10% of a company's earnings (Gibson, 1993). Worse, data from a recent survey indicated that half of the American workforce feels more demands with each passing year, with 38% feeling more pressures at work than ever before (Marlin Company, 2001). For these reasons, there exists a great need to alleviate the tremendous stress-related costs for individuals, organizations, and society at large. Though the eighties have come and passed, the stress epidemic is far from over. Indeed, work stress remains a very costly and prevalent problem.

Individual Differences in the Stress Experience

For years, researchers have sought to determine the many sources of stress as well as methods to reduce the adverse consequences of stress. Two consistent findings are that (a) individuals differ in what they perceive to be stressful, and, if and when they do agree,

(b) individuals tend to respond differently to these unpleasant events. As an example, consider how two employees with the same manager might react when their boss moves forward a work deadline—one employee might see this change as just part of the job, while the other employee may view it as an incredible inconvenience. How a person interprets an event will determine that person's reaction. Here, the first employee is likely to continue working without being affected by the deadline change; perhaps this person will consider the change as a motivational challenge. In contrast, the second employee is likely to become extremely frustrated by the rescheduling. Suppose, though, that both employees are upset by the deadline change—still, we may find differences in how they respond. One employee may become angry at the manager or so discouraged by the new deadline that it becomes impossible to concentrate on other tasks. The other employee, however stressed, may view the rescheduling as a personal challenge or as a chance to prove his or her worth. Thus for every potential stressor, there are a number of ways in which an individual can and will respond.

Years of research have uncovered several individual characteristics (e.g., hardiness) and situational variables (e.g., availability of social support) that help explain and predict how, why, when, and which individuals will be differentially affected by a potentially stressful encounter. A full understanding of the stress process, however, remains incomplete. Work stress researchers insist that there remains a considerable need for research devoted to identifying, empirically testing, and explaining how relevant individual and situational variables impact employees' responses to stress (Jex, Bliese, Buzzell, & Primeau, 2001). Several new and relatively unstudied variables, such as emotional intelligence, may offer additional understanding as to why some employees are

affected by stress while others are not. The present study investigated the role of ability-based emotional intelligence in the stress experience of college students. The purpose of this research was to gain a better understanding of the controversial emotional intelligence construct as well as to expand the literature on work stress.

Work Stress Terminology

Reliable work stress research has been rather slow to develop (Jex, et al., 2001). Part of this delay may be due to the definitional disagreement that has occurred in the work stress arena. After all, the very concept of *stress* has been defined as a stimulus, as a response, and as a stimulus-response process (Cox, 1985). Before any research in this domain continues, it is imperative that work stress researchers agree upon the nature of the variable under study; or, if reaching agreement proves to be futile, researchers should at least state which stress definition they are adopting for their study.

Stimulus definition of stress. Under the stimulus definition of stress, the *stressor* is an object, situation, or environmental factor that is considered to be negative or threatening (Selye, 1950; Cooper & Marshall, 1976). Using this model, stress is viewed as something external, such as excessive work demands or time pressures that may be placed upon an individual (e.g., a changed deadline). This causal approach implies that any stimulus that has the potential to be stressful will be viewed as stressful. That is, the stressor will be interpreted in the same manner by everyone. As a result, the stimulus definition is commonly criticized for failing to observe that individuals differ in how they perceive and respond to stressful events.

Response definition of stress. The response definition of stress provides the reactive component that is missing from the stimulus model of stress. The phrase “I am

stressed” makes use of this outcome-oriented approach. Here, stress is defined as a person’s *reaction* to a potentially threatening event rather than stress being the event itself. To illustrate the difference between the stimulus and response definitions of stress, consider an employee’s daily experience in commuting to work. Proponents of the stimulus model would consider rush hour traffic, in itself, to be stress. Proponents of the response approach, on the other hand, would focus on how the crowded highway makes the driver feel (e.g., frustration) or physiologically react (e.g., clenched fists). Because the response definition focuses exclusively on the outcome of an event and not on the source of a person’s stress, it too is viewed as flawed or inadequate. A more complex definition of stress should consider the stimulus, the response, and the dynamic interplay between these two factors.

Stimulus-response definition of stress. In a definitional study by Jex, Beehr, and Roberts (1992), survey respondents interpreted the word *stress* as involving both elements of the environment (stimulus-definition) and reactions to the environment (response-definition). The *stimulus-response* theory of stress supports either of these interpretations, or, rather, the interactive product of each view. Under the stimulus-response definition, the term *stress* refers to the overall process through which a stressor creates strain (i.e., a reaction to stress, often maladaptive; Selye, 1976). Specifically, as defined by Sulsky and Smith (2005), stress is “any circumstance (stressor) that places special physical and/or psychological demands on an organism leading to physiological, psychological, and behavioral outcomes” (p. 6). This terminology is popular among work stress researchers and has been adopted for the current study, with *stressors* referring to environmental conditions, *strains* referring to an individual’s maladaptive physiological,

psychological, and behavioral response to these conditions, and the general term *stress* referring to the total experience of stressors and strains.

Stress Moderators

As mentioned previously, individuals differ in their perceptions of and reactions to potentially stressful events. These differences are often explained by the presence of some *other* variable, whether that variable is a characteristic of the individual or is a characteristic of the situation. One way these other variables can alter the stressor-strain relationship is through moderation. As defined by Holmbeck (1997), “a moderator variable is one that affects the relationship between two variables, so that the nature of the impact of the predictor on the criterion varies according to the level or value of the moderator” (p. 599). Thus, with moderation the direction and/or strength of the relationship between Variable A (predictor) and Variable B (criterion) depends upon the value of Variable C (moderator; see Figure 1). Moderator variables help explain why some people might live lives full of stressors and yet experience few undesirable outcomes, while others may fall ill at the slightest hint of a challenge. Indeed, it appears that the harmful effects of many stressors can be reduced if only for the presence of some *other* variable—that is, a so-called moderator of stress.

Situational moderators. Stress moderator variables can influence the relationship between a stressor and a strain in different ways. Some stress moderators, like perceived control or the availability of social support, are situational variables that are specific to a particular workplace or occasion. The job of a freelance journalist, for instance, is quite autonomous by nature. These independent writers have a high degree of personal control but little support from others; most of their work is performed at their own discretion, and

when times are tough, they often have no coworker to turn to for comfort or advice. In contrast, many military personnel have little opportunity to make independent decisions, yet have constant social support from others. Cadets are consistently told what to do, but they also perform their duties as a group and are therefore able to reflect on their experiences as part of a team. Thus, the nature of the situation will partly determine the presence or absence of *situational* moderators of stress.

Personal moderators. Some stress moderators, however, are not context-bound. *Personal* moderators of stress operate across situations and are a part of an individual's physical and/or psychological make-up rather than the environment. Many of these moderators are inherent and cannot be undone, such as a person's gender, age, race, or personal history. Other personal moderators are dispositional characteristics, such as an individual's level of neuroticism or hardiness. Personal moderators tend to influence the outcome of stressors in all settings. For instance, a neurotic worker, characterized as having consistent anxiety and worry, would be expected to create stressors out of what might otherwise be a stressor-free environment (e.g., "I could get my work done, if only people stopped looking at me."). Hardy employees, on the other hand, are typically fearless in the face of a challenge and respond to stressors with courage rather than concern (e.g., "My printer is broken. Now I must finish twice as fast so that I can get to the copy shop before my project is due. It will be tough, but I can do it.").

How Stress Moderators Work: Social Support and Hardiness

As one may imagine, there are many variables that could influence the stressor-strain relationship. To better explain how situational and personal moderators operate on work stress, the impact of two well-researched variables, social support (a situational

moderator) and hardiness (a personal moderator), will now be more fully addressed.

Before proceeding it should be noted that, although these variables are prototypic examples of stress moderators, they are just two of the many possible variables that could affect the stress experience.

Social support. Employees have social support when a communication network of friends, family, supervisors, and coworkers are available to help them during stressful times (Sulsky & Smith, 2005). This variable differs from job to job as it is based on the number of social resources that are accessible by the individual at any point in time. With social support, the size of the organization does not matter; rather, it is the number and quality of the relationships that an individual has that counts. A recent meta-analysis on the role of social support at work uncovered a threefold effect of this variable on the stressor-strain relationship (Viswesvaran, Sanchez, & Fisher, 1999):

- 1) Social support reduces the number of perceived stressors,
- 2) Social support reduces the overall effects of strains, and
- 3) Social support moderates the stressor-strain relationship, whereby provided with a certain frequency or intensity of stressors, having greater social support results in fewer and less severe strains.

The benefits of social support are revealed in studies of interpersonal conflict (Zapf & Gross, 2001), work-family conflict (Nissly, Barak, & Levin, 2005), and work with a highly emotional content, such as nursing (Jenkins & Elliott, 2004). Others have found social support to be negatively related to depression, anxiety, and somatic symptoms (Lu, 1999) and serve to reduce the impact of stressors on organizational commitment (Vashishtha & Mishra, 1998) and health care costs (Manning, Jackson, & Fusilier, 1996).

While investigating the role of social support in the stress process, Ganellan and Blanley (1984) found that scores on their measure of social support correlated significantly with two dimensions of their hardiness scale. These researches concluded that some studies on social support may have indirectly been measuring hardiness. However, as mentioned, social support is a situational variable—it differs from job to job. Hardiness, on the other hand, is a personal variable, which places it in a different conceptual category. Perhaps a more thorough examination of the hardiness construct will help resolve the confusion between these two stress moderators.

Hardiness. Kobasa (1979) created the hardy personality factor out of three dimensions: *control*, referring to one's perceived ability to control, explain, or predict the environment; *commitment*, or how involved a person is at work, in relationships, and in daily activities; and *challenge*, which is being flexible enough to accept change as an obstacle rather than as a threat. Similar to Viswesvaran et al.'s (1999) study of social support, hardiness has been shown to have a threefold effect on the work stress process (Westman, 1990). While investigating the role of hardiness in relation to perceived stress and the performance of military officers, Westman found hardiness to:

- 1) Relate negatively to the officers' reports of feeling stressed,
- 2) Relate positively to the officers' performance evaluation scores (i.e., hardiness was negatively correlated with behavioral strain in terms of performance), and
- 3) Moderate the stressor-strain relationship, whereby the impact of perceived stressors on performance was reduced for officers with high hardiness ratings.

Thus, hardy officers perceived fewer stressors and experienced fewer performance penalties than less-hardy officers; further, if and when hardy officers were stressed, the

impact of their stress levels on their performance was minimal compared to officers who were less hardy.

A Need for Additional Research

As the aforementioned studies suggest, social support and hardiness can serve to reduce stressors, reduce strain, or buffer the effects of stressors on strain. Despite the wealth of research on these two constructs, they obviously do not fully explain the stressor-strain relationship. For instance, Kaufman and Beehr (1986) found social support to amplify the stressor-strain relationship. Jex (2002) explained this counterintuitive phenomenon by suggesting that employees who continually reflect over their troubles with their social network may actually prolong the effects of their problems or even invent new worries.

When the relationship between variables produces inconsistent results, it is reasonable to assume that some other variable may be contributing to the process as well. Recently, Jex et al. (2001) recommended for researchers to identify, empirically test, and explain how relevant variables influence the stress experience. In the past few years, one particular construct that has received a fair amount of attention in the psychological literature is emotional intelligence (EI). Results of a few early studies on EI (e.g., Slaski & Cartwright, 2002, 2003; Oginska-Bulik, 2005; Tsaousis & Nikolaou, 2005) have suggested that this construct might have a place in to the work stress literature as well.

Emotional Intelligence

Salovey and Mayer coined the term *emotional intelligence* in 1990, describing it as “the ability to monitor one’s own and others’ feelings and emotions, to discriminate among them, and to use this information to guide one’s thinking and action” (p. 189).

However, it was not until five years later that Salovey and Mayer's construct received any considerable attention.

In 1995 Daniel Goleman published the first popular book on EI, thereby introducing a new buzzword to the world. In *Emotional Intelligence: Why it can Matter more than IQ*, Goleman argued that excellence in life is determined by one's emotional capabilities rather than one's general intelligence. Goleman's text, which has sold over four million copies, completely redefined success. However, the author's claims regarding the various applications and overall value of EI were, to say the least, "premature" (Mayer & Salovey, 1997, p. 16). Indeed, it was a full two years after the publication of this book before the first tests of EI were ever developed (Cobb & Mayer, 2000). Since that time, researchers have worked diligently to validate Goleman's claims, providing supporting evidence in some cases and refuting his promises in others.

Models of Emotional Intelligence

Thus far, two models have been developed to conceptualize and assess EI. Proponents of the *trait model* define EI using dispositional, motivational, and situational factors associated with the EI framework. Measures from this model come in the form of self-report inventories and questionnaires, similar to most measures of personality (e.g., the NEO-PI-R). Other researchers adhere to the *ability model* of EI, which conceptualizes EI as a set of emotion-based competencies. Measures from this framework follow a testing format and require individuals to solve problems with emotional content. The ability-based measures are scored in the same manner as most cognitive ability tests—with right and wrong answers that can be used to discriminate between high and low EI individuals.

In a validation study investigating the most frequently used measures of EI, Brackett and Mayer (2003) determined that the ability and trait model measures result in different representations of the same person and are therefore weakly related. In another comparison study, researchers determined that the trait model measures of EI are simply a composite of neuroticism and extraversion, two well-studied personality factors, and that the ability scales are “independent from both personality and intelligence variables” (MacCann, Matthews, Zeidner, & Roberts, 2003, p. 268). MacCann et al. concluded their review by recommending the ability model measures over the trait model measures, with the former showing the most promise for EI research. Thus, even though two models are used to conceptualize EI, only the ability model exists as a distinct, stand-alone construct.

Emotional Intelligence and the Stressor-Strain Relationship

In 2002 and 2003, Slaski and Cartwright assessed the effects of EI on work stress. In both studies, EI was found to be negatively related to employees’ subjective experience of stressors as well as reports of psychological strain. Of interest, in their first study Slaski and Cartwright found that managers who scored high in EI tended to have higher performance ratings (i.e., less behavioral strain in terms of performance) than managers who scored low in EI; in addition, they concluded their follow-up study by suggesting that EI is trainable.

Expanding upon Slaski and Cartwright’s research, Oginska-Bulik (2005) found EI to be negatively related to both perceived occupational stressors and undesirable health outcomes, particularly depression. Also in 2005, Tsaousis and Nikolaou reported that EI was not only negatively related with poor general health, but also unhealthy activities, such as smoking and drinking—two common forms of behavioral strain.

As these studies suggest, the applications of the EI construct are promising for work stress researchers. However, there is a common limitation to all of the EI studies listed above. Specifically, to measure EI, Slaski and Cartwright used the Bar-On Emotional Quotient Inventory; Oginska-Bulik used the Emotional Intelligence Questionnaire; and Tsaousis and Nikolaou used the Traits Emotional Intelligence Questionnaire. Each of these tools is a self-report, trait-based assessment of EI, and thus belonging to the trait model of EI. As recommended by MacCann et al. (2003), to gain a full understanding of how EI influences the stressor-strain relationship, an ability-based measure of EI may be more appropriate.

The Mayer-Salovey-Caruso Emotional Intelligence Test

The present study advances the stress and EI literatures by investigating the impact of ability-based EI on the stressor-strain relationship. To accomplish this task, the Mayer-Salovey-Caruso Emotional Intelligence Test (MSCEIT) was adopted for this study. The MSCEIT is the leading measure of ability-based EI and assesses user performance along four separate branches of EI:

- 1) *Perception of Emotions*: The ability to perceive emotions in oneself and others, as well as in objects, art, stories, music, and other stimuli.
- 2) *Use of Emotion to Facilitate Thought*: The ability to generate, use, and feel emotion as necessary to communicate feelings or employ them in other cognitive processes.
- 3) *Understanding of Emotion*: The ability to understand emotional information, how emotions combine and progress through relationship transitions, and to appreciate such emotional meanings.

- 4) *Management of Emotion*: The ability to be open to feelings and to modulate them in oneself and others so as to promote personal understanding and growth (Bracket & Salovey, 2004).

These four branches combine to form two broader area scores: *experiential EI* (ability to perceive emotional information and its use to facilitate thought) and *strategic EI* (ability to understand emotional information and use it strategically).

Use of the MSCEIT was expected to improve upon earlier studies of work stress and EI because, unlike the trait model measures of EI, this test is independent from measures of personality and general intelligence (MacCann et al., 2003). Also, the testing format of the MSCEIT makes it more difficult to fake than self-report measures of EI. Further, because the EI literature is still developing, additional studies are essential for determining the full worth and potential of this construct, whether it is conceived as a trait or as an ability.

Hypotheses

As the ability-based MSCEIT is a measure of EI, it should produce similar outcomes as those found by researchers who have used the trait model measures of EI. That is, results of the MSCEIT should be negatively related to the experiences of both stressors and strains. It was therefore hypothesized that the MSCEIT would produce the following results:

Hypothesis 1: Scores on the MSCEIT will be negatively related to the perception of stressors.

Hypothesis 2: Scores on the MSCEIT will be negatively related to the experience of psychological, physiological, and behavioral strain.

In addition, and related to previous studies of stress moderators (e.g., social support and hardiness), it was anticipated that ability-based EI would not only relate to experience of stressors and strains, but also the relationship between the two. Thus:

Hypothesis 3: Scores on the MSCEIT will moderate the stressor-strain relationship, whereby provided with a certain frequency or intensity of stressors, having greater EI will result in fewer and less severe strains.

Still, to make a significant impact in the work stress literature, EI would need to stand apart from other similar constructs. That is, after taking into consideration the impact of variables such as social support and hardiness, EI would need to explain additional variance in perceived stressors and strains. As previous research using trait model measures of EI have resulted in strong relationships between EI and perceived stressors and strains, the following hypothesis was proposed:

Hypothesis 4: Scores on the MSCEIT will explain incremental variance in perceived stressors and experienced strains beyond the variance accounted for by social support and hardiness.

These four hypotheses are all directional and based off of previous research using global measures of EI. Unlike other measures of EI, however, the MSCEIT has not only a total EI score, but also subscale scores for each of its four branches (i.e., emotion perception, emotion facilitation, emotional understanding, and emotion management) and two area scores (experiential and strategic EI). Therefore, each hypothesis was tested not only using the total EI score, but also scores for each of these more specific areas and branches, for a total of seven indices of ability-based EI. Further, exploratory analyses were also performed to investigate the role of gender and other demographic variables.

II. METHOD

Participants

A sample of 157 undergraduate students enrolled in psychology courses at Auburn University participated in this study for extra credit. Data from 7 participants were removed from analysis due to a substantial number of incomplete cases (more than 10%). Missing data from the remaining 150 participants (63% female, 85% Caucasian) were of an unsubstantial amount (less than 2% of cases per participant) and were assigned the mean value for that item.

Pilot Test

Prior to the study, a pilot test was conducted to determine the general completion time for all measures (approximately 25 minutes for the computerized ability-based EI measure; approximately 20 minutes for all other paper-and-pencil measures). Using this information, the paper-and-pencil measures were arranged so that half of the measures would be presented before the computer-based test and half would be presented after this test. This arrangement was intended to reduce the monotony of paper-and-pencil testing as well as participant fatigue. The delivery of the paper-and-pencil tests was counter-balanced.

Procedure

After being assigned random identification numbers, participants completed several self-report questionnaires assessing their recent experiences of stressors and

strains, their hardiness, availability of social support, and tendencies for socially-desirable responding. Midway through completing these paper-and-pencil tests, participants completed a computer-based test of EI. Additionally, personal and demographic data relating to age, gender, and race were collected.

Measures

All materials presented to the participants are provided in the appendices. As the MSCEIT is a computer-based test, a print copy could not be obtained.

Demographic questionnaire. A demographic questionnaire assessed participants' personal characteristics. This questionnaire included items concerning participants' gender, ethnicity, age, and level of education.

Emotional intelligence. The Mayer-Salovey-Caruso Emotional Intelligence Test (MSCEIT; Mayer, Salovey, & Caruso, 2002) was used to assess participants' ability-based EI. The MSCEIT is a 141-item computer-based performance test that measures how well individuals perform on tasks related to their ability to solve emotion-based problems. The MSCEIT provides several different scoring indices, including:

Total EI Score: an overall index of the respondent's EI.

Two Area Scores: indices of the respondent's (a) experiential EI (an index of the respondent's ability to perceive emotional information and use it to facilitate thought) and (b) strategic EI (an index of the respondent's ability to understand emotional information and use it strategically for planning and self-management).

Four Branch Scores: indices of the respondent's (a) emotion perception, (b) emotion facilitation, (c) emotional understanding, and (d) emotion management.

According to the MSCEIT user manual, the test is face, content, and construct valid (Mayer, et al., 2002). The test authors also state that the MSCEIT scores are reliable, with a total scale alpha estimate of .91, area reliabilities of .90 (experiential) and .85 (strategic), and branch score reliabilities ranging from .74 to .89. Using the present sample, Cronbach alpha estimates of internal consistency for the MSCEIT scale scores were less satisfactory (total scale =.85; experiential EI =.85; strategic EI =.75). This reduction in reliability compared to the norming data was particularly noticeable for the branch scores (emotion perception =.84; emotion facilitation =.59; emotional understanding =.58; emotion management =.75).

Perceived stressors. The short form, school-adapted version of Kohn and Macdonald's (1992) Survey of Recent Life Experiences (SRLE) assessed the intensity with which participants had experienced 41 different stressors over the past month using a four-point scale (1 = Not at all...4 = Very much a part of my life). Sample items include "Too many things to do at once" and "Dissatisfaction with school." The type of stressor measured by the SRLE is known as a *hassle*, which is a minor, but particularly annoying event. In comparison to major or life-changing stressors, these inconvenient stressors are often perceived as irrelevant; however, evidence suggests that hassles accumulate to the point of being independently predictive of a number of pertinent strains (Kanner, Coyne, Schaefer, & Lazarus, 1981). Cronbach's alpha for this scale was .92.

Psychological strain. The 30-item version of the General Health Questionnaire (GHQ-30; Goldberg & Williams, 1988) assessed participants' recent experience of 15 common complaints, such as "Not being able to overcome difficulties" or "Finding life a struggle" and 15 positive experiences, such as "Feeling capable of making decisions" and

“Feeling hopeful about the future.” All items were answered using a four-point scale, with the positively-framed items being reversed coded so that higher total scores indicated greater psychological strain. Cronbach’s alpha for this scale was .93.

Physiological strain. The Cohen-Hoberman Inventory of Physical Symptoms (CHIPS; Cohen & Hoberman, 1983) asked participants to indicate how distressed they had recently been by 33 different symptoms (e.g., migraine headache; poor appetite) using a five-point scale (1 = not been bothered by...5 = extremely bothered by). The summative score on the CHIPS reflects one’s experience of physiological strain over the past month. Internal reliability for this measure was satisfactory and consistent with previous research ($\alpha = .92$).

Behavioral strain. As indicators of behavioral strain, participants were asked to report the frequency with which they missed class in the previous month as well as their typical grades in school (e.g., “mostly As,” “As, and Bs,” “mostly Bs,” etc.). Absenteeism is a common, but central behavioral strain in work stress literature and grades were collected as a school-related performance measure. In the present study, lower grades were used as an indicant of high behavioral strain. These two items were included as part of the demographic questionnaire.

Social support. Social support was measured using the college-student version of the Interpersonal Support Evaluation List (ISEL-CV; Cohen & Hoberman, 1983). This measure asks students to think about their social experiences in college and indicate whether each of 48 items is “Probably True” or “Probably False.” The obtained internal reliability estimate for this dichotomous scale as assessed using the Kuder-Richardson Formula 20 was satisfactory ($KR20 = .85$).

Hardiness. The School-Related Hardiness Measure (SRHM) adapted by Cole, Harris, and Feild (2004) assessed participants' sense of commitment, control, and challenge in college life. Using a 6-point scale (1 = strongly disagree...6 = strongly agree), students responded to this measure by indicating how closely they agreed with each of the SRHM's 18 items, such as "I can achieve my academic goals by working hard" and "Planning ahead helps me avoid most school-related problems." The higher a respondent's total score, the more hardiness he or she displays at school. Internal reliability (Cronbach's alpha) for this measure was .89.

Social desirability. The 20-item short form of the Marlowe-Crowne Social Desirability Scale (Strahan & Gerbasi, 1972) measured participants' tendencies to answer items in a socially desirable manner. The obtained internal reliability estimate for this true/false scale was lower than normal ($KR20 = .69$).

III. RESULTS

Frequency data were obtained for the categorical variables (see Table 1) and descriptive statistics were obtained for each continuous variable (see Table 2). Using this information, it was determined that all values were within the possible range for each respective variable. This information also indicated that the data for two variables, absenteeism and the emotion facilitation branch score of EI, were not normally distributed. Specifically, the kurtosis statistics for both variables were outside of the acceptable range of ± 2 (5.94 for absenteeism; 2.56 for emotion facilitation; McHugh, 2003), which suggests that these data were overly peaked or leptokurtotic. In addition, the data for the absenteeism variable were also found to be positively skewed (skewness = 2.07), which suggests that the data for this variable included influential observations on the higher end of the distribution.

To investigate this issue further, a boxplot graph was obtained for absenteeism (Figure 2). According to this graph, the absenteeism variable (median = 2.0 classes missed in past month) had two extreme outliers (17 and 22). To account for these influential cases, all additional analyses that involved absenteeism were performed with and without these outliers. Because the final interpretations of these analyses remained the same regardless of whether these outliers were included, these values were left in the data set as influential observations and all of the results presented herein reflect only the tests performed with these outliers included in the analyses.

Gender Differences

A series of one-way analyses of variance (ANOVAs) tested for gender differences for each variable in the study. Results of the ANOVAs indicated that females had significantly higher grades than males ($F(2, 147) = 5.67, p < .01$) as well as higher scores of hardiness ($F(2, 147) = 6.36, p < .05$), total EI ($F(2, 147) = 3.22, p < .05$), strategic EI ($F(2, 147) = 3.39, p < .05$), and emotion management ($F(2, 147) = 5.85, p < .01$). Results also indicated that males had significantly more absences than females ($F(2, 147) = 6.78, p < .01$) over a one month period. Males and females did not differ in perceived stressors, social support, psychological strain, or physiological strain.

Correlations

Correlations were obtained to evaluate the strength of association between all of the independent and dependent measures.

Correlations between the individual difference variables. Table 3 displays the correlations between the individual difference variables. Of note, all of the ability-based EI scores were positively and significantly correlated. Thus, individuals who scored high in total EI also tended to score high in each area and branch of ability-based EI.

Also of interest, scores from the measure of social support did not correlate significantly with any of the ability-based EI scores, but were positively and significantly correlated with scores on the hardiness measure ($r = .21, p < .01$). While some researchers have suggested that this type of relationship indicates that these measures are assessing the same construct (e.g., Ganellan & Blanley, 1984), it deserves restating that hardiness has been operationally defined as a characteristic of the individual and social support has been operationally defined as a characteristic of the situation.

In addition to its relationship with social support, hardiness also correlated positively and significantly with total EI ($r = .27, p < .01$), both area scores of ability-based EI ($r = .18, p < .05$ for experiential EI; $r = .27, p < .01$ for strategic EI), and three of the four branch scores of ability-based EI ($r = .21, p < .01$ for emotion facilitation; $r = .17, p < .05$ for emotional understanding; $r = .30, p < .01$ for emotion management).

Correlations between the individual difference variables and perceived stressors.

Table 4 displays the correlations between the individual differences variables and the measure of perceived stressors. Scores from the perceived stressors measure were negatively and significantly correlated with both hardiness ($r = -.30, p < .01$) and social support ($r = -.43, p < .01$). Thus, participants who reported experiencing the most stressors in their lives tended to have lower hardiness and less social support than participants who reported experiencing fewer stressors in their lives.

The perceived stressors measure was also significantly related to the Marlowe-Crowne social desirability scale. The negative correlation ($r = -.19, p < .05$) between these two measures suggests that participants who were most susceptible to socially desirable responding tended to report fewer perceived stressors than participants who did not respond in socially desirable ways.

Correlations between the independent and dependent variables. Table 5 lists the correlations between the independent variables and the four measures of strain.

Psychological strain, physiological strain, and students' grades were significantly correlated with the perceived stressors scale. Thus, the students who reported experiencing the most symptoms related to psychological strain (e.g., depression) and physiological strain (e.g., headaches) also reported perceiving the most stressors in their

lives. The negative correlation between students' grades and perceived stressors ($r = -.21$, $p < .01$) suggests that those students who perform poorly in school are also the students who perceive the most stressors in their lives. The frequency with which students missed class (i.e., absenteeism) was not related to their perception of stressors.

Psychological strain was also negatively and significantly correlated with the measures of hardiness ($r = -.22$, $p < .01$) and social support ($r = -.43$, $p < .01$). Thus, the students who frequently experienced symptoms such as restlessness, nervousness, or indecision, or who often feel like life is not worth living, were also the students who had low hardiness or lacked a supportive social network.

Similarly, physiological strain was negatively and significantly correlated with the measures of hardiness ($r = -.18$, $p < .05$) and social support ($r = -.26$, $p < .01$). Thus, the students who were most bothered by physical symptoms, such as sleep problems, weight change, or energy loss, were also the students with the lowest hardiness scores or least supportive social networks.

Positive and significant correlations were obtained between students' grades and their levels of hardiness ($r = .34$, $p < .01$) and availability of social support ($r = .20$, $p < .05$). These results suggest that hardy students tend to have better academic performance than less hardy students. Also, participants with the lowest grades reported having less social support than participants who excelled in school.

Finally, results for absenteeism indicated that this variable was negatively correlated with the hardiness measure ($r = -.37$, $p < .01$). Thus, lesser hardy students tended to miss class more than more hardy students. Absenteeism was not related to social support.

Hypothesis 1: Relationship between Ability-based EI and Perceived Stressors.

Hypotheses 1 was tested using the correlations found in Table 4. This hypothesis, which predicted that scores on the MSCEIT would be negatively related to the perception of stressors, was not supported as the correlations between the perceived stressors measure and all seven scores from the ability-based EI measure were non-significant.

Hypothesis 2: Relationship between Ability-based EI and Strain.

Hypothesis 2 was tested using the correlations found in Table 5. This hypothesis predicted that scores on the MSCEIT would be negatively related to participants' experience of strain. None of the ability-based EI scores were significantly correlated with the measures of psychological strain, physiological strain, or absenteeism. However, the strategic EI area score and the emotional understanding branch score of the MSCEIT were positively and significantly correlated with participants' grades ($r = .18, p < .05$; $r = .21, p < .05$, respectively). As higher grades indicate lower behavioral strain in terms of academic performance, participants' strategic EI and ability for understanding emotions were negatively associated with this type of strain. Thus, Hypothesis 2 was partially supported in that two of the seven EI scores (i.e., strategic EI and emotional understanding) were significantly related to one of the four measures of strain (i.e., grades).

Hypothesis 3: Ability-based EI as a Moderator.

To test Hypothesis 3, which predicted that scores on the MSCEIT would moderate the stressor-strain relationship, a series of hierarchical linear regression tests were performed. As outlined by Holmbeck (1997), testing for moderation in this fashion requires the main effects of the independent variable (i.e., perceived stressors) and the

moderator variable (i.e., the given ability-based EI score) to be entered as step one of the regression equation and the interaction of these two variables to be entered as step two to predict the dependent variable (i.e., the given measure of strain). Thus, to conduct tests for moderation, interaction terms had to be created between the scores on the SRLE and each of the seven scores produced by the MSCEIT. For example, to test for the moderation effects of total EI, an interaction variable was created by multiplying scores on the perceived stressors measure by total EI scores. By following Holmbeck's procedure, if the interaction term accounts for a significant change in R-Square beyond the main effect variables, then the proposed moderator variable can be concluded as having a moderating effect on the relationship between the independent variable and the dependent variable.

Separate hierarchical regression equations were created to test for moderating effects of each of the seven MSCEIT scores on the relationship between perceived stressors and each of the four measures of strain (i.e., psychological strain, physiological strain, grades, and absenteeism). The results of these tests are presented in Tables 6-9 and are organized below by dependent variable.

Psychological strain. Table 6 displays the results of the moderated regression analyses for predicting psychological strain using the total, area, and branch scores of ability-based EI as moderators. Again, if the change in R-Square is significant in step two of any of these analyses, then the corresponding EI score for that test moderated the stressor-strain relationship. Based on these results, total EI did not moderate the stressor-strain relationship for psychological strain. Further, the area scores of ability-based EI did not moderate the stressor-strain relationship for psychological strain. However, the

significant change in R-Square for the interaction between perceived stressors and the branch scores of ability-based EI ($\Delta R^2 = .04, p < .05$) suggests that the branch scores of ability-based EI moderated the stressor-strain relationship for psychological strain.

A closer examination of the betas for the individual branch scores of ability-based EI reveals that only one of the four interaction terms was significant. Specifically, the positive and significant beta weight for emotion management ($\beta = .19, p < .01$) suggests that this branch of ability-based EI moderated the stressor-strain relationship for psychological strain. Figure 3 presents a graphical representation of this interaction, with perceived stressors on the horizontal axis and separate lines for high, medium, and low levels of emotion management. Based on this graph, it appears that the impact of stressors on psychological strain was magnified by the presence of emotion management. That is, when compared to individuals with low emotion management ability, individuals with high emotion management ability experienced more psychological strain when perceived stressors were high compared to when perceived stressors were low. This result is in the opposite direction as hypothesized (i.e., provided with a certain frequency or intensity of stressors, having greater EI would result in fewer and less severe strains).

Physiological strain. Table 7 displays the results of the moderated regression analyses for predicting physiological strain using the total, area, and branch scores of ability-based EI as moderators. Based on the non-significant change in R-Square for the interaction between perceived stressors and total EI, total EI did not moderate the stressor-strain relationship for predicting physiological strain. Similarly, the area scores of ability-based EI did not moderate the stressor-strain relationship for physiological strain.

Results of the moderated regression analysis using the branch scores of ability-based EI as moderators of the stressor-strain relationship for physiological stress yielded a significant change in R-Square ($\Delta R^2 = .06, p < .05$). Thus, the branch scores of ability-based EI moderated the relationship between perceived stressors and physiological strain. A closer examination of the betas for each branch score revealed that three of the four branches of ability-based EI were significant moderators of this relationship. Specifically, emotion perception moderated the relationship between perceived stressors and physiological strain ($\beta = -.18, p < .05$); emotion facilitation moderated the relationship between perceived stressors and physiological strain ($\beta = .19, p < .05$); and emotion management moderated the relationship between perceived stressors and physiological strain ($\beta = .18, p < .05$). Emotional understanding did not moderate the stressor-strain relationship for physiological strain.

Graphs of the significant moderating effects for the branch scores of ability-based EI on the relationship between perceived stressors and physiological strain were created to examine this relationship further (see Figures 4-6). Based on these graphs, it appears that, when compared to individuals who scored low in emotion perception, individuals with high emotion perception ability experienced less physiological strain when perceived stressors were high compared to when perceived stressors were low (Figure 4). This result was in the hypothesized direction. However, graphs for the moderating effects of emotion facilitation and emotion management reveal that these branches of ability-based EI magnified the stressor-strain relationship for physiological strains. That is, when compared to individuals who scored low in emotion facilitation, individuals with high emotion facilitation ability experienced more physiological strain when perceived

stressors were high compared to when perceived stressors were low (Figure 5). Also, when compared to individuals who scored low in emotion management, individuals with high emotion management ability experienced more physiological strain when perceived stressors were high compared to when perceived stressors were low (Figure 6). These latter two results are in the opposite direction as hypothesized.

Behavioral strain: Grades. Table 8 displays the results of the moderated regression analyses for predicting behavioral strain in terms of academic performance using the total, area, and branch scores of ability-based EI as moderators. The non-significant changes in R-Square for all three interaction terms indicates that total EI did not moderate the relationship between perceived stressors and participants' grades; the area scores of ability-based EI did not moderate the relationship between perceived stressors and participants' grades; and the branch scores of ability-based EI did not moderate the relationship between perceived stressors and participants' grades.

Behavioral strain: Absenteeism. Table 9 displays the results of the regression analyses for predicting behavioral strain in terms of absenteeism using the total, area, and branch scores of ability-based EI as moderators. The non-significant changes in R-Square for the interaction terms indicates that total EI did not moderate the relationship between perceived stressors and absences; the area scores of ability-based EI did not moderate the relationship between perceived stressors and absences; and the branch scores of ability-based EI did not moderate the relationship between perceived stressors and absences.

Hypothesis 4: Incremental Variance beyond Social Support and Hardiness.

Hypothesis 4 predicted that ability-based EI would explain incremental variance in perceived stressors and strains beyond the variance accounted for by social support and

hardiness. This hypothesis was also tested using hierarchical regression. Social support and hardiness were entered as predictors in the first step of the equation and the given score of ability-based EI (i.e., total EI, area scores, or branch scores) was entered into the second step to predict each of five dependent variables: perceived stressors, psychological strain, physiological strain, and both measures of behavioral strain (i.e., grades and absenteeism). Significant changes in R-Square for the full model would suggest that the score of EI used in the model accounted for a meaningful portion of the variance for the given dependent measure beyond the variance accounted for by social support and hardiness. The results of these analyses are included in Tables 10-14 and are organized below by dependent variable.

Perceived stressors. Table 10 displays the results of the hierarchical regression analysis with ability-based EI as a predictor of perceived stressors after accounting for the variance explained by social support and hardiness. The non-significant changes in R-Square for each of the EI scores indicates that ability-based EI did not account for additional variance in explaining perceived stressors beyond the variance explained by social support and hardiness. Specifically, total EI did not explain incremental variance in perceived stressors beyond the variance explained by social support and hardiness; the area scores of ability-based EI did not explain incremental variance in perceived stressors beyond the variance explained by social support and hardiness; and the branch scores of ability-based EI did not explain incremental variance in perceived stressors beyond the variance explained by social support and hardiness.

Psychological strain. Table 11 displays the results of the hierarchical regression analysis with ability-based EI as a predictor of psychological strain after accounting for

the variance explained by social support and hardiness. The non-significant changes in R-Square for each of the EI scores indicates that ability-based EI did not account for additional variance in explaining psychological strain beyond the variance explained by social support and hardiness. Specifically, total EI did not explain incremental variance in psychological strain beyond the variance explained by social support and hardiness; the area scores of ability-based EI did not explain incremental variance in psychological strain beyond the variance explained by social support and hardiness; and the branch scores of ability-based EI did not explain incremental variance in psychological strain beyond the variance explained by social support and hardiness.

Physiological strain. Table 12 displays the results of the hierarchical regression analysis with ability-based EI as a predictor of physiological strain after accounting for the variance explained by social support and hardiness. The non-significant changes in R-Square for each of the EI scores indicates that ability-based EI did not account for additional variance in explaining physiological strain beyond the variance explained by social support and hardiness. Specifically, total EI did not explain incremental variance in physiological strain beyond the variance explained by social support and hardiness; the area scores of ability-based EI did not explain incremental variance in physiological strain beyond the variance explained by social support and hardiness; and the branch scores of ability-based EI did not explain incremental variance in physiological strain beyond the variance explained by social support and hardiness.

Behavioral strain: Grades. Table 13 displays the results of the hierarchical regression analysis with ability-based EI as a predictor of participants' grades after accounting for the variance explained by social support and hardiness. The non-

significant changes in R-Square for each of the EI scores indicates that ability-based EI did not account for additional variance in explaining participants' grades beyond the variance explained by social support and hardiness. Specifically, total EI did not explain incremental variance in academic performance beyond the variance explained by social support and hardiness; the area scores of ability-based EI did not explain incremental variance in academic performance beyond the variance explained by social support and hardiness; and the branch scores of ability-based EI did not explain incremental variance in academic performance beyond the variance explained by social support and hardiness.

Behavioral strain: Absenteeism. Table 14 displays the results of the regression analysis with ability-based EI as a predictor of absenteeism after accounting for the variance explained by social support and hardiness. The non-significant changes in R-Square for each of the EI scores indicates that ability-based EI did not account for additional variance in explaining absenteeism beyond the variance explained by social support and hardiness. Specifically, total EI did not explain incremental variance in absenteeism beyond the variance explained by social support and hardiness; the area scores of ability-based EI did not explain incremental variance in absenteeism beyond the variance explained by social support and hardiness; and the branch scores of ability-based EI did not explain incremental variance in absenteeism beyond the variance explained by social support and hardiness.

Thus, Hypothesis 4 was not supported. When predicting perceived stressors and experienced strains, ability-based EI does not account for incremental variance beyond the variance explained by hardiness and social support.

IV. DISCUSSION

Work-related stressors affect individuals psychologically, physiologically, and behaviorally. In the present study, perceived stressors were positively related to reports of all measures of strain. Still, not all individuals perceive and respond to potential stressors in the same manner. Historically, personal and situational variables such as hardiness and social support have helped explain these differences in the stressor-strain relationship across individuals. More recently, researchers have investigated the impact of additional variables such as trait-based emotional intelligence to see how these variables influence the stress process (e.g., Slaski & Cartwright, 2002, 2003; Oginska-Bulik, 2005; Tsaousis & Nikolaou, 2005). The current thesis evaluated the role of *ability-based* EI in college students' stress. The primary aims were (a) to determine if ability-based EI operates on stressors and strains in the same manner as trait-based EI and (b) to assess whether ability-based EI explains incremental variance in stressors and strains beyond the variance accounted for by more established constructs (i.e., hardiness and social support).

Gender Differences

There were gender differences in many of the variables under investigation in the present study. Specifically, females tended to have more hardy personalities, higher grades (less behavioral strain in terms of academic performance), and fewer absences (less behavioral strain in terms of absenteeism) than males. Thus, males were more behaviorally strained than females. This was true despite there being no gender

differences in perceived stressors. There were also no gender differences in psychological strain, physiological strain, or social support.

Although not measured in the present study, gender differences in coping strategies may explain the gender differences in behavioral strain. According to Larson and Pleck (1998), males are more likely to adopt problem-focused coping strategies than females. Problem-focused coping strategies are behaviors aimed at reducing stressors directly and are related to Cannon's (1953) concept of fight-or-flight, in which an individual either combats or escapes from an unpleasant situation, object, or event. Along these lines, Tamres, Janicki, and Helgeson (2002) found that men are more likely to avoid or withdrawal from stressors than women. In the present study, the perceived stressors measure included items related to stressors at school (e.g., receiving lower grades than deserved; finding school work to be too demanding). Even though there were no gender differences in perceived stressors, males may have dealt with their school-related stressors by avoiding school altogether, which would affect not only attendance, but likely grades as well.

With regard to ability-based EI, there were a few notable differences between males and females. According to the MSCEIT norming data (Mayer, et al., 2002), females tend to score higher than males in all areas of ability-based EI. Though, in the present study, females scored higher than males only on three of the seven scores: emotion management, strategic EI, and total EI. Potential explanations for these differences are provided below.

Emotion management refers to one's ability to channel emotions in appropriate ways and at appropriate times rather than repress emotions or attempt to minimize their

effects. For example, reacting to a stressor with anger or frustration may be an effective solution in the short-run, but negative feelings that are redirected into positive outlets (i.e., sublimation) may be more adaptive over time. That females tended to score higher on this branch of ability-based EI suggests that females are better able to manage and convey their emotions than males.

Strategic EI entails not only understanding emotions in oneself and others, but also regulating these emotions and using them for planning and self/other emotion management. Perhaps the gender differences in this action-based area of EI helps explain why males, who scored lower in strategic EI compared to females, tended to report more behavioral or action-based strains. Compared to females, males may be less likely to search for additional outlets for redirecting stressor-induced emotions beyond reacting to the stressor itself. For instance, if participants in the present study considered school to be a stressor, males may have responded by exerting less effort in their classes (thus, lower grades) or by avoiding classes altogether (thus, increased absenteeism). Females, on the other hand, may have responded to school-related stressors in other, more positive ways (e.g., exercise). A more thorough investigation of the role of gender in students' responses to school-related stressors is necessary before making any confident conclusions regarding the true cause of these differences.

Relationships between Ability-Based EI and Stressors and Strains

Several previous studies have found significant and negative relationships between trait-based EI and reports of stressors and strains (e.g., Slaski & Cartwright, 2002, 2003; Oginska-Bulik, 2005; Tsaousis & Nikolaou, 2005). Therefore, it was hypothesized that ability-based EI would also be negatively related to these stress

variables (see Hypotheses 1 and 2). However, for the most part, results of the correlation analyses failed to support these predictions.

The non-significant correlations between the ability-based EI scores and stressors and strains may be due to the low internal reliability estimates of some of the EI scores (e.g., emotion facilitation and emotional understanding had Cronbach alphas below .60). Or, perhaps the sample used for this study differs from the general population and therefore did not produce the anticipated results. To investigate this issue further, a series of *z*-tests were performed to compare each of the MSCEIT scores from the present sample to those of the norming population. Results of this procedure revealed that participants in the present study scored significantly lower than the general population in total EI ($z = -6.12, p < .01$), strategic EI ($z = -7.00, p < .01$), emotional understanding ($z = -6.12, p < .01$), and emotion management ($z = -7.65, p < .01$). Therefore, hypotheses involving these scores of ability-based EI may have failed to find support because these scores differed from the general population. These differences may be due to the nature of the sample (e.g., southeastern college students; 95% between 19 and 22 years old). Or, in keeping with the theme of this study, there may be any number of some other unmeasured demographic or dispositional variables that affected participants' ability-based EI, perceptions of stressors, or experienced strains.

Correlations with perceived stressors. The first hypothesis in this study regarded the relationship between ability-based EI and participants' perception of stressors. Despite the variety of ability-based EI scores produced by the MSCEIT (i.e., total EI; two area scores; four branch scores), none of these scores were significantly correlated with the perceived stressors measure. Therefore, based on the present sample, it cannot be

concluded that an individual's ability-based EI is related to his or her perception of stressors. However, this study employed a stressor measure based on school-related hassles (i.e., minor annoyances). Perhaps these less troubling stressors are not severe enough to produce noticeable differences in perceived stressors based on ability-based EI; a measure of acute or chronic stressors, on the other hand, might uncover these differences.

The other two individual difference variables investigated in this study, hardiness and social support, were both negatively and significantly related to perceived stressors. These findings are consistent with the previous stress research involving these variables (e.g., Viswesvaran, et al., 1999; Westman, 1990). It seems that hardy individuals may be more accepting of obstacles and likely view minor stressors as insignificant compared to less hardy individuals. Likewise, someone with a supportive social network may overlook certain hassles, as these stressors may be seen as something that everyone experiences together; in contrast, an individual who lacks social support may perceive even the most ordinary life stressors as personal challenges that must be faced alone. Thus, hardiness and social support, given their personal and situational qualities, may be more appropriate predictors of minor stressors than ability-based EI.

Correlations with strains. With regard to strains (i.e., Hypothesis 2), there were only two significant relationships involving ability-based EI. Both the strategic EI area score and the emotional understanding branch score were positively correlated with students' academic performance as assessed via participants' typical grades. As in previous stress studies (e.g., Westman, 1990), performance was used here as an inverse measure of behavioral strain (i.e., high grades indicates low behavioral strain). Although

MacCann et al. (2003) concluded that ability-based EI was distinct from cognitive ability, Barchard (2003) has shown that some measures of EI are predictive of academic success. Further, of all branches of ability-based EI measured by the MSCEIT, the emotional understanding branch has the most intuitive ties to general intelligence.

Emotional understanding concerns individuals' knowledge of emotions, including how they combine and change over time. With this ability, individuals develop an emotional language that enables them to successfully label, connect, and make sense of emotions (Mayer, et al., 2002). Perhaps the reasoning abilities associated with emotions are cognitively congruent with those dealing with academics—or maybe these abilities simply belong to a greater, all-encompassing construct (e.g., general reasoning ability). This postulation, however, is beyond the scope of the present study and should be considered a matter for future research.

Contrary to the hypotheses, none of the other ability-based EI scores were associated with grades or any other measure of strain, including absenteeism, psychological strain, or physiological strain. Again, this may be due to the low reliability of some of the EI scores or because the sample used in this study differs from the general population. Further, some ability-based EI branches do not intuitively apply to particular strains. For instance, the ability to perceive emotions in oneself and others does not lend itself to reducing strains as much as the abilities to manage emotions or use emotions to facilitate thought.

As with the perceived stressors variable, both hardiness and social support were highly related with the measures of strain. Specifically, hardiness and social support were negatively and significantly correlated with the measures of psychological and

physiological strain and positively associated with academic performance (i.e., negatively correlated with behavioral strain as measured via grades). Hardiness was also negatively correlated with absenteeism. Thus, there is evidence that individuals who are hardy and/or have ample social support tend to experience fewer strains than their lesser hardy or socially supported counterparts. Again, these findings are consistent with previous research (e.g., Viswesvaran, et al., 1999; Westman, 1990).

Potential reasons for why there were significant findings with hardiness and social support and not ability-based EI concern the nature of the measures used in this study. For instance, items from the hardiness and social support inventories incorporated a college students' perspective (e.g., "I enjoy the challenge of learning new material in my courses" or "Most of my friends don't do as well as I do in school"), while items on the MSCEIT were less specialized and more appropriate for the general population. Although the measures of strain were not school-related, participants were completing these scales on campus and in conjunction with a school-related perceived stressors scale and may therefore have been operating within a school-related stress framework.

Further, in addition to the general focus of the MSCEIT, it deserves mentioning that this measure was computer-based while all other measures were presented in a paper-and-pencil format. Thus, there may have been some unintended outcomes regarding this common method of measurement for all variables other than ability-based EI. The ability-based EI scores may have been unrelated to the other measures simply because the MSCEIT is a computerized test and the other scales are paper-based. One method for reducing this effect would be to convert all measures to a computerized format (note: currently, the MSCEIT is only available online).

Moderating Effects of Ability-Based EI on the Stressor-Strain Relationship

In addition to the hypotheses addressing the relationship between the ability-based EI and the measures of perceived stressors and strains, ability-based EI was also hypothesized to moderate the stressor-strain relationship for each measure of strain. In partial support of this hypothesis, emotion management moderated the stressor-strain relationship for psychological strain and emotion perception, emotion facilitation, and emotion management moderated the stressor-strain relationship for physiological strain. Total EI, the two EI area scores (i.e., strategic and experiential EI), and the emotional understanding branch scores of ability-based EI did not moderate any of the stressor-strain relationships. Further, there were no moderating effects for the behavioral measures of strain. The lack of moderating effects for ability-based EI may be due in a large part to the lack of significant direct relationships between the EI scores and the measures of perceived stressors and strains. Still, there were some meaningful effects. The significant moderating effects of ability-based EI are discussed below.

With moderation, the direction and/or strength of the relationship between two variables is affected by the presence or absence of a third variable. According to the present findings, when compared with individuals who are less able to manage their emotions, individuals who scored high in emotion management experienced more psychological strain when stressors were abundant compared to when stressors were few. Although emotion management was hypothesized to moderate the stressor-strain relationship, it was thought that this EI score would reduce the effect of stressors on strain. Instead, it appears that emotion management ability actually magnified the influence of stressors on psychological strain. At first, this result may appear

counterintuitive; however, upon further consideration, explanations for this finding may gain credibility.

According to the MSCEIT authors (Mayer, et al., 2002), individuals who are skilled at managing their emotions tend to allow their emotions to play a role in decision making and problem solving—they do not repress emotions or rationalize them away. Conceptually, this ability prevents individuals from acting on emotions without thinking. As far as psychological strain is concerned, emotion management may not always be a good thing. While individuals are reflecting over negative emotions to determine the most appropriate stress response, they are concurrently experiencing those negative emotions. Thus, under stressful conditions, an individual is likely to experience increased psychological strain if he/she is continually reflecting over the stressor in an effort to produce the most adaptive response. As the MSCEIT authors suggest, an optimal level of this ability “likely will neither minimize nor eliminate the emotion completely” (Mayer, et al., 2000, p. 19).

Emotion management also amplified the effects of stressors on physiological strain, as did the abilities to perceive emotions and to use emotions to facilitate thought. In part, the same logic can be applied here as before. Emotion management and emotion facilitation both entail active reflection over emotional information. Accordingly, individuals who are skilled in these areas may experience more physiological strains when stressed compared to individuals who are not skilled in these areas because they are actually thinking about, prioritizing, and attempting to control their emotions; meanwhile, the stressors continue to have their physiological effects. Perhaps individuals who repress or ignore the negative emotions that accompany stressors bypass the maladaptive

consequences of these stressors. These findings have implications for employee selection in work settings that are known to be stress-inducing, such as jobs in emergency rescue and urgent care. Employers in these industries would benefit from hiring individuals who are able to overlook certain upsetting stimuli (e.g., profuse bleeding) and proceed with their job rather than process this information and experience an expected, but less advantageous response (e.g., nausea, vomiting, etc.).

Unlike the aforementioned ability-based EI scores, emotion perception moderated the stressor-strain relationship in the hypothesized direction; that is, compared to individuals who were less able to perceive emotions accurately, individuals skilled in this ability experienced fewer physiological strains when stressors were frequent compared to when stressors were few. This branch score of the MSCEIT differs from the rest as it is based more on recognition and less on reflection. Thus, provided with frequent stressors, being skilled at perceiving emotions may help one to understand that he/she *is* upset and not necessarily *why* he/she is upset or *how* he/she should respond. Perhaps individuals who are able to perceive emotions accurately when stressed experience fewer physiological strains because they know what emotions they are experiencing. Individuals who lack this ability, on the other hand, may struggle to determine how they are feeling; this unawareness may serve as a stressor in its own right and could thereby perpetuate or intensify the effect of the original stressor on physiological strain (e.g., produce a headache).

None of the ability-based EI scores moderated the relationship between perceived stressors and the two measures of behavioral strain: grades and absenteeism. Perhaps there are too many additional factors that determine how well students perform

academically or how often they attend class. Additionally, both of these strain indexes were assessed using single-item, self-report measures and may have therefore been unreliable. In the future, it is recommended that data for grades and absenteeism be collected from official records rather than self-report items. If this is the case, researchers must be careful to avoid potential ethical violations regarding the confidentiality of student records.

Explanatory Value of Ability-Based EI beyond Hardiness and Social Support

The final hypothesis predicted that scores on the MSCEIT would explain incremental variance in stressors and strains beyond the variance accounted for by social support and hardiness. On all accounts, this hypothesis failed to find support. Hardiness and social support are such well-studied variables in the stress literature because they continually show value for explaining variables in the stress process. In the present study, hardiness and social support were significantly correlated with nearly all of the stress variables (i.e., perceived stressors, psychological strain, physiological strain, and behavioral strain), with the only exception being a non-significant correlation between social support and absenteeism. Ability-based EI, in contrast, was related to only one of the four stress variables (i.e., students' grades) and only two of the seven EI scores were significantly correlated with this variable. Based on the results of the correlation analysis, there was little reason to expect Hypothesis 4 to find support.

Limitations

Despite some meaningful and surprising findings, the hypotheses of the present study generally failed to find support. Some of the non-significant findings may be explained by examining the limitations of this study, which include the nature of the

sample, the over-reliance on self-report inventories, and the lack of a trait-based comparison measure for EI.

Nature of the sample. One potential limitation concerns the nature of the sample. As discussed previously, the individuals who participated in this study were college students of a restricted age group and therefore different from the general population. Thus, some of the hypotheses may not have been supported because of the rather homogenous composition of the sample. This may also explain the lower reliability estimates of some of the scales (i.e., $\alpha = .59$ for emotion facilitation; $\alpha = .58$ for emotional understanding; $KR20 = .69$ for social desirability). In social-science research, an internal reliability estimate of .70 is generally accepted as the cutoff requirement. Therefore, any results involving these scores must be interpreted cautiously.

Using undergraduate students as the sample may have presented an additional problem as well. Some researchers hesitate to use students as participants and consider them *convenience samples* and their results *ungeneralizable* to the world of work. However, it can be counter-argued that undergraduates are the workforce of tomorrow and that establishing a relationship between ability-based EI and stressors and strains with this sample may be just as valuable as using any other sample. Further, the measures chosen for this study were all student-based and the methods did not require that participants pretend or role-play as employees of an organization. Additionally, the work and responsibilities of university students are somewhat analogous to the work and responsibilities of employees in an organization. Both groups of individuals are required to show up, be prepared, and be productive. Theoretically, an increase in perceived stressors for students should have a similar impact on their health and behaviors and as an

increase in stressors would have for employees. Thus, this potential limitation of using a student sample is perhaps not as alarming as it may first appear. Yet, using all students from the same school still leads to a homogeneous sample.

Self-report measures. Another concern involves the over-reliance on self-report measures used in this study. When multiple measures come from the same source, there is potential for the problems of common method variance, consistency motif, and socially desirable responding (Podsakoff & Organ, 1986). First, with common method variance, two valid measures appear to share common variance even though the true domains of interest are not related. Instead, this shared variance results from the measures coming from one source. This problem may lead one to conclude that the two variables are related when they are not. Although many variables can only be measured via self-report instruments (e.g., perceived stressors can only be measured from the participants' point of view), researchers are encouraged to seek alternative forms of measurement when the variable of interest allows (e.g., typical grades could have been measured using GPA instead of self-report).

Second, the problem of consistency motif refers to respondents' preference to maintain a line of consistent answers to a series of questions. This is particularly problematic in self-report research when participants are able to theorize how certain variables are interrelated. For instance, participants may have gathered that there should be a positive relationship between stressors and strains and that individuals who are hardy, have social support, or are emotionally intelligent may be less affected by stressors and strains than individuals who are deficient in these areas. Based on these assumptions, participants might have tailored their responses to exhibit these intuitive relationships.

No efforts were made to deceive participants as to the purpose of the study. Prior to the study, participants were informed that they would be taking part in an investigation of “individual differences in the stressor-strain relationship.” Therefore, participants were free to hypothesize about the relationships among the variables and respond accordingly. Partly for this reason, the ability-based EI test was placed midway through the test-taking session. The computer-based MSCEIT broke up the monotony of paper-based testing and may have disrupted participants’ efforts to out-think the study. Nevertheless, most information was collected via self-report inventories that addressed rather obvious constructs. Perhaps the use of less transparent items would reduce the potential consequences of consistency motif, though this correction may come at a cost of reduced reliability or validity.

The third problem associated with self-reports inventories concerns the tendency for some respondents to answer in socially desirable directions. The Marlowe-Crowne social desirability scale was included in this study to assess whether participants attempted to present themselves in a favorable light on any of the measures. Only the perceived stressors measure correlated significantly with the Marlowe-Crowne, suggesting that participants who endorsed socially desirable responses tended to report fewer stressors in their lives than participants who responded in less socially desirable directions. To limit the effects of social desirability, researchers are encouraged to use objective measures over self-report measures whenever feasible.

No comparison measure. A final short-coming of this study was that only one EI measure was used. This study intended to further the stress and EI literatures by using an ability-based test of EI to predict the stress experience. Trait-based measures of EI have

been used in the past and have produced findings that suggest that EI has an effect on work stressors and strains. However, no trait-based measure was used with the present sample. It would have been beneficial to be able to directly compare the predictive powers of the ability and trait model measures of EI using the same sample. Therefore, it is recommended that future researchers use measures of EI from both models to determine which conceptualization of this construct has the most utility.

Conclusion

Although stress researchers have identified a consistent relationship between the perception of stressors and the experience of strains, they have yet to uncover the full set of variables that explain and predict why some individuals are more or less affected by potential stressors than others. The impact of EI on the stressor-strain relationship has been tested previously (e.g., Slaski & Cartwright, 2002, 2003; Oginska-Bulik, 2005; Tsaousis & Nikolaou, 2005), though these studies used measures from the trait conceptualization of EI. After comparing the trait and ability-based measures of EI, MacCann et al. (2003) suggested that researchers would benefit more from using the latter framework. Based on this recommendation, the present study investigated the role of ability-based EI on stress to determine if it too plays a role in the stress process.

The results of this study revealed few direct relationships between ability-based EI and stressors and strains. Further, total ability-based EI failed to moderate the relationship between stressors and strains. Total ability-based EI also failed to explain unique variance in stressors and strains beyond the variance accounted for by other stress-related variables. However, and of interest to researchers, the MSCEIT's area and branch scores produced several moderating effects on the relationship between stressors

and strains. Some of the sub-scales of ability-based EI also accounted for significant variance in explaining the experience three of the four measures of strain; this proved to be the case even after taking into account the variance in strain explained by hardiness and social support. Thus, it is recommended that future investigators of the ability-based EI construct consider the more specific emotional abilities rather than one's global assessment of ability-based EI.

The present thesis was primarily theoretical and should not be used for applied purposes. Currently, it benefits researchers more than practitioners. In 1995, Goleman promised seemingly endless applications of EI in any setting. Since that time, many EI researchers have been less optimistic. As recommended by the authors of the MSCEIT, "the applied use of EI tests must proceed with great caution" (Mayer, Salovey, Caruso, & Sitarenios, 2003, p.104). More research is needed to ascertain the full value of EI as related to stress, work, or life in general before any additional claims are made regarding the benefits of this controversial variable.

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APPENDIX A

Figures

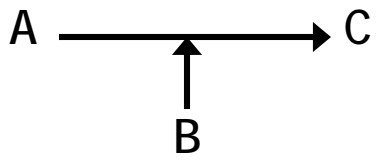


Figure 1. Model of moderation. Here, B moderates the relationship between A and C.

Number of classes missed in the previous month

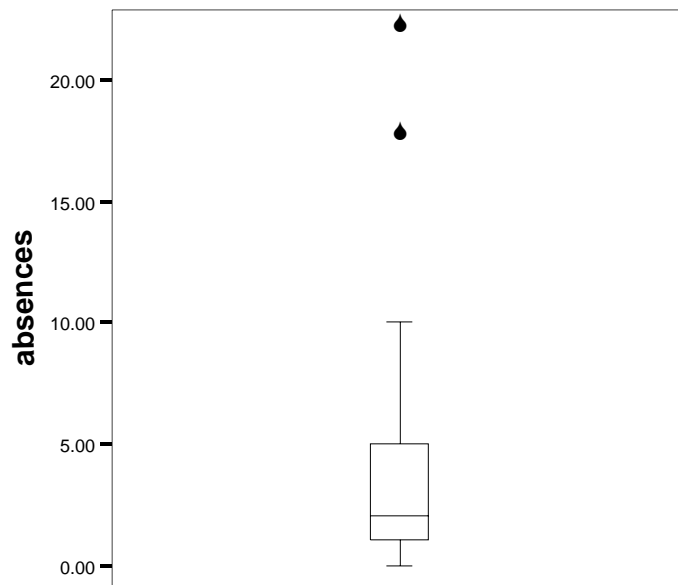


Figure 2. Boxplot for absenteeism. Starred values (17 and 22) are extreme outliers.

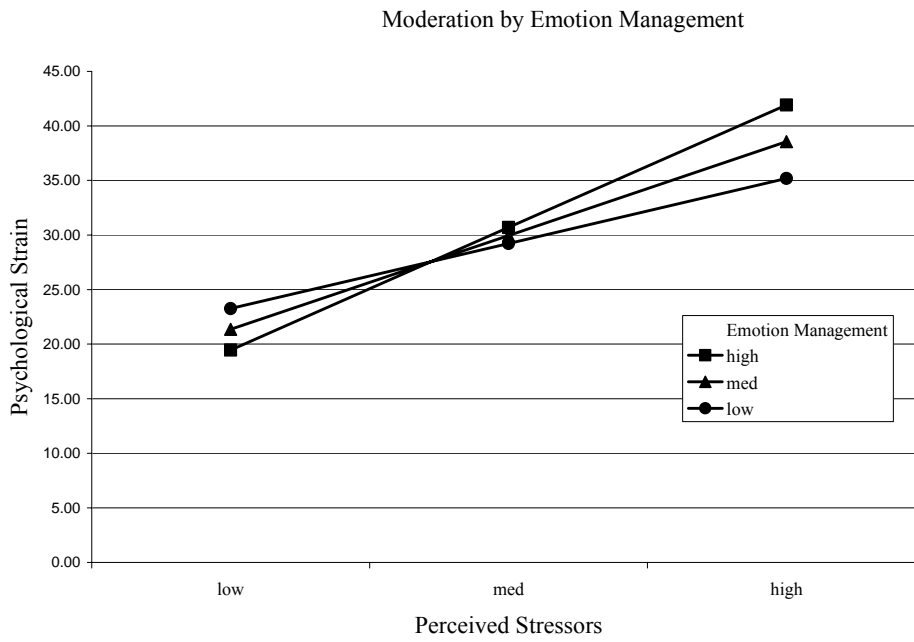


Figure 3. Emotion management moderates the relationship between perceived stressors and psychological strain.

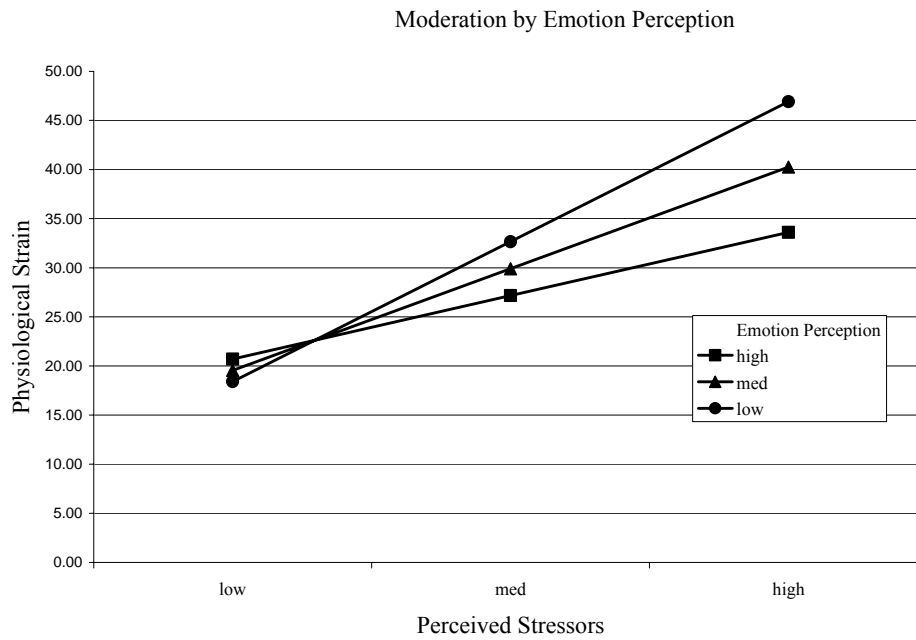


Figure 4. Emotion perception moderates the relationship between perceived stressors and physiological strain.

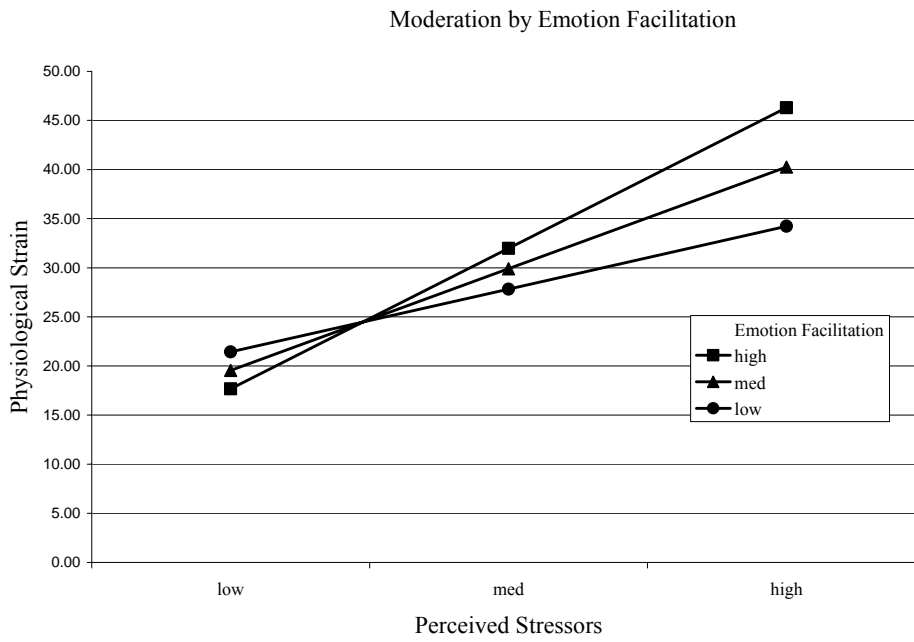


Figure 5. Emotion facilitation moderates the relationship between perceived stressors and physiological strain.

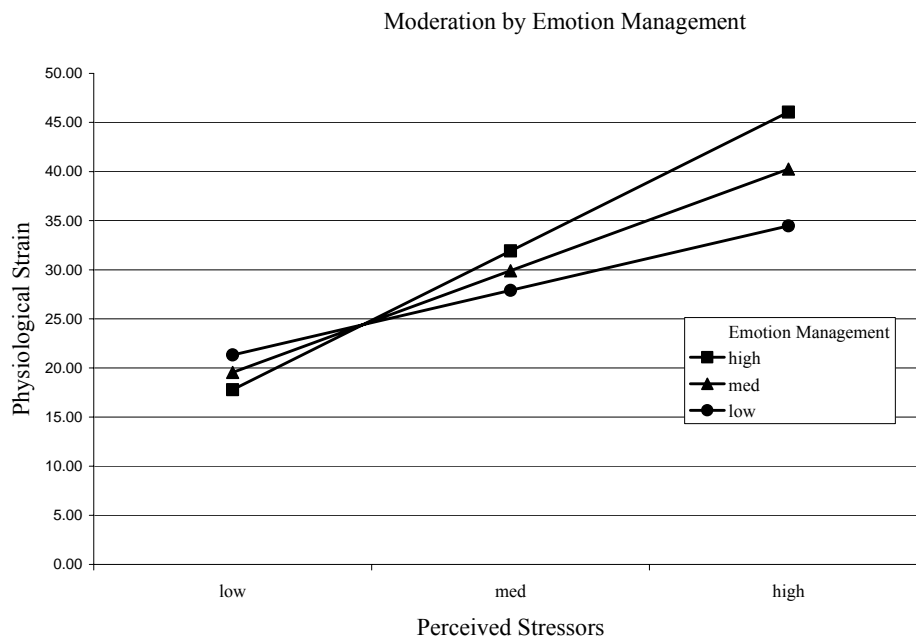


Figure 6. Emotion management moderates the relationship between perceived stressors and physiological strain.

APPENDIX B

Tables

Table 1

Frequency Statistics for All Categorical Data

Participants (N=150)		Frequency	Percent
Gender	Female	94	62.7
	Male	56	37.3
Age	19	66	44
	20	36	24
	21	26	17.6
	22	14	9.3
	23	4	2.7
	25	2	1.3
	26	1	.7
	28	1	.7
Ethnicity	Caucasian	128	85.3
	African American	12	8.0
	Asian	6	4.0
	Indian	4	2.7
Year in school	Freshman	41	27.3
	Sophomore	40	26.7
	Junior	31	20.3
	Senior	38	25.3
Grades	Mostly As	25	16.7
	A- / B+	57	38.0
	Mostly Bs	25	16.7
	B- / C+	29	19.3
	Mostly Cs	10	6.7
	C- / D+	3	2.0
	Mostly Ds	1	.7

Table 2

Descriptive Statistics for All Continuous Variables

	<i>Min.</i>	<i>Max.</i>	<i>M</i>	<i>(SD)</i>	<i>Skewness</i>	<i>Kurtosis</i>
Perceived Stressors	44	131	80.26	18.69	.44	-.43
Psychological Strain	5	71	29.71	13.46	.81	.11
Physiological Strain	1	94	29.65	20.04	.92	.36
Absenteeism	0	22	3.35	3.67	2.07	5.94
Hardiness	1	588	3.66	.96	-.125	-.098
Social Support	19	48	39.63	5.94	-1.08	1.96
Total Score EI	.30	.58	.48	.05	-1.00	1.46
Experiential EI	.31	.60	.50	.06	-.75	.09
Strategic EI	.26	.55	.46	.06	-1.22	1.46
Emotion Perception	.28	.65	.53	.08	-.69	-.14
Emotion Facilitation	.19	.59	.47	.06	-.99	2.56
Emotional Understanding	.30	.62	.51	.06	-.79	.95
Emotion Management	.17	.53	.40	.07	-1.12	.95

Table 3

Correlations between the Individual Differences Variables.

	1.	2.	3.	4.	5.	6.	7.	8.	9.
1. Hardiness	1								
2. Social Support	.21**	1							
3. Total EI	.27**	.00	1						
4. Experiential EI	.18*	.07	.84**	1					
5. Strategic EI	.27**	-.08	.80**	.35**	1				
6. Emotion Perception	.08	-.00	.73*	.90**	.26**	1			
7. Emotion Facilitation	.21**	.15	.74**	.83**	.36**	.51**	1		
8. Emotional Understanding	.17*	-.16	.64**	.27**	.81**	.20*	.29**	1	
9. Emotion Management	.30**	.01	.71**	.31**	.88**	.23**	.32**	.44**	1
10. Social Desirability	.11	-.03	.02	.02	.01	.03	.01	-.05	.07

**. Correlation is significant at the 0.01 level (2-tailed).

*. Correlation is significant at the 0.05 level (2-tailed).

Table 4

Correlations between the Individual Differences Variables and Perceived Stressors.

	Perceived Stressors
Hardiness	-.30**
Social Support	-.43**
Social Desirability	-.19*
Total EI	-.09
Experiential EI	-.15
Strategic EI	.00
Emotion Perception	-.12
Emotion Facilitation	-.12
Emotional Understanding	.08
Emotion Management	-.06

** . Correlation is significant at the 0.01 level (2-tailed)

Table 5

Correlations between the Independent and Dependent Variables.

	Psychological Strain	Physiological Strain	Grades	Absences
Perceived Stressors	.66**	.55**	-.21**	.07
Hardiness	-.22**	-.18*	.34**	-.37**
Social Support	-.43**	-.26**	.20*	-.09
Social Desirability	-.12	-.04	-.07	-.13
Total EI	-.02	-.03	.14	-.14
Experiential EI	-.09	-.09	.05	-.10
Strategic EI	.07	.05	.18*	-.13
Emotion Perception	-.16	-.14	-.04	-.05
Emotion Facilitation	-.04	-.02	.13	-.14
Emotional Understanding	.08	.03	.21*	-.06
Emotion Management	.04	.07	.13	-.15

** . Correlation is significant at the 0.01 level (2-tailed).

* . Correlation is significant at the 0.05 level (2-tailed).

Table 6

Moderated Regression Analysis Predicting Psychological Strain.

	Step and variable	β	R^2	ΔR^2
Total EI	Step 1: Main Effects			
	Perceived stressors (A)	.66**		
	Total EI (B)	.04	.44**	.44**
	Step 2: Interaction			
	A x B	.09	.44	.01
Area Scores	Step 1: Main Effects			
	Perceived stressors (A)	.65**		
	Experiential EI (B)	-.03		
	Strategic EI (C)	.08	.44**	.44**
	Step 2: Interactions			
	A x B	-.00		
	A x C	.12	.45	.01
Branch Scores	Step 1: Main Effects			
	Perceived stressors (A)	.66**		
	Emotion perception (B)	-.08		
	Emotion facilitation (C)	.06		
	Emotional understanding (D)	-.01		
	Emotion management (E)	.09	.45**	.45**
	Step 2: Interactions			
	A x B	-.11		
	A x C	.13		
A x D	-.07			
	A x E	.19**	.48	.04*

* $p < .05$. ** $p < .01$.

Table 7

Moderated Regression Analysis Predicting Physiological Strain.

	Step and variable	β	R^2	ΔR^2
Total EI	Step 1: Main Effects			
	Perceived stressors (A)	.55**		
	Total EI (B)	.02	.30**	.30**
	Step 2: Interaction			
	A x B	.11	.31	.01
Area Scores	Step 1: Main Effects			
	Perceived stressors (A)	.54**		
	Experiential EI (B)	-.04		
	Strategic EI (C)	.07	.30**	.30**
	Step 2: Interactions			
	A x B	-.01		
	A x C	.16*	.33	.03
Branch Scores	Step 1: Main Effects			
	Perceived stressors (A)	.56**		
	Emotion perception (B)	-.14		
	Emotion facilitation (C)	.10		
	Emotional understanding (D)	-.07		
	Emotion management (E)	.13	.33**	.33**
	Step 2: Interactions			
	A x B	-.18*		
	A x C	.19*		
A x D	-.02			
	A x E	.18*	.39	.06*

* $p < .05$. ** $p < .01$.

Table 8

Moderated Regression Analysis Predicting Academic Performance (Grades).

	Step and variable	β	R^2	ΔR^2
Total EI	Step 1: Main Effects			
	Perceived stressors (A)	-.20*		
	Total EI (B)	.12	.06*	.06*
	Step 2: Interaction			
	A x B	-.06	.06	.00
Area Scores	Step 1: Main Effects			
	Perceived stressors (A)	-.22**		
	Experiential EI (B)	-.05		
	Strategic EI (C)	.20*	.08**	.08**
	Step 2: Interactions			
	A x B	-.05		
	A x C	-.02	.08	.00
Branch Scores	Step 1: Main Effects			
	Perceived stressors (A)	-.23**		
	Emotion perception (B)	-.19*		
	Emotion facilitation (C)	.13		
	Emotional understanding (D)	.21*		
	Emotion management (E)	.02	.12**	.12**
	Step 2: Interactions			
	A x B	-.18		
	A x C	.12		
A x D	.09			
	A x E	-.09	.16	.03

* $p < .05$. ** $p < .01$.

Table 9

Moderated Regression Analysis Predicting Absenteeism.

	Step and variable	β	R^2	ΔR^2
Total EI	Step 1: Main Effects			
	Perceived stressors (A)	.06		
	Total EI (B)	-.13	.02	.02
	Step 2: Interaction			
	A x B	-.04	.03	.00
Area Scores	Step 1: Main Effects			
	Perceived stressors (A)	.07		
	Experiential EI (B)	-.05		
	Strategic EI (C)	-.11	.03	.03
	Step 2: Interactions			
	A x B	-.03		
	A x C	-.03	.03	.00
Branch Scores	Step 1: Main Effects			
	Perceived stressors (A)	.06		
	Emotion perception (B)	.04		
	Emotion facilitation (C)	-.12		
	Emotional understanding (D)	.04		
	Emotion management (E)	-.12	.04	.04
	Step 2: Interactions			
	A x B	-.10		
	A x C	.06		
A x D	-.10			
	A x E	.08	.05	.01

* $p < .05$. ** $p < .01$.

Table 10

Incremental Variance Regression Analysis Predicting Perceived Stressors.

Step and variable	β	R^2	ΔR^2
Step 1:			
Hardiness	-.22**		
Social support	-.38**	.23**	
Step 2a: Total EI			
Total EI	-.04	.23	.00
Step 2b: Area Scores			
Experiential EI	-.10		
Strategic EI	.07	.24	.01
Step 2c: Branch Scores			
Emotion perception	-.14		
Emotion facilitation	.03		
Emotional understanding	.07		
Emotion management	-.00	.24	.02

** $p < .01$.

Table 11

Incremental Variance Regression Analysis Predicting Psychological Strain.

Step and variable	β	R^2	ΔR^2
Step 1:			
Hardiness	-.14		
Social support	-.40**	.20**	
Step 2a: Total EI			
Total EI	.02	.21	.00
Step 2b: Area Scores			
Experiential EI	-.08		
Strategic EI	.11	.22	.01
Step 2c: Branch Scores			
Emotion perception	-.19*		
Emotion facilitation	.12		
Emotional understanding	.01		
Emotion management	.10	.24	.04

* $p < .05$. ** $p < .01$.

Table 12

Incremental Variance Regression Analysis Predicting Physiological Strain.

Step and variable	β	R^2	ΔR^2
Step 1:			
Hardiness	-.13		
Social support	-.23**	.08**	
Step 2a: Total EI			
Total EI	.01	.08	.00
Step 2b: Area Scores			
Experiential EI	-.09		
Strategic EI	.11	.09	.01
Step 2c: Branch Scores			
Emotion perception	-.22*		
Emotion facilitation	.14		
Emotional understanding	-.04		
Emotion management	.14	.13	.05

* $p < .05$. ** $p < .01$.

Table 13

Incremental Variance Regression Analysis Predicting Academic Performance (Grades).

Step and variable	β	R^2	ΔR^2
Step 1:			
Hardiness	.31**		
Social support	.13	.13**	
Step 2a: Total EI			
Total EI	.06	.14	.00
Step 2b: Area Scores			
Experiential EI	-.05		
Strategic EI	.14	.15	.02
Step 2c: Branch Scores			
Emotion perception	-.13		
Emotion facilitation	.07		
Emotional understanding	.21*		
Emotion management	-.04	.15	.05

* $p < .05$. ** $p < .01$.

Table 14

Incremental Variance Regression Analysis Predicting Absenteeism.

Step and variable	β	R^2	ΔR^2
Step 1:			
Hardiness	-.37**		
Social support	-.01	.14**	
Step 2a: Total EI			
Total EI	-.04	.14	.00
Step 2b: Area Scores			
Experiential EI	-.03		
Strategic EI	-.02	.14	.00
Step 2c: Branch Scores			
Emotion perception	.01		
Emotion facilitation	-.07		
Emotional understanding	.03		
Emotion management	-.04	.14	.01

** $p < .01$

APPENDIX C

Information Letter

INFORMATION LETTER FOR
Individual Differences in the Stressor-Strain Relationship

You are invited to participate in a research study investigating individual differences in the stress process. This study is being conducted by Brennan Cox, MS, under the supervision of Dr. Adrian Thomas. We hope to learn if and how the presence of certain personal characteristics influence whether or not a person is affected by daily stressors. You were selected as a possible participant because you are an undergraduate student enrolled in a psychology course at Auburn University.

If you decide to participate, we will ask you to complete five paper-and-pencil based inventories regarding your personality and how you respond to stress. You will also be asked to complete one computer-based test concerning emotions. These measures will take you less than 90 minutes to complete. No potential risks other than those associated with daily normal living are anticipated for participants who take part in this study.

Participants will receive 1.5 hours worth of extra-credit in their undergraduate psychology course for taking part in this study. The total point value for 1.5 hours worth of extra-credit will be determined by the participants' instructor, not the present researcher. The anticipated results of this research will be useful in the selection and development of employees in high-stress jobs, and may aid in the betterment of employee health and well-being. Further, the data collected will add to the growing body of literature on individual differences in the stress process. Expanding our knowledge of how people differ in their responses to stress is the first step to reducing the adverse consequences of these unpleasant events. We cannot promise you that you will receive any or all of the benefits described.

Any information obtained in connection with this study will remain anonymous. Instead of putting your name on the materials collected, you will use a randomly assigned identification number. Information collected through your participation will be used in Brennan Cox's thesis, and may be published in a professional journal and/or presented at a professional meeting. You may withdraw from participation at any time, without penalty; however, after you have provided anonymous information, you will be unable to withdraw your responses because we will have no means to identify individual information.

Your decision whether or not to participate will not jeopardize your future relations with Auburn University or Psychology Department at Auburn University.

If you have any questions we invite you to ask them now. If you have questions later, Brennan Cox (334-844-5658, coxbren@auburn.edu) will be happy to answer them. For more information regarding your rights as a research participant you may contact the Auburn University Office of Human Subjects Research or the Institutional Review Board by phone (334)-844-5966 or e-mail at hsubjec@auburn.edu or IRBChair@auburn.edu.

HAVING READ THE INFORMATION PROVIDED, YOU MUST DECIDE WHETHER OR NOT YOU WISH TO PARTICIPATE IN THIS RESEARCH STUDY. THE DATA YOU PROVIDE INDICATES YOUR WILLINGNESS TO PARTICIPATE. A COPY OF THIS LETTER IS YOURS TO KEEP.

Investigator obtaining consent Date

Print Name

APPENDIX D

Measures

Demographic Questionnaire

1. Age: _____
2. Gender (circle one): Male Female
3. Which of the following best describes your primary race/ethnicity? (circle one)

Asian American	Indian/Indian American
Black/African American	Native American
Hispanic/Latin American	White/Caucasian
Other (specify: _____)	Multiracial (specify: _____)
4. What is your current year in school? (circle one)

Freshman	Junior
Sophomore	Senior
5. Which answer best represents your grades in class? (circle one)

Mostly As	Mostly Cs
A-/B+ range	C-/D+ range
Mostly Bs	Mostly Ds
B-/C+ range	D-/F range
6. Are you currently employed? (circle one) Yes No
6a. If so, please indicate the number of hours per week that you work: _____
7. During the past month, approximately how many classes have you missed? _____
8. During the past month, how stressful has your life been? (circle one)

Not												Extremely
Stressful	1	2	3	4	5	6	7	8	9	10		Stressful

MSCEIT

The Mayer-Salovey-Caruso Emotional Intelligence Test

Permission to reprint the items from the computer-based Mayer-Salovey-Caruso Emotional Intelligence Test could not be obtained.

The MSCEIT is a 141-item scale designed to measure four branches of emotional intelligence: 1) Perceiving Emotions, 2) Using Emotions to Facilitate Thought, 3) Understanding Emotions, and 4) Managing Emotions. Each of the four branches is measured with two tasks.

Perceiving Emotions

- Faces Task: participants view a series of faces and respond on a five point scale indicating the degree to which a specific emotion is present in a face.
- Pictures Task: same as the Faces except that landscapes and abstract designs form the target stimuli, and the response scales consists of cartoon faces (rather than words) of specific emotions.

Facilitating Thought:

- Sensations Task: respondents generate an emotion and match sensations to them. For example, they might generate a feeling of envy and describe how hot or cold it is.
- Facilitation Task: respondents judge the moods that best accompany or assist specific cognitive tasks and behaviours, for example, whether joy might assist planning a party.

Understanding Emotions:

- Blends Task: respondents identify emotions that could be combined to form other emotions, for example, that malice is a combination of envy and aggression.
- Changes Task: respondents select an emotion that results from the intensification of another feeling. For example, they might identify depression as the most likely consequence of intensified sadness and fatigue.

Managing Emotions:

- Emotion Management Task: respondents judge the actions that are most effective in obtaining the specified emotional outcome for an individual in a story, for example, what a character might do to reduce her anger, or prolong her joy.
- Emotional Relationships Task: respondents judge the actions that are most effective for one person to use in the management of another person's feelings.

SRLE

Following is a list of experiences which many people have some time or other. Please indicate for each experience how much it has been a part of your life OVER THE PAST MONTH.

Use the following scale to rate the intensity of each experience over the past month.

- 1 = not at all a part of my life
- 2 = only slightly part of my life
- 3 = distinctly part of my life
- 4 = very much a part of my life

Please circle the most appropriate response.

	Not at all			Very much
1) Disliking your daily activities	1	2	3	4
2) Disliking your work	1	2	3	4
3) Ethnic or racial conflict	1	2	3	4
4) Conflicts with in-laws or boyfriend's/girlfriend's family	1	2	3	4
5) Being let down or disappointed by friends	1	2	3	4
	Not at all			Very much
6) Conflicts with others at school	1	2	3	4
7) Social rejection	1	2	3	4
8) Too many things to do at once	1	2	3	4
9) Being taken for granted	1	2	3	4
10) Financial conflicts with family members	1	2	3	4
	Not at all			Very much
11) Having your trust betrayed by a friend	1	2	3	4
12) Having your contributions overlooked	1	2	3	4
13) Struggling to meet your own standards of performance and accomplishment	1	2	3	4
14) Being taken advantage of	1	2	3	4
15) Not enough leisure time	1	2	3	4
	Not at all			Very much
16) Cash flow difficulties	1	2	3	4
17) A lot of responsibilities	1	2	3	4
18) Dissatisfaction with school	1	2	3	4
19) Decisions about intimate relationship(s)	1	2	3	4
20) Not enough time to meet your obligations	1	2	3	4
	Not at all			Very much
21) Financial burdens	1	2	3	4
22) Lower evaluation of your school work than you think you deserve	1	2	3	4
23) Experiencing high levels of noise	1	2	3	4
24) Lower evaluation of your school work than you hoped for	1	2	3	4
25) Conflicts with family member(s)	1	2	3	4

Continued on next page →

	Not at all			Very much
26) Finding your school work too demanding	1	2	3	4
27) Conflicts with friend(s)	1	2	3	4
28) Trying to secure loans	1	2	3	4
29) Getting "ripped off" or cheated in the purchase of goods	1	2	3	4
30) Unwanted interruptions of your school work	1	2	3	4
	Not at all			Very much
31) Social isolation	1	2	3	4
32) Being ignored	1	2	3	4
33) Dissatisfaction with your physical appearance	1	2	3	4
34) Unsatisfactory housing conditions	1	2	3	4
35) Finding school uninteresting	1	2	3	4
	Not at all			Very much
36) Failing to get money you expected	1	2	3	4
37) Gossip about someone you care about	1	2	3	4
38) Dissatisfaction with your physical fitness	1	2	3	4
39) Gossip about yourself	1	2	3	4
40) Difficulty dealing with modern technology (e.g. computers)	1	2	3	4
41) Hard work to look after and maintain home	1	2	3	4

GHQ-30

We would like to know if you have had any medical complaints, and how your health has been in general during the PAST MONTH, INCLUDING TODAY. Please answer all the questions simply by circling the answer that you think most nearly applies to you. Remember that we want to know about present and recent complaints, not those you had in the past.

In the PAST MONTH have you...

1) Been unable to concentrate on whatever you're doing?	Better than usual	Same as usual	Less than usual	Much less than usual
2) Lost much sleep over worry?	Not at all	No more than usual	Rather more than usual	Much more than usual
3) Been having restless, disturbed nights?	Not at all	No more than usual	Rather more than usual	Much more than usual
4) Been managing to keep yourself busy and occupied?	More so than usual	Same as usual	Rather less than usual	Much less than usual
5) Been getting out of the house as much as usual?	More so than usual	Same as usual	Rather less than usual	Much less than usual
6) Been managing as well as most people would be in your shoes?	Better than most	About the same	Rather less well	Much less well
7) Felt that on the whole you were doing things well?	Better than usual	About the same	Less well than usual	Much less well
8) Been satisfied with the way you've carried out your tasks?	More satisfied	Same as usual	Less satisfied than usual	Much less satisfied
9) Been able to feel warmth and affection for those near to you?	Better than usual	Same as usual	Less well than usual	Much less well
10) Been finding it easy to get along with other people?	Better than usual	Same as usual	Less well than usual	Much less well
11) Spent much time chatting with people?	More time than usual	Same as usual	Less time than usual	Much less than usual
12) Felt that you are playing a useful part in things?	More so than usual	Same as usual	Less useful than usual	Much less useful
13) Felt capable of making decisions about things?	More so than usual	Same as usual	Less so than usual	Much less capable
14) Felt constantly under strain?	Not at all	No more than usual	Rather more than usual	Much more than usual
15) Felt you couldn't overcome your difficulties?	Not at all	No more than usual	Rather more than usual	Much more than usual

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16) Been finding life a struggle all the time?	Not at all	No more than usual	Rather more than usual	Much more than usual
17) Been able to enjoy your normal day-to-day activities?	More so than usual	Same as usual	Less so than usual	Much less than usual
18) Been taking things hard?	Not at all	No more than usual	Rather more than usual	Much more than usual
19) Been getting scared or panicky for no good reason?	Not at all	No more than usual	Rather more than usual	Much more than usual
20) Been able to face your problems?	More so than usual	Same as usual	Less able than usual	Much less able
21) Found everything getting on top of you?	Not at all	No more than usual	Rather more than usual	Much more than usual
22) Been feeling unhappy and depressed?	Not at all	No more than usual	Rather more than usual	Much more than usual
23) Been losing confidence in yourself?	Not at all	No more than usual	Rather more than usual	Much more than usual
24) Been thinking of yourself as a worthless person?	Not at all	No more than usual	Rather more than usual	Much more than usual
25) Felt that life is entirely hopeless?	Not at all	No more than usual	Rather more than usual	Much more than usual
26) Been feeling hopeful about your own future?	More so than usual	Same as usual	Less so than usual	Much less hopeful
27) Been feeling reasonably happy, all things considered?	More so than usual	Same as usual	Less so than usual	Much less than usual
28) Feeling nervous and strung-up all the time?	Not at all	No more than usual	Rather more than usual	Much more than usual
29) Felt that life is not worth living?	Not at all	No more than usual	Rather more than usual	Much more than usual
30) Found at times you couldn't do anything because your nerves were too bad?	Not at all	No more than usual	Rather more than usual	Much more than usual

CHIPS

For each of the following items, please circle the number which best describes how much each problem has bothered or distressed you during the PAST MONTH, INCLUDING TODAY.

Not been bothered by = 0 1 2 3 4 = Extremely bothered by.

In the past month, how much were you bothered by:

1. Sleep problems (can't fall asleep, wake up during night)	Not bothered by	0	1	2	3	4	Extremely bothered
2. Weight change (gain or loss of 5 lbs. or more)		0	1	2	3	4	
3. Back pain		0	1	2	3	4	
4. Constipation	Not bothered by	0	1	2	3	4	Extremely bothered
5. Dizziness		0	1	2	3	4	
6. Diarrhea		0	1	2	3	4	
7. Faintness	Not bothered by	0	1	2	3	4	Extremely bothered
8. Constant fatigue		0	1	2	3	4	
9. Headache		0	1	2	3	4	
10. Migraine headache	Not bothered by	0	1	2	3	4	Extremely bothered
11. Nausea and/or vomiting		0	1	2	3	4	
12. Acid stomach or indigestion		0	1	2	3	4	
13. Stomach pain (e.g., cramps)	Not bothered by	0	1	2	3	4	Extremely bothered
14. Hot or cold spells		0	1	2	3	4	
15. Hands trembling		0	1	2	3	4	
16. Heart pounding or racing	Not bothered by	0	1	2	3	4	Extremely bothered
17. Poor appetite		0	1	2	3	4	
18. Shortness of breath when not exercising or working hard		0	1	2	3	4	
19. Numbness or tingling in parts of your body	Not bothered by	0	1	2	3	4	Extremely bothered
20. Felt weak all over		0	1	2	3	4	
21. Pains in heart or chest		0	1	2	3	4	
22. Feeling low in energy	Not bothered by	0	1	2	3	4	Extremely bothered
23. Stuffy head or nose		0	1	2	3	4	
24. Blurred vision		0	1	2	3	4	
25. Muscle tension or soreness	Not bothered by	0	1	2	3	4	Extremely bothered
26. Muscle cramps		0	1	2	3	4	
27. Severe aches and pains		0	1	2	3	4	
28. Acne	Not bothered by	0	1	2	3	4	Extremely bothered
29. Bruises		0	1	2	3	4	
30. Nosebleed		0	1	2	3	4	
31. Pulled (strained) muscles	Not bothered by	0	1	2	3	4	Extremely bothered
32. Pulled (strained) ligaments		0	1	2	3	4	
33. Cold or cough		0	1	2	3	4	

ISEL-CV

This scale is made up of a list of statements which may or may not be true about you. For each statement, please circle Probably True (PT) if the statement is true about you or Probably False (PF) if the statement is not true about you. In cases for which the statements are neither clearly true nor clearly false, circle the response that is most descriptive of you. Remember that this is not a test. There are no right or wrong answers.

Please read each item quickly but carefully before responding.

- | | | |
|---|----|----|
| 1) I know someone who would loan me \$50 so I could go away for the weekend. | PT | PF |
| 2) I know someone who would give me some old dishes if I moved into my own apartment. | PT | PF |
| 3) I know someone who would loan me \$100 to help pay my tuition. | PT | PF |
| 4) If I needed it, my family would provide me with an allowance and spending money. | PT | PF |
| 5) If I wanted a date for a party next weekend, I know someone at school or in town who would fix me up. | PT | PF |
| 6) I know someone at school or in town who would bring my meals to my room or apartment if I were sick. | PT | PF |
| 7) I don't know anyone who would loan me several hundred dollars to pay a doctor or dental bill. | PT | PF |
| 8) I don't know anyone who would give me some old furniture if I moved into my own apartment. | PT | PF |
| 9) Even if I needed it my family would (or could) not give me money for tuition and books. | PT | PF |
| 10) I don't know anyone at school or in town who would help me study for an exam by spending several hours reading me questions. | PT | PF |
| 11) I don't know anyone at school or in town who would loan me their car for a couple of hours. | PT | PF |
| 12) I don't know anyone at school or in town who would get assignments for me from my teachers if I was sick. | PT | PF |
| 13) There are people at school or in town who I regularly run, exercise, or play sports with. | PT | PF |
| 14) I hang out in a friend's room or apartment quite a lot. | PT | PF |
| 15) I can get a date who I enjoy spending time with whenever I want. | PT | PF |
| 16) If I decided to take a study break this evening and go to a movie, I could easily find someone to go with me. | PT | PF |
| 17) People hang out in my room or apartment during the day or in the evening. | PT | PF |
| 18) I belong to a group at school or in town that meets regularly or does things together regularly. | PT | PF |
| 19) I am not a member of any social groups (such as church groups, clubs, teams, etc.) | PT | PF |
| 20) Lately, I often feel lonely, like I don't have anyone to reach out to. | PT | PF |
| 21) I don't have friends at school or in town who would comfort me by showing some physical affection. | PT | PF |
| 22) I don't often get invited to do things with other people. | PT | PF |
| 23) I don't talk to a member of my family at least once a week. | PT | PF |
| 24) I don't usually spend two evenings on the weekend doing something with others. | PT | PF |
| 25) I know someone who I see or talk to often with whom I would feel perfectly comfortable talking about problems I might have budgeting my time between school and my social life. | PT | PF |
| 26) I know someone who I see or talk to often with whom I would feel perfectly comfortable talking about any problems I might have adjusting to college life. | PT | PF |
| 27) I know someone who I see or talk to often with whom I would feel perfectly comfortable talking about sexually transmitted diseases. | PT | PF |

Continues on next page →

28)I know someone who I see or talk to often with whom I would feel perfectly comfortable talking about any problems I might have meeting people.	PT	PF
29)I know someone who I see or talk to often with whom I would feel perfectly comfortable discussing any sexual problems I might have.	PT	PF
30)I know someone who I see or talk to often with whom I would feel perfectly comfortable talking about any problems I might have with drugs.	PT	PF
31)There isn't anyone at school or in town with whom I would feel perfectly comfortable talking about any problems I might have with making friends.	PT	PF
32)There isn't anyone at school or in town with whom I would feel perfectly comfortable talking about any problems I might have getting along with my parents.	PT	PF
33)There isn't anyone at school or in town with whom I would feel perfectly comfortable talking about difficulties with my social life.	PT	PF
34)There isn't anyone at school or in town with whom I would feel perfectly comfortable talking about my feelings of loneliness and depression.	PT	PF
35)I don't know anyone at school or in town who makes my problems clearer and easier to understand.	PT	PF
36)Lately, when I've been troubled, I keep things to myself.	PT	PF
37)Most people who know me well think highly of me.	PT	PF
38)Most of my friends think that I'm smart.	PT	PF
39)Most of my friends don't do as well as I do in school.	PT	PF
40)I will have a better future than most other people will.	PT	PF
41)Most of my friends have not adjusted to college as easily as I have.	PT	PF
42)Most people think I have a good sense of humor.	PT	PF
43)I don't feel friendly with any teaching assistants, professors, campus, or student officials.	PT	PF
44)Most of my friends are more satisfied or happier with themselves than I am.	PT	PF
45)Most of my friends are more popular than I am.	PT	PF
46)Most of my friends are more interesting than I am.	PT	PF
47)Most of my friends have more control over what happens to them than I.	PT	PF
48)Most people are more attractive than I am.	PT	PF

MC-SD

This scale is made up of a list of statements which may or may not be true about you. For each statement, please circle (True) if the statement is true about you or (False) if the statement is not true about you. In cases for which the statements are neither clearly true nor clearly false, circle the response that is most descriptive of you. Remember that this is not a test. There are no right or wrong answers.

Please read each item quickly but carefully before responding.

- | | | |
|---|------|-------|
| 1) I never hesitate to go out of my way to help someone in trouble. | True | False |
| 2) I have never intensely disliked anyone. | True | False |
| 3) I sometimes feel resentful when I don't get my way. | True | False |
| 4) I like to gossip at times. | True | False |
| 5) There have been times when I felt like rebelling against people in authority even though I knew they were right. | True | False |
| 6) I can remember "playing sick" to get out of something. | True | False |
| 7) There have been occasions when I took advantage of someone. | True | False |
| 8) I'm always willing to admit it when I make a mistake. | True | False |
| 9) I always try to practice what I preach. | True | False |
| 10) I sometimes try to get even rather than forgive and forget. | True | False |
| 11) When I don't know something I don't at all mind admitting it. | True | False |
| 12) I am always courteous, even to people who are disagreeable. | True | False |
| 13) At times I have really insisted on having things my own way. | True | False |
| 14) There have been occasions when I felt like smashing things. | True | False |
| 15) I would never think of letting someone else be punished for my wrong doings. | True | False |
| 16) I never resent being asked to return a favor. | True | False |
| 17) I have never been irked when people expressed ideas very different from my own. | True | False |
| 18) There have been times when I was quite jealous of the good fortune of others. | True | False |
| 19) I am sometimes irritated by people who ask favors of me. | True | False |
| 20) I have never deliberately said something that hurt someone's feelings. | True | False |