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The Stress Management Self-Efficacy Inventory (SMSEI): Development and Initial Psychometrics

Kristin Higgins
University of Arkansas, Fayetteville

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By

Kristin K. Higgins, BA, MS
Vanderbilt University, 1995
University of Arkansas, 1999

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University of Arkansas

Abstract

The primary purpose of the current study was to develop, pilot, and establish the initial psychometrics of the Stress Management Self-Efficacy Inventory (SMSEI). Once developed and positive psychometrics established, middle school counselors and other mental health professionals can use the SMSEI to identify children who lack self-efficacy in the area of stress management. Once adolescents are identified as having low stress management self-efficacy, this measure can also aid professionals in creating programs and interventions. The SMSEI measures how well adolescents believe they can manage their stress as well as measures specific areas or management techniques that a child believes they are most incapable of handling or implementing.

Participants were recruited voluntarily from three area Middle Schools. One hundred seventy six adolescents (male = 49%, female = 51%) aged 11 to 14 agreed to participate in the study. Sixty one percent of the participants were in the sixth grade and 39% in the seventh grade. Caucasians constituted 80% of the sample with the remaining 20% as non-Caucasian. Participants were asked to complete the SMSEI, the State-Trait Anxiety Inventory for Children (STAIC; Speilberger, Edwards, Lushene, Montuori, & Platzek, 1973), The Schoolager's Coping Strategies Inventory (SCSI; Ryan-Wenger, 1990), the Rosenberg Self-Esteem Scale (RSE; Rosenberg, 1989), the Parent Child Stress Report (PCSR), and a demographic sheet. Two weeks later, participants were asked to complete a second SMSEI. Results of testing the initial psychometrics of the SMSEI were mixed. While internal consistency, test-retest reliability, content and criterion validity were promising, results related to the construct validity were less hopeful. After discussing and exploring possible reasons for the poor construct validity results, the

researcher developed a revised SMSEI version, which resulted in stronger support for

construct validity. While the revised version of the SMSEI had promising reliability and

validity results, further research and development is required. Overall results, however,

support the future use of the SMSEI as a tool for identifying students with areas of

concern related to poor stress management self-efficacy.

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CHAPTER I:

INTRODUCTION

Stress and stress management programs have been studied extensively within the psychological literature (e.g., Compas, Connor-Smith, Saltzman, Thomsen, & Wadsworth, 2001; de Anda, 1998; Dombrowski, 1999; Dubow, Schmidt, McBride, Edwards, & Merk, 1993; Garmezy & Masten, 1986; Henderson & Kelbey, 1992; Jackson & Owens, 1999; Lazarus, 1966; Lazarus & Folkman, 1984). Although stress is a popular construct in the research, there are a few research areas related to stress and stress management that need continued emphasis. One area that requires further exploration is the relationship between stress management and self-efficacy. Although research has been conducted on coping styles and stress management (e.g., Compas et al., 2001; Henderson & Kelbey, 1992; Lazarus, 1966; Lazarus & Folkman, 1984; O'Gonzalez & Sellers, 2002), no study to date has focused on a person's self-efficacy in managing their stress. A reason for no research in this area may be lack of an instrument measuring the self-efficacy of stress management. The current study involves creating an instrument intended to measure self-efficacy of stress management for the young adolescent population aged 10-14. Throughout the study, the instrument will be referred to as The Stress Management Self-Efficacy Inventory (SMSEI). In addition to the development of the instrument, this study will serve to establish the initial psychometrics of the SMSEI on a sample of middle school students.

Statement of the Problem

Adolescence is a stage of life characterized by a variety of stressors and challenges. One significant challenge that occurs during this developmental period is the

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transition from elementary school into middle school. This transition can be stressful for young adolescents and, if not successfully resolved, can often result in mental or emotional damage (Omizo, Omizo, & Suzuki, 1988; Stark, Spirito, Williams, & Guevremont, 1989; Wenz-Gross & Siperstein, 1998; Wertlieb, Weigel, & Feldstein, 1987). Several studies have been conducted on the specific stressors occurring at this transition into middle school and the detrimental effect these stressors can play on a young adolescent's psychological and emotional development (e.g., de Anda, 1998; de Anda & Bradley, 1997; Elias, 2002; Elias, Gara, & Ubriaco, 1985; McCraty, Atkinson, Tomasino, Goelitz, & Mayrovitz, 1999; Rudolph, Lambert, Clark, & Kurlakowsky, 2001; Wenz-Gross, & Siperstein, 1998; Wertlieb, Weigel, & Feldstein, 1987). There appears, however, to be a lack of research focusing on how to measure how well adolescents believe they can manage their stress. There are instruments used in various studies which researchers have purported to measure adolescent coping styles (Brodzinsky, Elias, Steiger, Simon, Gill, & Hitt, 1992; de Anda, 1998; de Anda & Bradley, 1997; De Wolfe & Saunders, 1995; Dise-Lewis, 1988; Dubow et al., 1993; Ebatha & Moos, 1991; Frydenberg & Lewis, 1991; Henderson & Kelbey, 1992; McCraty et al., 1999; O'Gonzalez & Sellers, 2002; Patterson & McCubbin, 1987; Rudolph et al., 2001; Wenz-Gross & Siperstein, 1998). Only a minimal number of these instruments, however, focus on a child's appraisal of their abilities to cope and none of the measures actually assesses self-efficacy as it relates to stress management. The current study focuses on young people of age 10-14 during their sixth and seventh grade years in school, and involves designing an instrument intended to measure how self-efficacious these young adolescents believe themselves to be in relation to the management of their stress.

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Purpose of the Study

The primary purpose of the current study is to develop, pilot, and establish the initial psychometrics of the SMSEI. Once developed and positive psychometrics established, middle school counselors and other mental health professionals can use the SMSEI to identify children who lack self-efficacy in the area of stress management. Once adolescents are identified as having low stress management self-efficacy, this measure can also aid professionals in creating programs and interventions, which specifically address the areas in which the youths have low self-efficacy. By looking at individual items that adolescents have scored low on, counselors can design interventions to address the technique that needs to be taught in order to help the student demonstrate more self-efficacious behavior in using that particular stress management strategy. The SMSEI will not only measure how well adolescents believe they can manage their stress, but also will measure specific areas or management techniques that a child believes they are most incapable of handling or implementing. Once established as an effective and valid tool for measuring stress management self-efficacy, scores on the SMSEI could be investigated as a predictor of overall young adolescent adjustment and emotional well-being.

Background of the Issue

Stress

Stress is a major component in our everyday lives. Some stress is considered positive (Eustress) and acts to motivate and encourage us to move forward in our lives, while other stress can be negative and have a detrimental effect on our health and behaviors. This negative stress must be coped with and managed in order to avoid its

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harmful effects. Stress has been the focus of a countless number of psychological studies and inquiries (e.g., Compas et al., 2001; de Anda, 1998; Dombrowski, 1999; Dubow et al., 1993; Garmezy & Masten, 1986; Henderson & Kelbey, 1992; Jackson & Owens, 1999; Lazarus, 1966; Lazarus & Folkman, 1984). The psychological literature, however, lacks any studies specific to stress and its relation to stress management self-efficacy. Because stress has been so widely studied and explored, there are several ways to define and explain the stress process. For this study, the stress model that is used is the transactional model of stress developed by Lazarus and Folkman (1984).

The transactional model of stress "views the person and the environment in a dynamic, mutually reciprocal, bidirectional relationship" (Lazarus & Folkman, 1984, p. 293), therefore, stress is created not only by the stressor itself (the environment), but also how the person interprets this stressor and reacts to it. In their extensive research and writings on stress, Lazarus (1966) and Lazarus and Folkman (1984) discuss the concept of cognitive appraisal and its important role in the stress process. They postulate "appraisal centers on the evaluation of harm, threat, and challenge. An appraisal does not refer to the environment or to the person alone, but to the integration of both in a given transaction. As such, it is a transactional variable" (Lazarus & Folkman, 1984, p. 294). Thus, without the cognitive variable of appraising how threatening a specific stressor may be, the person would most likely not recognize the stress and therefore not react. It is the person's appraisal of how threatening the stressor is and their belief in their control or ability to cope with the stressor that completes the stress appraisal process.

Most of the research which employed Lazarus and Folkman's (1984) theory of the transactional stress model focused on the concept of stress appraisal as it relates to

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variables such as one's locus of control, belief in coping mechanism effectiveness, and available resources (e.g., Brodzinsky et al., 1992; de Anda, 1998; de Anda & Bradley, 1997; De Wolfe & Saunders, 1995; Dise-Lewis, 1988; Dubow et al., 1993; Ebatha & Moos, 1991; Frydenberg & Lewis, 1991; Henderson & Kelbey, 1992; McCraty et al., 1999; O'Gonzalez & Sellers, 2002; Patterson & McCubbin, 1987; Rudolph et al., 2001; Wenz-Gross & Siperstein, 1998). No study, however, has extended this transactional model of stress to the concept of self-efficacy or explored the relationship between the "transactional variable" (Lazarus & Folkman, 1984, p. 294) appraisal and its relationship to self-efficacy. The current study intends to explore the concepts of stress appraisal and self-efficacy by creating a measure that will accurately assess adolescent's belief in their ability to cope with and manage their stress.

Self-Efficacy

Self-efficacy is a concept first developed and defined by Bandura (1977) as "one's self assessment of their ability to perform specific tasks" (p. 192). Bandura (1977, 1997a) stressed the fact that self-efficacy is a context and situation specific concept that differentiates it from self-esteem which is more general and unbound by specifics. Several studies have furthered Bandura's (1977, 1997a, 1997b) concept of self-efficacy by focusing on specific situations and exploring self-efficacy in contexts such as academics, career decision making, self-esteem, job related skills, and social interactions (e.g., Fouad & Smith, 1997; Galanaki & Kalantzi-Azizi, 1999; Hampton, 1998; Jinks & Morgan, 1999; Lapan & Gysbers, 1997; Saracoglu, Minden, & Wilchesky, 1989; Wheeler & Ladd, 1982). In addition, there has been research conducted to investigate different ways of measuring self-efficacy as well as the difficulties in doing so (Bong &

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Hocevar, 2002; Choi, 2003; Hansen, 1997; Sherer & Adams, 1983; Sherer, Maddux, Mercandante, Prentice-Dunn, Jacobs, & Rogers, 1982). As aforementioned, no study to date has examined the concept of self-efficacy as it relates to the area of stress management. By evaluating the literature that has previously studied and measured self-efficacy as it relates to the aforementioned variables and the literature that relates to adolescents' stressors and coping mechanisms during the transition into middle school, this researcher plans to develop an instrument to specifically measure stress management self-efficacy within the middle school young adolescent population.

Assumptions of the Study

There are a few assumptions underlying the current study. First, the researcher assumes that all middle school students experience similar stressors highlighted within the literature. In addition, the researcher assumes that the sample in the current study is representative of the typical middle school population. Third, the researcher assumes that students and parents have answered all questions honestly and followed the instructions given on the various instruments. Finally, the researcher assumes that the instruments used in this study will have as positive psychometrics related to this sample as they have in previous studies.

General Research Questions

The first portion of this study will not have specific research hypotheses or questions because the focus is primarily on the development and testing of the SMSEI. The study will assess whether the SMSEI is a reliable and valid measure. The validation study will address the following issues:

1. Do the scales on the SMSEI show adequate internal consistency?

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2. Do the scales on the SMSEI show adequate test/retest (stability) coefficients to support reliability?

3. Do the scores on the SMSEI display sufficient content related evidence to support validity?

4. Do the scores on the SMSEI show sufficient construct related evidence to support validity?

5. Do the scores on the SMSEI show sufficient criterion related evidence to support validity?

Significance of the Study

This study is important for several reasons. Within the stress literature there exists a need for information on the construct of self-efficacy as it relates to stress management and coping. There is also a need for the development of an instrument that can accurately measure stress management self-efficacy. The self-efficacy literature lacks any studies focusing on self-efficacy as it relates to stress and stress management. As mentioned earlier, Bandura (1977) has postulated that self-efficacy is situation and context specific and thus it is important to identify how to assess the construct of self-efficacy within the context of managing one's stress.

The current study addresses these holes in the stress and self-efficacy research and literature and contributes to the knowledge and practice of working with young adolescents experiencing stress. By developing a measure that accurately assesses how self efficacious a young adolescent believes themselves to be in certain stress producing situations (particularly those identified as affecting the age group of 10-14) and in using

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specific stress management techniques and skills, mental health professionals and school counselors will be better able to serve and assist the young adolescent population.

Delimitations

This study is restrained by a few limits and boundaries that were set prior to ever beginning the data collection. First, rather than creating a measure of stress management self-efficacy across the child developmental span, this study delimited it to the middle school student aged 11 to 14. In addition, this study did not attempt to sample all middle school students, but instead the study was delimited to the three middle schools in the region where the researcher was located. Also, due to the region that this researcher was collecting data in, the study was delimited to the sixth and seventh grades. While these are the most common middle school grades, some schools across the nation may include fifth or eighth grade at the middle school level. Finally this study was limited by relying on volunteer participants and self-report data at the three middle school levels.

Definitions and Operational Terms

Construct Validity: "The degree to which the scores reflect the desired construct rather than some other construct" (Heppner, Kivlighan, & Wampold, 1999, p. 291). Construct validity was established by using a primary principal components analysis to determine if items load on their intended factor or scale. Construct validity is also demonstrated by using a multitrait-multimethod set of positive correlations with instruments intending to measure similar constructs within the nomological net.

Content Validity: "The purpose of content validation is to assess whether the items adequately represent a performance domain or construct of specific interest"

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(Crocker & Algina, p. 218). In the current study, content validity was established by an expert evaluation of the items on the SMSEI as well as feedback from a small sample pilot study.

Convergent Validity: A form of construct validity that is established by showing a positive correlation between two instruments intended to assess similar constructs. In the current study, convergent validity was established by conducting a correlational analysis with scores on the SMSEI and scores on the Schoolager's Coping Strategies Inventory (SCSI, Ryan-Wenger, 1990).

Criterion Validity: "Used to draw inferences from test scores to examinee behavior on some performance criterion that cannot be directly measured by a test" (Crocker & Algina, 1986, p. 224). Predictive validity is established by assessing how well the test predicts performance on a future criterion and concurrent validity is established by assessing how well a test predicts performance on a criterion simultaneously measured at the time of the test. In the current study, concurrent validity was established by conducting a correlational analysis between scores on the SMSEI and scores on the State-Trait Anxiety Inventory for Children (STAIC, Speilberger, Edwards, Lushene, Montuori, & Platzek, 1973) as well as scores on the Parent Child Stress Report (PCSR).

Discriminant Validity: A form of construct validity that is established by demonstrating two different constructs of interest are less correlated with one another than similar constructs. In the current study, discriminant validity was established by demonstrating a low correlation between scores on the SMSEI and scores on the Rosenberg Self-Esteem Inventory (RSE, Rosenberg, 1965).

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Reliability: "The degree to which the individuals' deviation scores, or z-scores, remain

relatively consistent over repeated administration of the same test or alternate test

forms" (Crocker & Algina, 1986, p. 105). In addition, reliability relates to internal

consistency, which measures how well items within a scale are related to one

another and how well they measure the same concept or construct. Cronbach's

coefficient alpha was used to assess for internal consistency of the two scales on

the SMSEI.

Self-Efficacy: Self-efficacy was first defined by Bandura (1977) as "one's

self-assessment of their ability to perform specific tasks" (p. 192). The term was

revised by Bandura (1997) to include the concept of action and was defined as

"the belief in one's capabilities to organize and execute the courses of action

required to produce given attainments" (p. 3).

Stress: According to Lazarus and Folkman (1984), "psychological stress is a particular

relationship between the person and the environment that is appraised by the

person as taxing or exceeding his or her resources and endangering his or her well

being" (p. 19).

Stress Management: Specific techniques or interventions intended to assist the individual

using them in alleviating the negative physical, mental, or emotional symptoms of

stress. These techniques can be behavioral, cognitive, or a combination of the two.

Stress Management Self-Efficacy: One's belief in their ability to appropriately and

successfully use stress management techniques or interventions to eliminate any

detrimental effects of stress.

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Validity: "Validation is the process by which a test developer or test user collects

evidence to support the types of inferences that are to be drawn from test scores"

(Crocker & Algina, 1986). In the current study, construct, content, and criterion

validity were established.

Summary

Stress has increasingly become recognized as one of the leading causes in

problems related to physical, emotional, and mental health (Lazarus & Folkman, 1984;

Selye, 1950). Recently, researchers have found that the dangers of stress also affect

adolescents and children (e.g., de Anda, 1998; de Anda & Bradley, 1997; Elias, 2002;

Elias et al., 1985; McCraty et al., 1999; Rudolph et al., 2001; Wenz-Gross, & Siperstein,

1998; Wertlieb et al., 1987). One area found to be especially stressful for young

adolescents is the transition to middle school (Omizo et al., 1988; Stark et al., 1989;

Wenz-Gross & Siperstein, 1998; Wertlieb et al., 1987). Because this transition is stressful

for young adolescents, it is imperative that school and mental health counselors find ways

to identify students at risk for poor stress management. One way to identify these

students is by using an instrument to assess whether or not young adolescents are self-

efficacious in managing their stress. No such instrument, however, exists. Once

developed and revised to be a psychometrically sound measure, the SMSEI may become

a cost and time effective measure for counselors to employ in combating the negative

effects of stress on young adolescents.

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CHAPTER II:

LITERATURE REVIEW/CRITIQUE OF THE LITERATURE

Stress has been the focus of countless numbers of research studies and inquiries

(e.g., Compas et al., 2001; de Anda, 1998; Dombrowski, 1999; Dubow et al., 1993;

Garmezy & Masten, 1986; Henderson & Kelbey, 1992; Jackson & Owens, 1999;

Lazarus, 1966; Lazarus & Folkman, 1984). Although stress has been studied extensively,

there does exist a need to expand the ideas related to stress and stress management to the

research related to self-efficacy. Research has focused on coping styles and stress

management (e.g., Compas et al., 2001; Henderson & Kelbey, 1992; Lazarus, 1966;

Lazarus & Folkman, 1984; O'Gonzalez & Sellers, 2002), but no one published a study on

the effects of a person's self-efficacy in managing their stress. A reason for no research in

this area may be due to the lack of an instrument measuring the self-efficacy of stress

management. The current study involves creating an instrument intended to measure

stress management self-efficacy within the middle school student population.

The following chapter begins with a brief historical look at stress including the

detrimental effects of stress. Following is an exploration of stress as it relates to the

young adolescent population, particularly how stress affects adolescents during the

transition to middle school. Next is a discussion on stress management as it relates to the

young adolescent population as well as a thorough overview of the existing instruments

and measurements purporting to measure coping styles and levels of stress within the

adolescent population. In addition, a review of research evaluating successful stress

management techniques for this age population is included. Next, the concept of self-

efficacy is defined with an emphasis on various instruments developed to measure self-

efficacy. Finally, the author discusses the connection between stress management and self-efficacy and provides a rationale for the creation of an instrument measuring stress management self-efficacy for the middle school population.

<div align="center">History, Detrimental Effects, and Definition of Stress</div>

History of the Study of Stress

The study of stress dates back to the middle of the twentieth century. Even in earlier periods, scientists and academicians discussed the concept of stress. The focus, however, was on the terms conflict, fear, frustration, and anxiety. Engineers who believed stress is created when force is exerted upon a physical object (Therrell, 1992) first studied stress. Later, members of the physical science community adopted the term stress and focused on the concept of stress as strain exerted upon the body during movement. While stress was the topic and focus in many scholarly works in various fields of study, it was not until the 1950's with the creation of Han Selye's (1950) theory of stress that the term stress became a well-known concept among scholarly people as well as laypersons. In addition, it was with the Selye's work that the concept of psychological stress was first introduced.

Selye (1950) is the most prominent figure in the study and research on stress. In his early works, Selye (1950) provided a theoretical framework for understanding the concept of stress known as the General Adaptation Syndrome (GAS). While followers of Selye's (1950) stress theory later adapted his concepts to the psychological understanding and impacts of stress (i.e., Lazarus & Folkman, 1984), Selye's works primarily focused on how stress affects the physics and chemistry of the body. Selye (1950) is credited with being the first to identify and warn against the detrimental and disease causing effects of

stress. Today, it is difficult to find a magazine, newspaper, or journal article that does not include some form of research linking stress to disease, hardship, or psychological maladjustment. It is this combination of the negative impacts that stress can have on the physical as well as psychological body that continues to drive the study of stress and stress management in the literature.

While Selye (1950) primarily studied the disease model of stress, recent research has expanded the concept of stress into the psychological realm. Perhaps the most well known researchers within the psychological stress arena are Richard Lazarus and Susan Folkman. Their works, *Psychological Stress and the Coping Process* (Lazarus, 1966) and *Stress, Appraisal, and Coping* (Lazarus & Folkman, 1984) further Selye's stress research by adding the psychological component to understanding stress as well as coping with stress. Because stress can be damaging and detrimental to one's physical as well as mental health (Coddington, 1972; Dombrowski, 1999; Lazarus, 1966; Lazarus & Folkman, 1984; McCraty et al., 1999; Selye, 1950; Therrell, 1992) Lazarus (1966) and Lazarus and Folkman (1984) identified the importance of studying stress and its causes, as well as how to manage, control, and cope with stress once it presents itself.

Detrimental Effects of Stress

While Selye (1950) was the first credited with uncovering the many disease causing and harmful effects of stress on the body, many others have expanded his knowledge and shown psychological as well as physical problems related to stress (Coddington, 1972; Dombrowski, 1999; Lazarus, 1966; Lazarus & Folkman, 1984; McCraty et al., 1999; Therrell, 1992). Most often, studies on stress relate to the impact of stress on adults. Before the 1970's, there was limited research linking stress to childhood

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and adolescence problems and all stress related assessments were intended for the adult population only (Therrell, 1992). In the 1970's, however, researchers began to expand the study of stress to children and adolescents and discovered that even at a young age, stress can play a negative and detrimental role to a child's overall health. How stress and stress coping mechanisms relate specifically to the young adolescent population transitioning to middle school is discussed in more detail in a later section, however, some of the findings related to the detrimental effects of unmanaged stress on children are reviewed here.

When first linking stress to physical and psychological problems in childhood, researchers began by looking at how trauma and significant life events influence children. Coddington (1972) discovered that children within the normal population who have experienced stressful life events (i.e., death of a relative, divorce, family illnesses, abuse, accidents, trauma, etc.) are much more likely to develop childhood diseases than their peers who have not experienced significant stressful life events. Coddington's (1972) research is similar to the findings of Selye (1950) and others who found a significant increase in health problems for those individuals under greater amounts of stress.

Not only has stress been found to have a negative impact on children's' and adolescents' physical health, but as Wertlieb et al. (1987) found stress also negatively effects the way a child behaves. In a study of 124 children aged six to nine and their mothers recruited from a large insurance network, results indicated that undesirable life events significantly predicted both internalizing ($R^2 = .08, p < .001$) and externalizing ($R^2 = .09, p < .001$) negative behavior symptoms. Daily hassles as measured by the *Hassles Scale* (Kanner, Coyne, Schaefer, & Lazarus, 1981), also significantly predicted both internalizing ($R^2 = .18, p < .001$) and externalizing ($R^2 = .10, p < .001$) negative behavior

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symptoms. In fact, the hassles were more predictive of problem behaviors than the major

life events, which lends further support to the use of a daily hassles model in the current

study. In addition, subjects within their high stress group were much more likely to

experience family problems related to family self-esteem and family health (Wertlieb, et

al., 1987). Similar to Wertlieb et al.'s (1987) findings on the connection between stress

and behavioral problems, McCraty et al. (1999) provided a thorough exploration of the

various ways that stress and the lack of coping with stress can have harmful effects on

children.

Using Selye's (1950) GAS stress theory as well as medical and physiological

research focusing on the negative impacts of stress in childhood (Berenson, Frank,

Hunter, Snnivason, Voors, & Webber, 1982; Falkner, Kushner, Onesti, & Angleakos,

1981; Jemerin & Boyce, 1990; Kashani, Suarez, Allan, & Reid, 1997; Krantz & Manuck,

1984; Matthews, Woodall, & Allen, 1993; Parker, Croft, Cresanta, Freedman, Burke,

Webber, & Berenson, 1987), McCraty et al. (1999) studied these multiple research

projects and summarized information relating to the relationship between childhood

stress and future heart disease and hypertension. In addition, the authors highlight the

idea that stress often is a major contributing factor to childhood behavioral problems

including socially inappropriate, hyperactive, impulsive, aggressive, and destructive

behaviors. McCraty et al. emphasize the importance of teaching children how to manage

and cope with stress in order to help alleviate physical, psychological, and behavioral

ramifications of unmanaged stress.

Dombrowski (1999) also discussed the negative impact of stress on children and

further strengthened the argument that effective stress management programs directed at

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children and adolescents can and do prevent childhood disease. While every program and intervention may differ in type and focus, all research assessing the effectiveness of such programs concludes with the idea that unmanaged stress will not only lead to disease and future health problems, but also will negatively impact children in relation to overall psychological and behavioral mental health.

Definition of Stress

While a more detailed discussion on Lazarus and Folkman's (1984) transactional model of stress follows, it is first important to provide a working definition of stress. Lazarus and Folkman (1984) define stress as "a particular relationship between the person and the environment that is appraised by the person as taxing or exceeding his or her resources and endangering his or her well-being" (p. 19). When defining stress in the current study, it is best to use both Selye's (1950) ideas regarding physiological stress and Lazarus and Folkman's (1984) thoughts on psychological and relational stress. For the current study, stress is defined as any response to an undesirable event or situation that involves both negative physiological reactions as well as disturbed emotional or psychological well-being. It is important to acknowledge the role that the body plays in response to stressors and tension, and to understand the role that cognitions and personality play in stress responses. It is Lazarus and Folkman's (1984) model of stress that first acknowledged the significant role that individuals' cognitions and appraisals of stress have in the stress response system.

Transactional Model of Stress (Lazarus & Folkman, 1984)

Lazarus and Folkman (1984) emphasize that "stress cannot be defined exclusively by situations because the capacity of any situation to produce stress reactions depends on

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characteristics of the individual" (p. 3). These characteristics can be anything from various personality, psychosocial and cognitive variables, to an individual's basic mental and physical health. While these variables play a role in the stress response and coping process, Lazarus and Folkman (1984) purport that it is the cognitive appraisal of stress that is most influential in how one will respond to and react to stressful situations. They view the person and the environment in a "dynamic, mutually reciprocal, bi-directional relationship" (p. 293), therefore, stress is created not only by the stressor itself (the environment), but also how the person interprets the stressor and reacts to it. The interpretation of stress requires cognitive appraisal, and thus appraisal becomes the most important concept within the transactional model of stress (Lazarus & Folkman, 1984).

In the transactional model of stress, "appraisal centers on the evaluation of harm, threat, and challenge" (Lazarus & Folkman, 1984, p. 294) that the environment poses and acts as the "transactional variable" (p. 294) between the person and the environment. It is the person's appraisal of not only how threatening the stressor is, but also their belief in their control or ability to cope with the stressor that completes the stress appraisal process. While Lazarus and Folkman (1984) do not use the term self-efficacy within their model of stress appraisal and coping, they do emphasize that personality factors play an important role in stress reactions. It is this researcher's hypothesis that an individual's self-efficacy falls in the category of personality factors, and thus plays an important role in stress appraisal and coping. Therefore, it is important that a way to measure stress management self-efficacy be developed. While many have used Lazarus and Folkman's (1984) transactional model of stress to develop stress levels and coping ability instruments, no one has explored the relationship between their model and self-efficacy.

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Young Adolescence and Stress

Adolescence is a stage of life characterized by a variety of stressors and challenges. One significant challenge that occurs during this developmental period is the transition from elementary school into middle school. This transition can be stressful for young adolescents and if not successfully resolved, can often result in mental or emotional damage (Omizo et al., 1988; Stark et al., 1989; Wenz-Gross & Siperstein, 1998; Wertlieb et al., 1987). Several studies have been conducted on both the specific stressors occurring during this transition into middle school as well as the detrimental effect these stressors can play on a young adolescent's psychological and emotional development (e.g., de Anda, 1998; de Anda & Bradley, 1997; Elias, 2002; Elias et al., 1985; McCraty et al., 1999; Rudolph et al., 2001; Wenz-Gross, & Siperstein, 1998; Wertlieb et al., 1987). There is, however, a lack of research focusing on how to measure adolescents' beliefs in their stress management abilities. There are instruments used in various studies which purport to measure adolescent coping styles (Brodzinsky et al., 1992; de Anda, 1998; de Anda & Bradley, 1997; De Wolfe & Saunders, 1995; Dise-Lewis, 1988; Dubow et al., 1993; Ebatha & Moos, 1991; Frydenberg & Lewis, 1991; Henderson & Kelbey, 1992; McCraty et al., 1999; O'Gonzalez & Sellers, 2002; Patterson & McCubbin, 1987; Rudolph et al., 2001; Wenz-Gross & Siperstein, 1998), however, only a minimal number of these instruments focus on a child's appraisal of their abilities to cope and none of the measures actually assess self-efficacy as it relates to stress management.

The following sections provide support for the development of a measure that assesses stress management self-efficacy for the middle school population. The research

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discussed highlights why the transition to middle school can be stressful for young adolescents. In addition, by using the literature focusing on the specific stressors related to transitioning to middle school, this researcher will gain knowledge useful in developing items for the SMSEI. Specifically, items focusing on specific stressors discussed in the literature will compose the specific stressors scale on the SMSEI. Finally, this section concludes with a discussion of a few of the instruments currently used to study stress in the young adolescent population.

Stress in Young Adolescence

Adolescence is a developmental period full of turmoil, change, and conflict. It is a time marked by physical changes with the onslaught of puberty, as well as emotional and maturational changes. Entrance into adolescence begins the journey of identity development (Erikson, 1963) as well as the start of becoming more independent from one's family and parent(s). The path to independence and identity development is a long one and is marked by various challenges along the way. Hamburg (1974) discusses the life developmental cycle as including stressful transitions at various points along the cycle. One particularly stressful transition is that of early adolescence. Not only are young adolescents experiencing hormonal and physical changes within their bodies, but many are experiencing new stressors created by the transition into middle school (Hamburg, 1974). As Hamburg (1974) stated, the identification of early adolescence as a stressful time in the life cycle is one major contributing factor to the development of the middle school by educators. Because young adolescents are uniquely different from their elementary school aged and junior high school aged counterparts, many educators found the need to develop an educational philosophy specifically geared toward this age group

and their developmental needs (Elias, 2002; Elias et al., 1985; Hamburg, 1974). While not every school system has adopted the middle school educational philosophy, many have and this number is increasingly growing.

Before looking at some of the research identifying specific stressors related to the transition to middle school, it is first important to provide an overview of the general way that young adolescents are affected by stress. In an exploratory study of general stressors and symptoms related to intermediate school age children in grades 7 and 8, Omizo et al. (1988) found five general areas that lead to stress for young adolescents. Using their own *Stress* Scale, the authors categorized responses from 20 students at the intermediate level and tabulated the frequency of each response. The most common cited stressor for intermediate school aged children fell under the category of general adolescent problems. Some of the specifics associated with this category include: "adjusting to developmental changes, not having enough autonomy, being different, being part of a group and not accepting themselves" (Omizo et al., 1988, p. 269). Another general area of stress for this age group was peer pressure. Young adolescents in this sample identified experiencing stress related to pressures to smoke cigarettes, drink alcohol, have sex, or do drugs by peers. Other general areas identified as leading to stress for intermediate school aged adolescents were family problems, not feeling in control, and school-related problems. Although specific stressors related to the transition to middle school will be discussed in the next section, the five general areas identified by Omizo et al. (1988) will help guide the development of stressor items for the SMSEI.

In a study exploring common problems and stressors faced by young adolescents, Stark et al. (1989) found very similar results to the Omizo et al. (1988) study. In the Stark

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et al. (1989) study, the most frequently identified stressors were related to problems with school, parents, boyfriends/girlfriends, friends, and family. While these five problem areas were commonly cited by adolescents of all ages, problems with school and parents were most common to the younger adolescents aged 14 years. In addition, males tended to report more stressors related to school while females identified stressors related to family, friends, and others as being the most troubling for them. While Stark's et al. (1989) study helps identify SMSEI item ideas for general areas of stress experienced by young adolescents, the literature focusing specifically on stressors related to middle school transition is much more useful in terms of item development.

Transition to Middle School (Specific Stressors)

Not only do budding adolescents have increased stress related to their place in the developmental life cycle (Hamburg, 1974), they also are increasingly faced with stressful challenges related to the transition from elementary to middle school (Elias, 2002; Elias et al., 1985; Rudolph et al., 2001; Wenz-Gross & Siperstein, 1998). Elias (2002) states, "it is a transition that often signals increased referrals to mental health services; the failure of previously successful methods for academic success to match up with more rigorous workloads; the start of smoking, alcohol, drug, violence, and attendance problems; and damage to self-esteem especially for girls" (p. 41). In addition, Rudolph et al. (2001) purport that "children face a range of new demands associated with differences in school structure, classroom organization, teaching strategies, academic standards, and teacher expectations" (p. 930).

With an increase in stressors, as well as problems related to coping with these stressors, it is imperative that school counselors and other school personnel not only have

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a way to identify children at risk for experiencing stress, but also a way to identify which specific stressor areas a young adolescent is having the most difficulty. The SMSEI will serve both purposes; to identify young adolescents at risk for poor stress management and to identify the stressors causing the most stress in his/her life. By using items related to specific stressors during the transition to middle school, the SMSEI will assist school counselors and other mental health professionals working with young adolescents to determine what interventions to use to help increase coping and alleviate stress.

Elias et al. (1985) sampled 158 middle school students to identify specific stressors related to the transition to middle school. In addition to identifying stressors faced by this age group, the authors were able to assess when the stressors were present (beginning of the year versus later in the year). Elias et al. (1985) found that the stressors most often experienced at the beginning of the year related to starting a new school, such as missing friends, getting lost in school, forgetting ones locker combination, or eating in a larger cafeteria. Stressors more often experienced at the end of the year were similar to stressors more often identified by older adolescents such as peer pressure to smoke, use drugs and alcohol, and problems related to dating. The authors discuss that it is perhaps the poor coping with earlier stressors that lead to the emergence of substance abuse related stressors. Thus, it becomes even more imperative that an instrument such as the SMSEI be developed to serve as a prevention tool as well. Although the stressors at the beginning and end of the year are significant and affect young adolescents, it is the stressors cited as occurring throughout the year that will influence development of items for the SMSEI.

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In their study, Elias et al. (1985) found fourteen significant stressors experienced by young adolescents during their first year in middle school. In developing the SMSEI, this author will develop items that correspond to these specific stressors. The list of stressors include: "arguing with teachers, being sent to the vice principal's office, getting into fights, getting things stolen, not getting along with teachers, being pressured to do things one does not want to, being teased, not being part of the in group, having tougher teachers, having harder school work, having too much homework, teachers expecting to much, and wanting to be in a better reading group" (Elias et al., 1985, p. 115). While the last stressor was identified by young adolescents as being stressful, when Elias et al. (1985) conducted a factor analysis of the stressors, this item did not load on any of the five factors and thus will not be used as an item on the SMSEI.

Similar to the Elias (1985) study exploring stressors experienced during the transition to middle school, later studies revealed similar results. In a study conducted by Stone (1986), a survey of 2,146 sixth and seventh grade students was conducted to identify amounts of stress related to specific situations. The situations explored related to relationships with adults (parents and teachers), relationships with peers, and school achievement. Since these three areas are common to most of the research in this area, it is possible that the SMSEI stressor scale become divided into four separate scales: the family stressor, teacher stressor, school stressor, and peer stressor scales. These situational groups identified by Stone (1986) also correspond nicely to the thirteen stressors and factors identified in Elias et al. (1985).

Although the SMSEI is intended to use with the normal young adolescent population, when developing items for the SMSEI it is important that the author remain

aware of the issues related to special populations that may be included within the sample. For instance, in a study exploring stressors related to the middle school transition, Wenz-Gross and Siperstein (1998) found that students with learning disabilities had additional stressors placed upon them in relation to their disability. While the items on the SMSEI will concentrate on stressors identified by representative samples from the previous studies (Elias et al., 1985; Stone, 1986), it may prove beneficial to the author to include some items related to coping with stressors associated with learning disabilities.

Assessing Stress in Adolescence

Most of the instruments used to measure stress in adolescence include some type of scale measuring coping with stress ability and thus are discussed in a later section focusing on stress management in adolescence. One instrument, however, has been successfully used in identifying adolescent stressors and therefore is a useful assessment to review during the development of the SMSEI. The instrument, *The Adolescent Stress Inventory* (ASI; Therrell, 1992) was developed in reaction to the author's discovery that most stress inventories for children and adolescents are designed after instruments used with adults and therefore are inappropriate for this population. Rather than asking students to rate stressors related to the adult population, Therrell developed an instrument specific to the stressors most often experienced by adolescents. Although the ASI provides a good example of the type of stress instrument appropriate for this age population, it will not be used in this current study because the sample in creating the ASI was comprised more of older adolescents than those transitioning to middle school (Therrell, 1992).

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Although there are limited instruments specifically designed to measure stress

levels in younger adolescents, many advocate the use of the *State-Trait Anxiety Inventory*

for Children (STAIC, Speilberger et al., 1973) as a way to assess a child's stress and

anxiety level (e.g., Endler, 1978; Speilberger et al., 1973; Therrell, 1992; Walker &

Kaufmann, 1984). Speilberger et al. (1973) created the STAIC as a scaled down and age

appropriate version of the *State-Trait Anxiety Inventory* for adults. The child version is

titled, "How I feel Questionnaire" and is a 40 item, three-response likert item self report

inventory measuring current and longstanding levels of anxiety that a child exhibits. State

anxiety items start with the statement, "I feel" and children are to select from "Very

upset, upset, not upset" or "very calm, calm, not calm" depending on whether or not the

items are measuring the presence or absence of anxiety. "On the trait anxiety subscale,

children are asked to indicate the frequency of occurrence (e.g. hardly ever, sometimes,

often) of a variety of behaviors (e.g., my hands get sweaty; I worry about school)"

(Walker & Kaufmann, 1984, p. 634). State anxiety "reflects a transitory emotional state

or condition of the human organism that is characterized by subjective, consciously

perceived feelings of tension and apprehension, and heightened autonomic nervous

system activity" (Speilberger et al., 1973, p. 3). In other words, state anxiety measures the

level of current anxiety a child is feeling. This scale has also been used as an indicator of

the level of stress a child is under since stress often manifests itself as tension, worry, and

anxiety (Walker & Kaufman, 1984). While State Anxiety can vary over time, Trait

Anxiety is a more stable characteristic and "denotes individual differences in anxiety

proneness" (Speilberger et al., 1973, p. 3). The state anxiety scale measures current levels

of stress and tension, the trait anxiety scale measures a longstanding personality

characteristic of anxiety. For this study, the STAIC (Speilberger et al., 1973) will be used to establish criterion validity. A more detailed discussion of the instrument is provided in the methods section.

<center>Adolescence and Stress Management</center>

Young Adolescent Coping with Stress

Once understanding how detrimental unmanaged stress can be on children and adolescents, many researchers began to look more closely at adolescent coping styles, and effective stress management programs (Compas et al., 2001; de Anda, 1998; DeWolfe & Saunders, 1995; Ebatha & Moos, 1991; Frydenberg & Lewis, 1991; Henderson & Kelbey, 1992; Jackson & Owens, 1999; McCraty et al., 1999; O'Gonzalez & Sellers, 2002; Robson & Cook, 1995; and Stark et al., 1989). Before discussing specific stress management programs and techniques found to be effective with the young adolescent population, it is first important to review the theory behind effective stress management.

Although most counseling and psychological theories are designed to assist client's in coping with and managing problems in their everyday lives, cognitive behavioral counseling appears to be one of the most effective tools in assisting young adolescents in managing their stress (Brown & Prout, 1999; Compas et al., 2001). Cognitive behavioral counseling centers on assisting individuals in changing maladaptive behaviors and thoughts. In working with children and adolescents experiencing stress and anxiety, researchers have found that utilizing cognitive behavioral techniques is most effective in not only coping with the current stressor, but also in helping eliminate other stressors in the future (Compas et al., 2001). Various learning principles related to

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classical and operant conditioning, as well as observational and cognitive learning, guide cognitive behavioral interventions and techniques (Brown & Prout, 1999). Counselors using cognitive behavioral theory assist young adolescents in managing stress by helping them to identify current stressors in their environment and by using various techniques to change and alter their environment. Some of the techniques used to help control, cope with, and alleviate stress are relaxation techniques, adaptive skills, cognitive reframing, self-talk, and problem solving skills. A more detailed discussion of the use and effectiveness of these techniques occurs in the next section.

While there are many different definitions of coping (Compas, 2001), this study relies on the definition of Lazarus and Folkman (1984). Relating to the use of cognitive behavioral strategies mentioned above, Lazarus and Folkman (1984) define coping as "constantly changing cognitive and behavioral efforts to manage specific external and/or internal demands that are appraised as taxing or exceeding the resources of the person" (p. 141). Thus, in coping with stress, it is important that children learn to alter their cognitions and behaviors by employing cognitive and behavioral techniques, which are discussed in the next section.

Stress Management and Coping Techniques

Although a countless number of studies examine effective techniques and strategies used to control and manage stress, for purposes of this study, only those findings related to the young adolescent middle school population are relevant and discussed. By exploring the coping strategies and stress management programs that are effective with the young adolescent population, this researcher will gain support for the items used on the stress management techniques scale on the SMSEI.

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The SMSEI is an assessment tool intended for use by school counselors and other school based mental health providers to assist in identifying youth at risk for inadequate and/or limited abilities in coping with stress. Since the focus of the instrument is on the mainstream middle school population, the techniques included on the SMSEI are ones that are applicable within the school setting. de Anda and Bradley (1997) discussed the importance of school-based stress management interventions as well as outlined the most typical and successful coping strategies used by the middle school adolescent population. Like many of the other studies examined, de Anda and Bradley (1997) found that students often use both adaptive and maladaptive coping strategies when dealing with stress. Because the SMSEI focuses on assessing young adolescents' beliefs about how efficacious they are in using effective stress management techniques, only those successful adaptive skills in managing stress are included in the techniques scale items. Some of the adaptive coping strategies used by middle school students in de Anda and Bradley's (1997) study were "help seeking, distraction, relaxation, cognitive control, and affective release" (p. 92).

In a similar study, de Anda (1998) evaluated a school stress management program for its effectiveness in assisting young adolescents in coping with stress. By using the results from a previous study (de Anda & Bradley, 1997), de Anda (1998) designed an intervention program intended to teach adolescents how to use various adaptive skills found to be effective in coping with stress. By assigning 36 middle school students to an experimental group and 18 to a control group, the authors exposed the experimental group to a ten-week cognitive behavioral stress management program as well as assessed for any differences between the two groups prior to implementation of the program. The

two groups were equal on all measures, except the control group ($M = 5.50$) was found to use cognitive control significantly more [$t(53) = 2.11$, p ≤ .05] than the experimental group ($M = 4.67$). The adaptive skills taught in the ten-week program focused on various cognitive and behavioral control strategies (i.e., distraction, problem solving, self-talk, help seeking, and exercise) as well as physical muscle relaxation exercises. The experimental group showed an increase in the use of adaptive stress management techniques ($M = 2.19$ increase), while the control group experienced a decrease ($M = -.65$ decrease). The experimental group also displayed a significant reduction in level of stress when compared to their control group. "Participants in the stress management program reported a significantly lower degree of stress on both the State portion of the State Trait Anxiety Inventory (STAIC) [$t(53) = -2.38$, p ≤ .05] and the ASCM [$t(53) = -1.53$; p ≤ .05]" (de Anda, 1998, p. 79). In addition, students in the experimental group reported a significant increase [$t(53) = .019$; p ≤ .01] in relation to the effectiveness of their coping mechanisms as well (de Anda, 1998).

Other studies in the past have also explored the effectiveness of various coping mechanisms and stress management programs for the young adolescent middle school population. In one study, Robson and Cook (1995) outlined several appropriate school based interventions to use with children and adolescents to manage and control stress. Some of the successful interventions in their study included building a child's self-esteem, increasing problem-solving methods, and assisting in altering perceptions of stressful situations. Their analysis of interventions is unique in that they argue that interventions should stem from the model of stress one employs, and thus in using the

Lazarus and Folkman (1984) model, they demonstrated how the above interventions were suited to that theory.

In a similar study, De Wolfe and Saunders (1995) described an effective stress management program to use with sixth grade students, which included such successful interventions as teaching problem solving, listening skills, recognizing feelings, cognitive restructuring, and good health habits. In their study, 157 sixth grade students from both urban and suburban schools were enrolled in an eight-week stress management program. The authors divided their sample into three sub-samples so they could compare urban students to suburban students, as well as students who took both a pre and posttest to those who only took a posttest. The results of many multivariate analyses support the conclusion that the program and skills taught in De Wolfe and Saunder's (1995) study significantly reduced the amount of stress experienced by the sixth grade students. In addition, the authors provided a thorough discussion regarding the threats to internal validity in relation to the quasi-experimental method as well as how they were able to address these threats in their study.

Jackson and Owens (1999) demonstrated the effectiveness of various physiological approaches and relaxation exercises in combating the negative effects of stress. Exercises such as diaphragmatic breathing, muscle relaxation, imagery, visualization, writing, drawing, painting, and other activities designed to manipulate the environment were discussed as successful interventions in decreasing overall levels of stress in young adolescents presenting with various behavior disorders. The coping with stress skills outlined in their study are good examples of some of the techniques that can be used in designing the techniques scale on the SMSEI.

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McCraty et al. (1999) also tested the effectiveness of a stress management program designed for the middle school population and found that techniques related to "emotional self-management" (p. 246) were most beneficial. Their program, "Heart Smarts presents a series of practical techniques designed to help students neutralize or transform negative, reactive emotions and behaviors in the moment, allowing them to replace emotional imbalance with increased resilience and emotional stability" (p. 251). Similar to other stress management programs (de Anda, 1998; De Wolfe & Saunders, 1995; Jackson & Owens, 1999; Robson & Cook, 1995), the Hearts Smart program employs techniques such as cognitive restructuring, feelings identification, and relaxation exercises to assist students in stress and emotional stress management.

In addition to helping young adolescents cope with and manage their stress, many stress management school based programs also teach children to adopt an internal versus external locus of control. Henderson and Kelbey (1992) evaluated a stress management program and its stress relieving techniques aimed at both reducing stress levels and increasing children's internal locus of control. Locus of control research has been closely linked to the coping with stress literature by demonstrating that individuals with internal loci of control tend to have more adaptive and successful stress management coping styles (Crandall, Katkovsky, & Crandall, 1965; Folkman, 1984; Lazarus & Folkman, 1984). The current study will take the concept of internal locus of control a step further by looking at one's internal beliefs about coping ability and control by using a self-efficacy indicator.

In Henderson and Kelbey's (1992) investigation, students with an internal locus of control used more positive coping mechanisms such as "relaxing in various ways,

expressing feelings verbally, seeking social support, viewing events from a different perspective, and directing action toward positive problem solving strategies" (p. 128). In a similar study, O'Gonzalez and Sellers (2002) found that students diagnosed with Attention Deficit Hyperactivity Disorder also had more effective coping styles depending on whether or not they had a belief in internal locus of control. Both studies illustrate the importance of young adolescent's beliefs in internal control, which relates to the ideas presented in this current study in terms of exploring self-efficacy, which is also an internal trait, and its relation to stress management.

Assessing Stress Management and Coping Ability

Although none of the instruments and assessments reviewed in this study specifically assess stress management self-efficacy, they have been successful tools in studies exploring the effectiveness of stress management interventions for the child and adolescent population. All the instruments discussed in this section will assist this researcher in not only the development of age appropriate items for this population, but some of the instruments may serve useful in terms of establishing construct and criterion validity for the SMSEI. For purposes of this study, only those instruments intended for and effective with the middle school population are discussed. Readers are directed to Compas et al. (2001) for more information regarding instruments related to other child and adolescent populations. Compas et al. (2001) completed an extensive review of the research related to stress and coping with stress in childhood and adolescence, and provide various charts outlining several instruments used to measure stress and coping styles for children and adolescents.

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Possibly one of the most comprehensive and closely related instruments to the current study is the *Adolescent Stress and Coping Measure* (ASCM, de Anda & Bradley, 1997). The ASCM is a revised version of the *Pregnant Adolescent and Adolescent Stress Measure* (de Anda, Darroch, Davidson, Dilly, Javidi, Jefford, Komorowski, & Moreion, 1992) altered to fit a more general adolescent population. The ASCM is a 129-forced choice instrument with four different content areas. The areas assess: "(a) the degree of stress experienced; (b) the frequency of physiological, behavioral, cognitive, and affective manifestations of stress; (c) the frequency with which specific coping strategies are utilized, and their perceived effectiveness; (d) and the frequency with which particular stressors are experienced" (de Anda, 1998, p. 78). Although the length of the ASCM as well as the lack of information on the validity of the instrument prohibits its use in this current study, the style, wording, and format of the ASCM will be reviewed and used for ideas in the development of the SMSEI. Previous studies using the ASCM (de Anda, 1998, de Anda & Bradley, 1997; and de Anda et al., 1992) found internal consistency alpha coefficients ranging from .87 to .95, which show strong support for internal consistency of the ASCM.

Like the ASCM, one other instrument that relates to the SMSEI is the *Schoolager's Coping Strategies Inventory* (SCSI, Ryan-Wenger, 1990). Developed by a researcher in the nursing field, the SCSI was designed to measure how frequently a child uses certain coping strategies as well as their thoughts regarding the effectiveness of these strategies. By using Lazarus & Folkman's (1984) theory on stress and coping as her guide for development of the instrument, Ryan-Wenger first held a focus group discussion with 103 eight to twelve year olds asking them to identify coping strategies

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they use to combat stress. The students in the group discussion generated 518 coping strategies, which were then sorted and scaled down to fit into 13 categories. From these categories, "a 30-item instrument was developed by selecting three to four of the most commonly named strategies from the top five categories, and one to two of the most commonly named strategies from the remaining eight categories" (Ryan-Wenger, 1990, p. 345). Once developed and rated positively by expert judges, the SCSI was normed on 250 children. Although the SCSI does not specifically measure stress management self-efficacy, it was developed using the same stress theory (Lazarus & Folkman, 1984) as this author is. Therefore the SCSI is the most similar instrument related to the construct measured by the SMSEI and thus will be used in the current study for establishing validity. More specifics of the instrument are discussed in the methods section.

Other measures within the stress management literature are more specific, targeting only one or two areas related to stress and the young adolescent population. Some of the instruments used to assess levels of stress among young adolescents employ a life events model and measure the degree to which a child and or adolescent has experienced various stressful life events related to their age experiences. *The Life Events and Coping Inventory* (Dise-Lewis, 1988) is an example of an instrument that assesses the extent to which an adolescent has experienced a stressful age appropriate life event as well as how they are coping with the event. While Dise-Lewis (1988) advocates measuring significant life events to assess for adolescent stress levels, others suggest using a daily hassles model in creating stress inventories and assessments. There has been an ongoing debate in the literature regarding whether or not daily hassles or life events create the most stress, and therefore the most stress induced harm (Therrell, 1972). Using

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data from DeLongis, Coyne, Dakof, Folkman & Lazarus, (1982), Lazarus and Folkman (1984) report that, "in a regression based comparison of life events and daily hassles, that hassles are far superior to life events in predicting psychological and somatic symptoms" (p. 311). They report that "hassles accounted for almost all the outcome variance attributable to life events, whereas life events had little or no impact on health outcomes independent of daily hassles, [$F(2,75) = 3.76, p < .05$]" (p. 312). Therefore, the current study items developed for the SMSEI will focus on specific daily hassles experienced by young adolescents transitioning to middle school rather than the life events model employed by Dise-Lewis (1988).

Although there are numerous assessment tools used in measuring stress levels and coping abilities for the child and adolescent population, to date, no instrument exists that solely focuses on the young adolescent middle school population and the specific stressors that they face. Instruments such as the *Coping Scale for Children and Youth* (Brodzinsky et al., 1992), the *Stress Assessment Scale: Child Version* (De Wolfe & Saunders, 1995), and *The Stress and Coping Questionnaire* (Henderson & Kelbey, 1992) provide useful examples of age appropriate items and illustrations of how to develop such instruments. The lack of instruments specifically focused on the middle school population provides further support for the current research study.

In addition to using existing child and adolescent stress measures to assist in research design and item development, the use of coping inventories as stimuli for the development of technique scale items on the SMSEI is also important. Two instruments designed to measure child and adolescent coping mechanisms beneficial to the development of the SMSEI are Patterson and McCubbin's (1987) *Adolescent Coping*

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Orientation for Problem Experiences and Stark et al.'s (1989) *Kidcope*. Both instruments identify various adaptive and maladaptive coping mechanisms employed by children and adolescents and provide both specific and global ratings of child and adolescent coping levels. Again, while the instruments do not solely focus on the middle school population, items on both instruments provide impetus for developing stress technique items, and examples of age appropriate wording and content level for the SMSEI.

Similar to the lack of stress inventories designed specifically for the middle school population, is a lack of any instrument intended to measure stress management self-efficacy. Instruments designed to measure self-efficacy in various situations and settings do exist (discussed fully in the next section), however, only one stress inventory contains a small scale designed to assess self-efficacy as it relates to child positive coping responses. In an evaluation of the "I CAN DO" curriculum, Dubow et al. (1993) developed a 19-item measure intended to assess a child's perceived level of difficulty in using various positive coping responses. Although the items do not measure self-efficacy as it relates to the ability to manage one's stress, the items do provide useful examples of how SMSEI items could be worded. An example of an item on Dubow et al.'s instrument is, "A kid in your grade is mentally retarded. Playing with the kid at recess would be _____ for you" (p. 432; fill in with very hard, hard, easy, very easy). Information from expert judges and pilot subjects supported the use of their item format with the young adolescent population, and thus supports using a similar item format on the SMSEI. Not only are there useful inventories to consult within the stress and stress coping area, but there are also many examples of self-efficacy inventories used with children and adolescents.

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Self-Efficacy

The following section includes a discussion on Bandura's (1977) theory of self-efficacy highlighting his definition of self-efficacy as well as his thoughts related to how self-efficacy influences an individual's everyday life and decision making. Following is a review of existing measures designed to measure self-efficacy in various situations. While there are numerous instruments, as well as extensive amounts of research related to self-efficacy, the measures focused on in this paper are ones that concentrate on the child and young adolescent population. Again, while none of the instruments reviewed specifically measure stress management self-efficacy, they do provide useful examples of self-efficacy items, as well as item formats appropriate for the middle school student population.

Bandura's Theory of Self-Efficacy

Self-efficacy is a concept first developed and defined by Albert Bandura (1997a) as one's belief in their ability to perform certain tasks. In addition, "Perceived self-efficacy refers to beliefs in one's capabilities to organize and execute the courses of action required to produce given attainments" (p. 192). Bandura (1977, 1997a; 1997b) stressed his ideas that self-efficacy is a context and situation specific concept. Thus, an individual may have high levels of self-efficacy in one area of their life, but low levels of self-efficacy in another area of their life. Bandura (1977, 1997a) differentiates self-efficacy from self-esteem. Self-esteem is more global in nature and unbound by specific situations than self-efficacy. A person may have a high level of self-esteem, but still exhibit low levels of self-efficacy in an area that they do not feel capable. While it is important to strive to increase one's overall self-esteem, it is also important to increase

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self-efficacy in specific situations. The SMSEI intends to measure a student's belief in their self-efficacy related to managing their stress. By obtaining an assessment of how efficacious a student feels in controlling their stress, school counselors and other mental health providers can guide interventions and objectives specifically toward those students exhibiting low levels of self-efficacy.

Several studies have expanded Bandura's (1977, 1997a) concept of self-efficacy by focusing on specific situations and exploring self-efficacy in contexts such as academics, career decision making, self-esteem, job related skills, and social interactions (e.g., Fouad & Smith, 1997; Galanaki & Kalantzi-Azizi, 1999; Hampton, 1998; Jinks & Morgan, 1999; Lapan & Gysbers, 1997; Saracoglu et al., 1989; and Wheeler & Ladd, 1982). In addition, research has been conducted on the different ways to measure self-efficacy as well as the difficulties in doing so (Bong & Hocevar, 2002; Choi, 2003; Hansen, 1997; Sherer & Adams, 1983; Sherer et al., 1982). As previously discussed, however, no study to date has examined the concept of self-efficacy as it relates to the area of stress management.

Bandura (1997b) purports that self-efficacy regulates human functioning in four areas: "cognitive, motivational, mood or affect, and physical health" (p. 4). In other words, one's beliefs about their abilities greatly influences the way in which he/she thinks, feels, and behaves. The more self-efficacious an individual thinks they are in a given situation, the more positive their thinking, feelings, and actions are. For instance, individuals that believe themselves to be self-efficacious in the area of making new friends will be more outgoing, positive, and friendly in new social situations. A person with low self-efficacy, however, would tend to feel more socially anxious, timid, and

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have difficulty in meeting new people (Bandura, 1997b). In Bandura's works, he briefly touched on the role that self-efficacy can play in terms of coping and managing stress. He stated that believing to be self-efficacious in coping with stress and other anxiety producing situations often produces more positive results in dealing with stress as well as how stress physically and mentally affects one as well. Although Bandura (1997a; 1997b) began to address the connection between stress coping and self-efficacy, he did not provide any way to specifically measure stress management self-efficacy. By using the SMSEI and being able to identify students who have lower levels of stress management self-efficacy, counselors and other mental health providers can assist students in combating the negative effects of stress

Measures of Self-Efficacy

Similar to borrowing ideas related to item format and wording from the stress management and coping instruments literature in developing the SMSEI, reviewing existing self-efficacy measures is also crucial. Although self-efficacy has been the construct of interest in numerous psychological and educational studies, for purposes of developing the SMSEI, only those self-efficacy measures related to the young adolescent population and middle school situations are discussed at length. Because Bandura (1977) postulated that self-efficacy is very situation and context specific most measures of self-efficacy focus on task and situation specific events (Hansen, 1997). For example, some of the first self-efficacy instruments centered on career decision making and mathematics such as the *Career Decision-Making Self-Efficacy Scale* (Taylor & Betz, 1983) and the *Mathematics Self-Efficacy Scale* (Betz & Hackett, 1983). Other authors have developed measures of general self-efficacy for the adult population such as *The Self-Efficacy Scale*

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(Choi, 2003; Sherer & Adams, 1983; Sherer et al., 1982). In adhering to Bandura's (1977) definition of self-efficacy, however, it is prudent to concentrate on task and situation specific areas of self-efficacy rather than general ones (Hansen, 1997; Jinks & Morgan, 1999). Jinks and Morgan (1999) define self-efficacy as "the perceived sense of confidence regarding the performance of specific tasks" (p. 224) indicating self-efficacy measures should assess one's beliefs regarding their abilities in performing those tasks. For the SMSEI, the specific tasks measured are those specific techniques used to manage, control, cope with, or alleviate stress and/or stressors.

Instruments providing good examples of self-efficacy items used with the middle school population measure various areas such as academics, social situations, peer interactions, and general adaptation to middle school (Dubow et al., 1993; Fouad & Smith, 1997; Hampton, 1998; Henderson & Kelbey, 1992; Jinks & Morgan, 1999; Wheeler & Ladd, 1982). By evaluating the format, wording, and style of items on already established self-efficacy instruments, as well as the process the authors used in developing the instruments, this author can more effectively develop the SMSEI. Again, as discussed earlier, Dubow et al's., (1993) instrument on children's self-efficacy in positive coping responses is most closely linked to the current proposed assessment tool and will be useful in developing items for the SMSEI.

While instruments focused on academic self-efficacy (Fouad & Smith, 1997; Hampton, 1998; Jinks & Morgan, 1999) have different foci than the SMSEI, their primary purposes are the same: to identify students with low self-efficacy in certain areas so interventions aimed at increasing self-efficacy can be provided. By using tools such as the *Sources of Academic Self-Efficacy Scale* (Hampton, 1998), *The Middle School Self-*

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Efficacy Scale (Fouad & Smith, 1997), and the *Morgan-Jinks Student Efficacy Scale* (Jinks & Morgan, 1999), counselors and school personnel are able to identify possible academically at-risk students prior to failure, and thus are able to intervene and assist students in getting back on track academically, as well as provide preventative interventions. Similarly, the SMSEI is intended to identify students at risk for poor stress management, therefore at risk for physical, mental, social, and emotional problems. Once identified at risk, these students can be targeted by school counselors and mental health professionals and provided with the necessary preventive interventions to aid them in learning how to cope with and mange their stress.

Two other instruments related to the SMSEI, which are crucial to evaluate when developing items are the *Piers-Harris Children's Self-Concept Scale* (Henderson & Kelbey, 1992) and the *Children's Self-Efficacy for Peer Interaction Scale* (Wheeler & Ladd, 1982). While both these instruments are intended for the child population, the authors did use some middle school aged (sixth graders) children in the development and norming of the instruments. The item format, wording, and style provide examples that could be adapted for the SMSEI. Similar to the item format on the Dubow et al., (1993) scale, items on the *Self-Efficacy for Peer Interaction Scale* (Wheeler & Ladd, 1982), provide students an opportunity to rate whether or not a situation would be hard or easy for them. Since this format has been successful on other instruments for the child and young adolescent population, the SMSEI items will follow the same pattern, only asking about situations related to stress management self-efficacy rather than peer interactions and self-concept.

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One last instrument important to the previous study is the *Rosenberg Self-Esteem Scale* (RSE; Rosenberg, 1989) The RSE is "one of the most valid and highly recommended measures of global self-esteem" (McCabe & Vincent, 2003). While there are other instruments purporting to successfully measure self-esteem, the short length, reliability, and validity of the RSE makes it an excellent measure to establish construct discriminant validity in the current study. First developed by Rosenberg (1965) and later revised in 1989, the RSE (Rosenberg, 1989) has been used in countless numbers of research studies exploring self-esteem as it relates to various other variables (e.g., Blascovich & Tomaka, 1991; Byrne, 1983; Crandal, 1973; Silbert & Tippett, 1965; Whiteside-Mansel & Corwyn, 2003). First designed and developed as a Guttman Scale (Rosenberg, 1965), the scale now consists of ten likert items with four responses per item. Item responses range from strongly agree to strongly disagree. The RSE is intended to measure global self-esteem and has been successfully used with adolescents as well as adults (Rosenberg, 1989). As discussed earlier, Bandura (1977) believed self-efficacy and self-esteem to be two related, but different constructs, and thus in developing the SMSEI, the RSE will be used to establish support for construct validity. Reviews of the scale have been complimentary and provide strong support for use of the instrument. Further discussion of the psychometric properties of the RSE can be found in the methods section.

<center>Stress Management and Self-Efficacy</center>

Linking Lazarus and Bandura

As discussed earlier, the current study combines Lazarus and Folkman's (1984) transactional model of stress with Bandura's (1977, 1997a; 1997b) concept of self-

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efficacy. Instead of looking at variables related to locus of control and cognitive resources as the source of cognitive appraisal within the transactional model of stress, this author will use the concept of self-efficacy as the mediating variable in how an individual appraises a stressful situation. In the current study, self-efficacy refers to the belief in one's abilities to perform tasks related to management of stress. Again, these stress management techniques as well as stressors related to middle school transition are generated directly from the research in this area. By developing an instrument that measures stress management self-efficacy, counselors using this measure can become more effective in treating young adolescents at risk for suffering negative consequences of poor stress management skills. The use of the SMSEI will assist counselors in identifying students with poor stress management abilities and thus, will serve as a preventive tool related to the negative effects of stress. Students scoring low on the SMSEI are identified as having little belief in their effective stress management abilities and thus, a counselor can intervene and not only teach them effective skills, but also help to increase their self-efficacy in executing stress management skills. In addition, since the SMSEI will focus on specific stressors as well as specific stress management techniques, counselors can use individual item responses to pinpoint exactly which stressors are causing the student the most stress, as well as what techniques they have the most difficulty in implementing.

Significance of this Measure

This study will greatly contribute to the knowledge and practice of working with young adolescents experiencing stress by developing a measure that accurately assesses how self efficacious a young adolescent feels in certain stress producing situations

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(particularly those identified as affecting the age group of 10-14) as well as in using specific stress management techniques and skills. In using the SMSEI, mental health professionals and school counselors will be better able to serve and assist the young adolescent population experiencing stress related to the transition to middle school.

Summary

While stress and stress management techniques, programs, and coping responses have been studied extensively within the psychological literature (e.g., Compas et al., 2001; de Anda, 1998; Dombrowski, 1999; Dubow et al., 1993; Garmezy & Masten, 1986; Henderson & Kelbey, 1992; Jackson & Owens, 1999; Lazarus, 1966; Lazarus & Folkman, 1984), the concept of stress management self-efficacy has yet to be explored. This review/critique of the literature provided support for the study of stress management self-efficacy as well as support for the development of a measure such as the SMSEI to assess stress management self-efficacy for the middle school student population. A review of how the transition to middle school creates stress for the young adolescent was provided (Omizo, Omizo, & Suzuki, 1988; Stark, Spirito, Williams, & Guevremont, 1989; Wenz-Gross & Siperstein, 1998; Wertlieb, Weigel, & Feldstein, 1987), which in turn demonstrated further support for the need for the SMSEI. The chapter concluded with a discussion and definition of the construct of stress management self-efficacy as well as provided further rationale for the current study.

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CHAPTER III:

METHODS

The primary purpose of the current study is to develop, implement and establish the psychometric properties of the SMSEI. The SMSEI is intended to measure how well adolescents believe they can manage their stress as well as specific areas or management techniques that a child believes he/she is most capable of handling or implementing. Once established as a sound tool for measuring stress management self-efficacy, scores on the SMSEI may be used as predictors of overall young adolescent adjustment and emotional well-being.

Research Design

The current research project is a validity study, which is exploratory in nature. In addition, this study uses the guided principles of ex post facto design (Newman, Benz, Weis, & McNeil, 1997) to assist with standardization, norming, and establishing psychometrics of the measure. Hypotheses were derived from theory and past research as well as guidelines related to the development of new assessment instruments.

Participants

Middle School students were recruited from three Middle Schools in a central southern state. Two of the middle schools were medium in size with student populations close to 600 and were part of a medium sized school district in a University town. The third middle school was smaller in size, about 200 students, and was part of a small rural school district. All efforts were made to obtain a representative sample in relation to sex, ethnicity, socio economic status, and family living situation. A total of one hundred and eighty two ($N = 181$) students returned data packets, however, five of the students'

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packets had missing responses on the SMSEI so these five students' data were not used in the final analysis. The final sample consisted of one hundred seventy six ($N = 176$) middle school students from the three participating middle schools. Of the 176 students participating, 87 (49.5%) were male and 89 (50.5%) were female. All students were either in the sixth ($n = 108$, 61%) or seventh grade ($n = 68$, 39%) and ages ranged from 11 to 14 years of age. One hundred and forty participants were Caucasian (80%) while the remaining 20% were non-Caucasian. Please refer to Chapter Four for more detailed descriptions of the sample.

The sample of 176 middle school students used in this study serve as the norming population for the SMSEI. In the process of establishing psychometric properties of the SMSEI, the researcher will explore differences in scores on the SMSEI related to various demographic variables associated with sex, ethnicity, socioeconomic status, family living situation, age, and grade. Should significant differences exist between males and females and members of different racial groups, then separate norms will be provided for these groups. Cutoff scores related to whether or not a student is judged to have very high, high, average, low, or very low stress management self-efficacy will be determined by the normal curve. Scores falling within one standard (68%) deviation of the mean will be considered average. Scores falling between one and two standard deviations of the mean will be considered high and those between -1 and -2 low. Finally, scores falling above 2 standard deviations of the mean will be considered very high and those below 2 very low. Again, depending on results related to mean differences between sex and ethnicity, different norms for males, females, Caucasian, and non-Caucasian will be provided. Further discussion on the norms of the SMSEI are found in Chapter Four.

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Sampling Procedures

Before obtaining IRB approval and securing a sample to test the psychometric properties of the SMSEI, the researcher had to first develop the instruments. By using the literature that exists on specific stressors during the transition to middle school as well as the research on coping mechanisms among young adolescents, the researcher developed items for the SMSEI. Once items were developed, five expert judges and content specialists in the fields of counseling and stress management were asked to review the items and rate them according to what scale they believe the item to be measuring. Judges were provided a list of all items and were asked to rate each item on the degree to which it measures the stressor or stress management technique objectives. Judges were instructed to use the index of item objective congruence (Rovinelli & Hambleton, 1977) and give the item a rating of 1 if they believe the item measured the objective, a 0 if the item was an unclear measure of the objective, or a -1 if the item was clearly not a measure of the objective. Once compiled, the researcher used the judge's ratings to conduct an index of item objective congruence to assess item validity. Those items with low indices (< .70) were either discarded or reworded and tested again. Copies of the judges' ratings of each item are in Appendix F. A discussion of the results of the judge's ratings in relation to content validity is found in chapter four. A discussion regarding the use of the judge's ratings in item removal is found later in this chapter in the discussion on the SMSEI as an instrument.

Prior to obtaining IRB approval from the University of Arkansas, the researcher contacted the Fayetteville school district associate superintendent and asked for permission to contact the middle school principals in their district regarding participation

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in the study. Once approved by the superintendent, an invitation letter was sent to the middle school principals requesting permission to invite students and parents to participate in the study. Meetings were scheduled with the middle school principals where a complete description of the study was provided and any questions the principals had were answered. Once the principals authorized permission to recruit volunteers and signed a letter stating so, the researcher sought IRB approval.

Once items were judged and a final version of the SMSEI was developed, the researcher completed the University of Arkansas Institutional Review Board (IRB) paperwork and submitted the study for approval. Once approved, a small pilot study of the measure was conducted. The researcher secured six student volunteers at the school where the researcher works (with principal, teacher, and parent permission) to take the SMSEI and then provide feedback regarding their thoughts on the length, wording, and understanding of the items on the measure. Changes or edits were made on the SMSEI if deemed necessary by the pilot study and are discussed in the instrument section later in this chapter.

After IRB approval (found in Appendix A), the researcher gave each homeroom teacher in the participating schools packets containing a cover letter, an informed consent, as well as a parental permission letter. Each packet was coded with a number so that once the consent and permission form were signed, students were only identified by their number, not their names. The cover letter fully described the study and the informed consent covered these areas: risks/benefits, brief description of the study, confidentiality, voluntary participation, contacts for the dissertation chair and University of Arkansas IRB contact, and right to withdraw at any time. The parent permission form had a place

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for both the a parent's consent and student's assent as well as a place to decline participation. Parents were asked to send a copy of the permission form back even if they did not approve of their child participating in the study. As an incentive, all students returning the forms were entered into a drawing for thirty (ten per participating school) Hastings Video five-dollar gift certificates. A copy of the cover letter and informed consent form are in Appendix C.

Data Collection

Once permission and informed consent forms were collected, the researcher sent packets home with each participating student. The packets included the self-report student measures, the SMSEI, SCSI, and the STAIC, as well as the PCSR form for the parent to complete. Again, all measures and forms were coded with the student's identification number to protect the privacy rights of the students. Instructions provided in the packets stated that measures needed to be completed and returned within one week. Two weeks after completion of the first battery of tests, the researcher sent home a second SMSEI for students to complete in order to assess for test/retest reliability.

Once all measures were administered to participating students and collected by the researcher, the researcher compiled and analyzed the data. The sample size was estimated (at least ten subjects per item, Crocker & Algina, 1986) by analyzing the number of possible items that purportedly make up each factor of the measure (factors = 2, items = 25, $n = 250$). "For samples above 300, the relation of items to number of subjects becomes less crucial" (Tinsley & Tinsley, 1987, p. 415). Since response rates were low in this study, it is serving primarily as an initial exploration of the

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psychometrics of the SMSEI. One hundred and seventy six subjects was considered an adequate sample size.

Response rates were lower than anticipated in the current study. At the first middle school contacted, the researcher sent 555 parent informational letters home. Of those 555, 205 (37%) letters were returned with 141 (25%) students agreeing to participate in the study and 64 (12%) choosing not to volunteer. Of the 141 agreeing to participate and receiving packets, 80 (57%) students completed the packets and returned them to the investigator. At the second middle school contacted, 620 letters were sent home, 169 (27%) were returned and 121 (20%) of those agreed to participate in the study. Of the 121 students receiving packets, 81 (67%) completed and returned them to the investigator. At the final middle school contacted, 185 letters were sent home, 42 (23%) were returned with 25 (14%) students agreeing to participate in the study. Of those students volunteering to participate, 20 (80%) of the packets were completed and returned to the investigator. Overall, of the 1,360 letters sent home, 181 students participated in the study creating a 13% response rate for this study.

Instruments

The Stress Management Self-Efficacy Inventory (SMSEI). The main instrument used in this study was the SMSEI, which was developed as part of the study. The SMSEI is an instrument that is intended to measure stress measurement self-efficacy in relation to specific stressors faced by the middle school student as well as specific coping mechanisms found to be effective for the middle school population. The measure uses a likert scale format with four responses for each question which are very hard, hard, easy, and very easy. The SMSEI consists of two scales containing 12 to 13 questions. The first

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scale is the stressor situational scale and consists of 12 items measuring how efficacious a young adolescent believes him/herself to be in coping with age specific stressors, such as those associated with the transition to middle school. The second scale is the stress management technique scale and consists of 13 items measuring how self-efficacious young adolescents believe themselves to be in implementing and using specific stress management coping techniques, such as relaxation techniques, problem solving, and cognitive restructuring techniques. Because the current study consisted of the development and implementation of the SMSEI and establishing its initial psychometrics, these properties will not be reported in this section and instead are included in the results in chapter 4. In addition, chapter 4 contains a table of specifications specifically outlining the questions as well as the scale the question is intending to measure. A copy of the SMSEI is included in Appendix G.

The initial version of the SMSEI contained 30 items with 13 items purported to make up the stressors scale and 17 items purported to comprise the techniques scale. After compiling results from the expert judges' indices of item objective congruence, three items were removed due to having indices less than .70. All three items were intended for the coping techniques scale and had indices of .1, .5. and .6 respectively and thus were removed from the final version of the SMSEI. Two other items were removed from the SMSEI after completion of a small pilot study with six students and an elementary level literacy specialist. Both items were removed from the coping techniques scale due to all six students having a difficult time explaining the meaning of the item. In addition, the literacy specialist had flagged both items as being above the reading comprehension level of fifth grade students. The literacy teacher also suggested

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rewording one item from "seeking help" to "asking for help" and the pilot subject students agreed that this wording was easier to understand. Once these five items were removed, the SMSEI consisted of 25 total items.

State-Trait Anxiety Inventory for Children (STAIC). The STAIC (Speilberger, Edwards, Lushene, Montuori, & Platzek, 1973) is the childhood version of the *State Trait Anxiety Inventory* designed to measures both state and trait levels of anxiety. The children's version, intended for grades 4-6, has a title of "How I feel Questionnaire." The STAIC is a 40-item three-response likert format self-report inventory measuring current and longstanding levels of anxiety that a child exhibits. State anxiety "reflects a transitory emotional state or condition of the human organism that is characterized by subjective, consciously perceived feelings of tension and apprehension, and heightened autonomic nervous system activity" (Speilberger et al., 1973, p. 3). In other words, state anxiety measures the level of current anxiety a child is feeling. This scale has also been used as an indicator of the level of stress a child is under since stress often manifests itself as tension, worry, and anxiety (Walker & Kaufman, 1984). While State Anxiety can vary over time, Trait Anxiety is a more stable characteristic and "denotes individual differences in anxiety proneness" (Speilberger et al., 1973, p. 3). The state anxiety scale measures current levels of stress and tension, while the trait anxiety scale measures a longstanding personality characteristic of anxiety.

The STAIC is a normed referenced measure and was normed on 817 male and 737 female elementary and middle school aged children ranging in grades from fourth to sixth. Raw scores are converted to *T*-scores to determine the percentile rank of a child's raw score. Scores range from 20 to 60 for both the state and trait anxiety scales. The

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mean score for males in the norming sample was 36.7 (SD = 6.32) on the trait scale and

31.0 (SD = 5.71) on the state scale. For females, the mean on the trait scale was 38.0 (SD

= 6.68) and a mean of 30.7 (SD = 6.01) on the state scale. The authors of the test report

that "the STAIC S-anxiety scores for the normative sample were positively skewed while

those for the T-anxiety scale were approximately normal" (Speilberger, Edwards,

Lushene, Montuori, & Platzek, 1973, p. 12).

Reviews of the STAIC provide psychometric data on the instrument. Internal

consistency coefficients on the state anxiety scale are .82 for males and .87 for females.

For the trait anxiety scale, internal consistency coefficients are .78 for male and .81 for

female. Cronbach's coefficient alphas for the current study were .89 for state anxiety, and

.89 for trait anxiety. Test-retest reliability coefficients are less adequate with the trait

scale having .65 for males and .71 for females, and the state anxiety scale having .31 for

males and .47 for females (Endler, 1978). Although the reliability coefficients for test-

retest on the state anxiety are low, the authors argue that state anxiety is not a stable trait

and therefore should not necessarily yield a high test-retest reliability score (Endler,

1978). Studies have demonstrated concurrent validity of the STAIC by correlating scores

on the STAIC with scores on other measures of childhood anxiety. Significant

correlations, although moderate, between the STAIC and the *Children's Manifest Anxiety

Scale* (CMAS) range from .27 to .85 (Walker & Kaufmann, 1984) with the state scale

yielding smaller correlations than the trait scale due to its unstable nature. In addition,

later studies demonstrated stronger correlations between the state scale and the CMAS.

Factor analysis studies of the STAIC provide support for separate scales measuring state

and trait anxiety, however, items loaded onto three factors suggesting a trait factor, and

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two state factors- anxiety present or absent (Walker & Kaufmann, 1984). While

reviewers advocate for further testing of the STAIC, Endler (1978) states "that this scale

is probably the best scale available for assessing anxiety in children. I would recommend

it over other instruments primarily on the basis of the care and precision with which it

was developed" (p. 684). Endler (1978) also advocates for the use of the STAIC

especially in research studies, but to use caution when used as a clinical assessment

device.

The Schoolager's' Coping Strategies Inventory (SCSI). The SCSI (Ryan-Wenger,

1990) is a 30 item self-report measure intended to assess children's frequency of coping

strategies, as well as belief in how effective the strategies are. The SCSI provides two

scale scores representing coping use frequency and coping use effectiveness. In addition,

the "total SCSI score represents the construct of stress coping strategies" (Ryan-Wenger,

1990, p. 345). Cronbach's coefficient alphas are adequate for the SCSI with a .76 for the

frequency scale, .77 for the effectiveness scale, and a .79 for the total. Ryan-Wenger

(1990) argues that for a new measure, these alpha levels were sufficient to support

internal consistency. Test-retest reliability coefficients generated from scores on the SCSI

two weeks apart were .73 for the frequency scale, .82 for the effectiveness scale, and .81

for the total. Cronbach's coefficient alphas for this study were .77 for the frequency scale

and .80 for the effectiveness scale. A total scale score was not used, as Ryan-Wenger

(1998) no longer recommends doing so when using the SCSI. Although, the SCSI scoring

is not based on a normative sample, Ryan-Wenger (1998) provides sample means of a

school based population of children taking the SCSI. The mean for the school sample was

30.7 (SD = 8.9) on the frequency scale and 35.1 (SD = 10.0) on the effectiveness scale.

In development of the SCSI, Ryan-Wenger (1990) was able to support construct validity by demonstrating that children reported to be experiencing greater amounts of stress scored significantly lower on the measure than children reported to be under less stress. In addition, a factor analysis of the items resulted in a one-factor solution supporting the use of the total scale score reliability coefficients (Ryan-Wenger, 1990). By using a multitrait-multimethod design, Ryan-Wenger (1990) demonstrated that the SCSI has discriminant validity with two types of self-esteem measures, however, convergent validity was not demonstrated. The lack of convergent validity was explained by the fact that no other instrument exists that measures the same construct that the SCSI purports to measure (Ryan-Wenger, 1990).

Rosenberg Self-Esteem Scale (RSE). The RSE (Rosenberg, 1989) is "one of the most valid and highly recommended measures of global self-esteem" (McCabe & Vincent, 2003). The measure contains ten items assessing global self-esteem and is a self-report measure using a 4-point Likert response. The RSE consists of only one scale with a Cronbach's alpha of .77 when tested on 1,852 students from grades 7 to 12 (McCarthy & Hoge, 1982). Other studies have found an alpha of .80 when using the RSE on 1,725 state agency employees (Shahani, Dipboye, & Phillips, 1990). Cronbach's coefficient alpha for this study was .83. Silbert and Tippet (1965) report a 2-week test-retest reliability coefficient of .85. Several studies have used the RSE to establish validity in other measures of self-esteem and the measure itself has been shown to have sufficient convergent validity with correlations ranging from .56 to .83 with other well-established measures and indicators of self- esteem (Blascovich & Tomaka, 1991; Byrne, 1983; Crandal, 1973; Silbert & Tippett, 1965; Whiteside-Mansel & Corwyn, 2003). In addition,

construct validity is supported by studies reporting significant associations (p < .05) between the RSE and self and professional reports of clinical indicators related to low self-esteem such as depression (Rosenberg, 1965).

Demographic Sheet. Each participant completed a demographic sheet. This sheet consisted of the following: age, sex, ethnicity, year in school, socioeconomic status, family living situation, and grades earned in school. A copy of the demographic sheet is in Appendix E.

Parent Child's Stress Report (PCSR). The PCSR is a parent report version of the SMSEI. All items are identical to items on the student self-report SMSEI, however, parents are instructed to rate their child on how efficacious they believe their child to be in managing their stress. A copy of the PCSR is in Appendix H.

Derivation of General Research Questions and Specific Research Hypotheses

This section provides a review of the general research questions addressed in this study as well as the specific hypotheses tested relevant to each question.

Research Question 1. Do the scales on the SMSEI show adequate internal consistency? To answer this question, Cronbach's coefficient alpha was used. Because this is a new measure, internal consistency alphas of .70 were considered adequate (Nunnally, 1978), whereas alphas greater than .80 showed strong support for internal consistency. Anything less than .70 indicated low support for internal consistency.

General Research Hypothesis 1. Scales on the SMSEI will demonstrate adequate internal consistency values.

Specific Research Hypothesis 1a. The specific stressors scale on the SMSEI will have an internal consistency coefficient alpha greater than .70.

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Specific Research Hypothesis 1b. The stress management technique scale on the

SMSEI will have an internal consistency coefficient alpha greater than .70.

Research Question 2. Do the scales on the SMSEI show adequate test/retest

(stability) coefficients to support reliability? To test for stability of the SMSEI, scores

from the initial administering of the SMSEI were correlated with scores on the second

administration of the measure. For this analysis, Pearson's *r* was used and a correlation of

.80 or higher was considered a strong correlation showing strong support for test/retest

stability. An *r-value* between .80 and .65 was considered moderate showing adequate

support for test/retest reliability, while values smaller than .65 were considered weak and

indicators of low stability over time (Crocker & Algina, 1986). Although measures

related to personality often have lower coefficients of stability than aptitude tests,

anything less than .60 would indicate poor reliability across a two week time period

(Crocker & Algina, 1986).

General Research Hypothesis 2. Scales on the SMSEI will show adequate

test/retest coefficients to support reliability.

Specific Research Hypothesis 2a. The test-retest reliability coefficient for the

specific stressors scale on the SMSEI will be greater than a .65.

Specific Research Hypothesis 2b. The test-retest reliability coefficient for the

stress management technique scale on the SMSEI will be greater than a .65.

Research Question 3. Do the scores on the SMSEI display sufficient content

related evidence to support validity? Content validity was assessed by using expert

judges' ratings of the items and then computing the index of item congruence for each

item on each scale. To explore this question, the researcher conducted an index of item

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congruence test. Items with and index of item congruence of .70 or greater met the accepted criterion level and provided support for item validity. In addition to index of item congruence, face validity was assessed by feedback from the ten subjects used to pilot the SMSEI before administering the instrument to the sample.

General Research Hypothesis 3. Scores on the SMSEI will show sufficient content related evidence to support validity.

Specific Research Hypothesis 3. The items on the SMSEI will score greater than .75 on the index of item objective congruence test consistent with expert judge validity.

Research Question 4. Do the scores on the SMSEI show sufficient construct related evidence to support validity? A primary principal components analysis was conducted in order to test for construct validity. It was hypothesized that two factors would be present which represent the two scales in the SMSEI. When analyzing the results from the primary principal components analysis, a promax oblique rotation was used which allowed the factors to be correlated with one another. Standardized regression coefficients were used to analyze the primary principal components analysis. Factor loadings greater than .30 on the hypothesized component and less than .30 on the non-hypothesized component were considered sufficient evidence for construct validity (Tinsley & Tinsley, 1987). "This generalization derives from the observation that a factor loading of .30 indicates that approximately 10% of the variance in a given variable has been explained by that factor" (Tinsley & Tinsley, 1987, p. 442).

In addition to conducting a primary principal components analysis to test for construct validity, other measures were used in a multitrait-multimethod design to establish convergent and discriminant validity. To test for convergent validity, it was

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hypothesized that scores on the SMSEI would be positively correlated with scores on the SCSI (Ryan-Wenger, 1990) coping mechanism effectiveness scale. Although there is no other instrument specifically measuring stress management self-efficacy, because this scale is assessing students' self-report of coping mechanism effectiveness it was hypothesized that if a student believed their stress coping mechanisms to be effective, they would also believe themselves to be self-efficacious in managing their stress.

To test for discriminant validity, it was hypothesized that scores on the SMSEI would be less correlated with scores on the RSE (Rosenberg, 1989) inventory. Since self-efficacy is defined and studied as a separate and different construct from self-esteem, it was hypothesized that a student's self-esteem score would only be minimally correlated with their scores on the SMSEI.

General Research Hypothesis 4. Scores on the SMSEI will show sufficient construct related evidence to support validity.

Specific Research Hypothesis 4a. All twelve items intended for the specific stressors scale will load on the same factor with factor loadings greater than .30.

Specific Research Hypothesis 4b. All thirteen items intended for the stress management technique scale will load on the same factor with factor loadings greater than .30.

Specific Research Hypothesis 4c. Total scores on the SMSEI will be positively correlated with scores on the SCSI (Ryan-Wenger, 1990) coping mechanism effectiveness scale. An *r-value* greater than .70 will be obtained.

Specific Research Hypothesis 4d. Scores on the SMSEI will be moderately correlated with scores on the RSE (Rosenberg, 1989) inventory.

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Research Question 5. Do the scores on the SMSEI show sufficient criterion related evidence to support validity? To test for criterion related evidence, the STAIC (Speilberger et al., 1973), and PCSR were utilized. When testing for criterion related evidence of validity, it was hypothesized that scores on the SMSEI would be correlated to the criteria, which are the scores on the STAIC (Speilberger et al., 1973), and PCSR. By using simultaneously assessed criteria, concurrent validity was assessed. It was hypothesized that scores on the SMSEI would be positively correlated with scores on the PCSR. That is, it was believed that scores indicating a high level of stress management self-efficacy as reported by students would correspond to high scores on the PCSR as reported by parents. Additionally, it was hypothesized that high scores on the stress management self-efficacy measure would also correspond to low scores on the STAIC (Speilberger et al., 1973), state anxiety scale. That is, scores on the SMSEI would be negatively correlated with scores on the STAIC (Speilberger et al., 1973) state anxiety scale.

General Research Hypothesis 5. Scores on the SMSEI will show sufficient criterion related evidence to support validity?

Specific Research Hypothesis 5a. Scores on the SMSEI will be significantly positively correlated with scores on the PCSR.

Specific Research Hypothesis 5b. Scores on the SMSEI will be significantly negatively correlated with state anxiety scale scores on the STAIC.

Specific Research Hypothesis 5c. Scores on the SMSEI will be significantly negatively correlated with trait anxiety scales scores on the STAIC.

Variable List

Variables in the current study include demographic and instrument variables. Demographic variables are those extracted from the demographic information sheet: sex, ethnicity, age, year in school, socioeconomic status, living situation, and grade point. Following is how the demographic categorical variables were coded in the study. Variables such as age, year in school, and grade point were assigned the number values related to the response given. Sex was coded 1 = female, 2 = male. Ethnicity was coded 1 = Caucasian non-Hispanic, 2 = African American, 3 = Hispanic, 4 = Asian, 5 = Native American, 6 = Bi-racial, 7 = other. Ethnicity variables were first coded separately to represent each ethnic group, however, once data was completed, this variable was collapsed into 1 = Caucasian and 2 = non-Caucasian. Any non-majority group representing 10% of the population was used as a non-collapsed variable. There were no ethnic groups other than Caucasian that represented more than 10% of the sample. Socioeconomic status was measured by whether or not a child was eligible for free or reduced lunch and was coded 1 = eligible for free/reduced lunch and 2 = not eligible. Family living situation was coded 1 = living with both biological parents, 2 = living with single parent; 3 = living with one biological parent and one stepparent, 4 = adopted, 5 = living with relatives, 6 = living in a foster home or group home, and 7 = other. Variables such as age, year in school, and grade point were assigned the number values related to the responses given. In the final analysis, the GPA variable was thrown out due to more than 50% of the responses being missing. A middle school teacher shared that students do not use GPA in middle school, which explained the preponderance of missing data for this variable.

Instrument variables are those obtained from the total and scale scores on the

SMSEI, SCSI (Ryan-Wenger, 1990), RSE (Rosenberg, 1989), STAIC (Speilberger et al.,

1973), and PCSR. Variables from the SMSEI included each item response coded with the

students' response (either a 1, 2, 3, or 4) to the items (1-30) as well as a variable called

stressors to represent the specific stressors scale score and a variable labeled techniques

to represent the stress management techniques scale score. Variables from the SCSI

(Ryan-Wenger, 1990) included variables representing each item as well as a variable

representing the total frequency scale score and the total effectiveness scale score.

Variables from the STAIC (Speilberger et al., 1973) included variables to

represent each individual item response as well as a variable to represent the state anxiety

scale score and one to represent the trait anxiety scale. RSE (Rosenberg, 1989) variables

were individual items as well as a variable representing the total scale score for the RSE

(Rosenberg, 1989). Variables from the PCSR were identical to those on the SMSEI with

variables for each response on the individual items as well as a variable to represent the

stressor scale score and the technique scale score. In addition, variables from the second

administration of the SMSEI were identical to those from the initial SMSEI only labeled

differently.

Statistical Treatment

All data were entered and analyzed using SAS. Descriptive statistics related to

measures of central tendency (mean, mode, median, and variability) were used to report

sample demographics. Correlational analyses were used to test the majority of the

research hypotheses related to establishing reliability and validity. Cronbach's (1951)

coefficient alpha was used to demonstrate internal consistency for the two scales on the

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SMSEI. In addition, coefficient alphas were calculated for the SCSI, STAIC, TCSR, and RSE scales for this sample. All other measures of association were tested using Pearson's product moment coefficient to conduct the multitrait-multimethod analyses.

To demonstrate construct validity on the SMSEI, a primary principal components analysis was used. Since the SMSEI contains two scales, it was hypothesized that two factors would be extracted from the SMSEI. It was hypothesized that the scales would have a simple structure with items loading on only one factor and loading on their intended scale and/or factor. Since the two scales were hypothesized as being correlated with one another, a promax oblique rotation was used.

Limitations

Most of the limitations will be dictated by the results of the study; however, one limitation is related to the use of volunteer subjects rather than a true random representative sample. In addition, all measures used were self-report measures and thus no professional evaluation of stress coping was completed. While results may not be generalizable to all middle school students across the county, they may be generalizable to volunteer middle school students in similar regions as this study was conducted. The study could be replicated using samples from various parts of the nation. In addition, because this study used minors for subjects, subjects' participation was also dictated by parental approval so some subjects were lost due to lack of parental follow up or consent.

Summary

This chapter provided information related to the methodology and research design of the current study. General research questions as well as specific research hypothesis were identified along with literature to support the use of cutoff criterion. Thorough

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descriptions of the sampling, procedures, and data collection were provided so others could replicate and test the psychometrics of the SMSEI on other middle school student samples. The chapter concluded with a brief discussion on the statistical treatment of the variables as well as limitations of the study and design.

CHAPTER IV:

RESULTS

The following chapter has four sections. The first section reports on the demographic descriptive statistics of the sample. The second section reports normative data on the instruments used in this study. The third section reports results from the five general as well as specific research hypotheses outlined in chapter three. The final section is a brief summary of the findings in this study.

Demographic Descriptive Statistics

The total sample size in the following study was one hundred and seventy six (N = 176) middle school students. One hundred and eighty one students returned research packets; however, the researcher discarded five packets due to more than 50% of the data missing. Of the 176 participants, 49% (n = 87) were male and 51% (n = 89) were females. The total population of the three middle schools is 54% male and 46% female so males were somewhat slightly underrepresented in the sample. Sixty-one percent (n = 108) of the students were in the sixth grade and the remaining 39% (n = 68) were in the seventh grade. Ages of students ranged from 11 to 14 years of age with a mean age of 12.03 (SD = .74). Twenty-five percent (n = 44) of the students were 11 years old, 48% (n = 85) were 12 years old, 26% (n = 45) were thirteen years old, and 1% (n = 2) was fourteen years old.

In regards to the ethnicities of the subjects within this study, 79.6% (n = 140) were Caucasian, 6.8% (n = 12) African American, 4.6% (n = 8) Multiracial, 3.4% (n = 6) Hispanic, 2.8% (n = 5) Asian, 1.7% (n = 3) Native American, and 1.1% (n = 2) identified themselves as other. Although the majority of the sample was Caucasian (80%) the

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aggregate data is similar to the population data of the three middle schools sampled as their composition includes 83% Caucasian and 17% non-Caucasian students.

Students were also asked to respond to a question on the demographic sheet regarding who they live with. Fifty-five percent ($n = 97$) of the students identified that they resided with both biological parents. Twenty-two percent ($n = 38$) identified that they resided with one biological parent and one stepparent, 21% ($n = 37$) one biological parent, 1% ($n = 2$) other family members, and .5% ($n = 1$) identified living with their grandparents or other. In addition, SES in this sample was measured by asking students whether or not they qualified for free or reduced lunch. Of the 176 students, 26% ($n = 46$) stated that they were eligible while the remaining 74% ($n = 130$) were not. When comparing this data to the overall populations of the three schools, students on free or reduced lunch were somewhat underrepresented as the three schools combined have 37% of their students receiving free or reduced lunch. One of the schools, however, brings this average down since only 19% of the students are on free/reduced lunch and the other schools have 46% and 51% of their students on free/reduced lunch. Table 4.1 provides a summary of all demographic descriptive data discussed above.

Table 4.1

Summary of Demographic Descriptive Statistics

Demographic	Percent of total	n
Sex		
Male	49	87
Female	51	89
Grade		
Sixth	61	108
Seventh	39	68

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Table 4.1 continued

Demographic	Percent of total	n
Age		
11	25	44
12	48	85
13	26	45
14	1	2
Ethnicity		
Caucasian	79.6	140
African American	6.8	12
Multi-Racial	4.6	8
Hispanic	3.4	6
Asian	2.8	5
Native American	1.7	3
Other	1.1	2
Living Situation		
Both Biological Parents	55	97
One Bio/One step-parent	22	38
One Biological parent	21	37
Other family members	1	2
Grandparents	.5	1
Other	.5	1
Eligible for Free/Reduced lunch		
Yes	26	46
No	74	130

Note: $N = 176$. Percentages may not sum to 100 because of rounding.

Instrument Norms

Summary normative sample data on the instruments used in the study follow.

Values are given for the entire sample, as well as presented by sex. One way ANOVAS

were used to test sex differences on the sample means. All model assumptions were met,

however, on the analysis comparing sex differences on the SMSEI stressors scale the

homogeneity of variance test revealed unequal variances at the $p < .05$ level. Since this

violation was only marginal and due to the robustness of ANOVAS when the groups are

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equal in size, the slight violation is not an issue of concern (Kirk, 1995). Further analyses of the norming data on the SMSEI regarding group differences occurred post hoc and are discussed in Chapter five. All results are in Table 4.2. On the SMSEI stressor scale, the sample mean was 37.3 (SD = 5.03) with a range of scores from 22 to 47. Males had a mean score of 37.3 (SD = 5.5) and females had a mean score of 37.3 (SD = 4.6). On the SMSEI technique scale, the sample mean was 36.2 (SD = 5.9) with scores ranging from 25 to 52. Males had a mean score of 35.8 (SD = 6.2) and females had a mean score of 36.6 (SD = 5.6). On the SMSEI total variable, the sample mean was 73.5 (SD = 9.8) with scores ranging from 47 to 99. Males had a mean total score of 73.1 (SD = 10.7) and females mean was 73.8 (SD = 8.9). One way ANOVAS indicated no significant differences between mean scores on the SMSEI by sex. Effect sizes of all sex comparisons can be found in Table 4.2.

In terms of norms for scoring the SMSEI, cutoff scores were determined by the standard deviation of the current sample. Once established as a psychometrically sound instrument, a national study should be conducted so that norms that are more representative can be established. On the stressors scale, scores can range between 12 and 48. Scores between 32.27 and 42.33 were in the average range indicating average stress management self-efficacy. Scores greater than 42.33 were high and suggested that a student scoring above this cutoff score demonstrates high levels of stress management self-efficacy in terms of handing stressors related to middle school. Scores lower than 32.27 were low and indicated low levels of stress management self-efficacy in handling stressors.

On the SMSEI techniques scale, scores can range from 13 to 52. Scores between 30.3 and 42.1 were in the average range indicating average levels of self-efficacy in using coping techniques to deal with stressors. Scores greater than 42.1 were high and suggested that a student scoring above this cutoff score demonstrate high levels of stress management self-efficacy in employing specific stress coping techniques. Scores below 30.3 were low and indicated low levels of stress management self-efficacy in using stress coping techniques.

On the SMSEI total scores, scores can range from 25 to 100. Scores between 63.7 and 83.3 were in the average range and indicated average levels of overall stress management self-efficacy. Scores above 83.3 were high and suggested that those students who score above this cutoff score demonstrate high levels of stress management self-efficacy. Scores below 63.7 were low and indicated low levels of stress management self-efficacy. Since there were not any sex differences on the mean SMSEI scores, separate norms for males and females were not given.

On the RSE, the total sample mean was 31.9 (SD = 4.9) with scores ranging from 19 to 40. Males scored an average of 32.4 (SD = 4.7) and females an average of 31.5 (SD = 5.03). On the STAIC state anxiety scale, the total sample mean was 29.7 (SD = 6.0) with scores ranging from 20 to 54. Males scored an average of 28.6 (SD = 5.03) and females an average of 30.7 (SD = 6.6). On the STAIC trait anxiety scale, the total sample mean was 35.0 (SD = 7.9) with scores ranging from 20 to 57. Males scored an average of 33.2 (SD = 7.3) and females an average of 36.7 (SD = 8.2). One way ANOVAS indicated no significant sex differences on the RSE, but significant mean differences by sex on both the state [$F(1,174)$ = 5.62, $p < .02$] and trait [$F(1,174)$ = 8.9, $p < .003$] anxiety scales

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on the STAIC. Effect sizes for these comparisons were small, however. This finding was consistent with norming data on the STAIC.

On the SCSI frequency scale, the total sample mean was 30.9 (SD = 8.5) with scores ranging from 11 to 56. Males scored an average of 29.4 (SD = 8.5) and females scored an average of 32.3 (SD = 8.3). One-way ANOVA results indicated a significant difference by sex [$F(1,168)$ = 5.12, p < .02] on this scale with a small effect size. On the SCSI effectiveness scale, the total sample mean was 42.3 (SD = 9.8) with scores ranging from 18 to 78. Males scored an average of 41 (SD = 10.7) and females scored an average of 43.5 (SD = 8.8). There were no sex differences on the effectiveness scale.

On the PCSR stressors scale, the total sample mean was 36.1 (SD = 5.0) with scores ranging from 24 to 48. Males scored an average of 36.1 (SD = 5.4) and females scored an average of 36.2 (SD = 4.6). On the PCSR technique scale, the total sample mean was 35 (SD = 5.5) with scores ranging from 21 to 52. Males scored an average of 34.6 (SD = 5.7) and females scored an average of 35.3 (SD = 5.4). For PCSR total scores, the total sample mean was 71.1 (SD = 9.5) with scores ranging from 49 to 99. Males scored an average of 70.6 (SD = 10.3) and females scored an average of 71.6 (SD = 8.8). There were no significant sex differences on any of the PCSR mean scores.

Table 4.2

Normative Data on Instruments

Instrument-Scale	Sample M (SD)	Range	Male M (SD)		Female M (SD)		F	Effect Size(*f*)
SMSEI[a]								
Stressors	37.3 (5.03)	22-47	37.3	(5.5)	37.3	(4.6)	.21 (1,175)	.07
Techniques	36.2 (5.9)	25-52	35.8	(6.2)	36.6	(5.6)	.01 (1,175)	.08
Total	73.5 (9.8)	47-99	73.1	(10.7)	73.8	(8.9)	.7 (1,175)	.04

Table 4.2 continued

Instrument-Scale	Sample M (SD)		Range	Male M (SD)		Female M (SD)		F	Effect Size(f)
RSE[a]									
Total	31.9	(4.9)	19-40	32.4	(4.7)	31.5	(5.03)	1.65 (1,175)	.06
STAIC									
State[b]	29.7	(6.0)	20-54	28.6	(5.03)	30.7	(6.6)	5.62 (1,174)*	.16
Trait[c]	35.0	(7.9)	20-57	33.2	(7.3)	36.7	(8.2)	8.90 (1,170)*	.22
SCSI[d]									
Frequency	30.9	(8.5)	11-56	29.4	(8.5)	32.3	(8.3)	5.12 (1,168)*	.12
Effectiveness	42.3	(9.8)	18-78	41	(10.7)	43.5	(8.8)	2.88 (1,168)	.11
PCSR[e]									
Stressors	36.1	(5.0)	24-48	36.1	(5.4)	36.2	(4.6)	.04 (1,161)	.08
Techniques	35.0	(5.5)	21-52	34.6	(5.7)	35.3	(5.4)	.83 (1,161)	.03
Total	71.1	(9.5)	49-99	70.6	(10.3)	71.6	(8.8)	.41 (1,161)	.06

Note: [a] n =176, males n = 87, females n = 89; [b]n =175, males n = 87, females n = 88; ; [c] n =171, males n = 84, females n = 87; [d]n = 169, males n = 83 females n = 86; [e] n = 162, males n = 78, females n = 84; *indicates a significant difference between male and female means $p <$ .05.

Results of Testing the Research Hypotheses

Overall, this study served to explore the initial psychometrics of the SMSEI as well as the PCSR, which is the parent version of the SMSEI. In brief, this study assessed whether or not the SMSEI is a reliable and valid measure of stress management self-efficacy for middle school students. Five general research questions were explored as well as several specific research hypotheses related to each question. Below is discussion regarding each research question and its related hypotheses.

Internal Consistency Reliability

Results related to the research question and hypotheses concerning internal consistency follow. Research question one was do the scales on the SMSEI show

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adequate internal consistency values? To answer this question, Cronbach's coefficient alpha was used. Because this is a new measure, internal consistency alphas of .70 were adequate (Nunnally, 1978), whereas alphas greater than .80 showed strong support for internal consistency. Anything less than .70 indicated low support for internal consistency.

General Research Hypothesis 1 was that scales on the SMSEI and PCSR will demonstrate adequate internal consistency values. Please refer to Table 4.3 for a summary of internal consistency values of all measures used in the current study. The first specific research hypotheses related to internal consistency were:

Specific Research Hypothesis 1a. The specific stressors scale on the SMSEI and

PCSR will have an internal consistency coefficient alpha greater than .70.

Results of testing specific research hypothesis 1a revealed an overall alpha of .79 on the SMSEI stressor scale and a .83 on the PCSR stressor scale. Cronbach's coefficient alphas with deleted variables for the SMSEI stressor items ranged from .76 to .79. Alpha levels for the items on the PCSR stressor scale ranged from .81 to .83. On the second administration of the SMSEI, the stressor scale had an alpha of .82 and the techniques scale an alpha of .84. Specific research hypothesis 1a was accepted.

Specific Research Hypothesis 1b. The stress management technique scale on the

SMSEI and PCSR will have an internal consistency coefficient alpha greater than

.70.

Results of testing specific research hypothesis 1b revealed an overall alpha of .78 for the SMSEI techniques scale and a .83 for the PCSR techniques scale. Cronbach's coefficient alphas with deleted variables for the SMSEI technique items ranged from .76 to .77.

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Alpha levels for the items on the PCSR techniques scale ranged from .81 to .84. Specific

research hypothesis 1b was accepted. In addition the general research hypothesis for

research question one was accepted.

Table 4.3

Summary of Internal-Consistency Reliability Results

Instrument	Scale	Cronbach's Coefficient Alpha
SMSEI[a]	Stressors	.79*
	Techniques	.78*
PCSR	Stressors[b]	.83*
	Techniques[c]	.83*
SMSEI-Retest	Stressors[d]	.82*
	Techniques[e]	.84*
RSE[a]	RSE-total	.83*
STAIC	State Anxiety[f]	.89*
	Trait Anxiety[g]	.89*
SCSI	Frequency[g]	.77*
	Effectiveness[h]	.80*

Note: [a]n = 176; [b]n = 162; [c]n = 161; [d]n = 91; [e]n = 90; [f]n = 175; [g]n = 171;
[h]n = 169. *Sufficient reliability coefficient alpha ≥ .70.

Reliability-Coefficient of Stability

Results related to the research question and hypotheses concerning test-retest

reliability follow. Research question two was do the scales on the SMSEI show adequate

test/retest (stability) coefficients to support reliability? To test for stability of the SMSEI,

scores from the initial administering of the SMSEI were correlated with scores on the

second administration of the measure. For this analysis, Pearson's *r* was used and a

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correlation of .80 or higher was considered a strong correlation showing strong support for test/retest stability. An *r-value* between .80 and .65 was considered moderate showing adequate support for test/retest reliability, while values smaller than .65 were considered weak and indicators of low stability over time (Crocker & Algina, 1986). Although measures related to personality often have lower coefficients of stability than aptitude tests, anything less than .60 would indicate poor reliability across a two week time period (Crocker & Algina, 1986).

General Research Hypothesis 2 was scales on the SMSEI will show adequate test/retest coefficients to support reliability. Table 4.3 provides a summary of correlations related to testing for test/retest reliability. The specific research hypotheses related to test/retest reliability were:

Specific Research Hypothesis 2a. The test-retest reliability coefficient for the specific stressors scale on the SMSEI will be greater than a .65.

Results of testing specific research hypothesis 2a indicated a correlation of .67 ($p <$ .0001) between the first and second administration of the SMSEI on the stressor scale. Specific research hypothesis 2a was accepted.

Specific Research Hypothesis 2b. The test-retest reliability coefficient for the stress management technique scale on the SMSEI will be greater than a .65.

Results of testing specific research hypothesis 2b indicated a correlation of .74 ($p <$ .0001) on the techniques scale between the first and second administration of the SMSEI. Specific research hypothesis 2b was accepted. In addition, the general research hypotheses for research question two was accepted.

Table 4.4

Summary of Test/Retest Reliability Results

	SMSEI Stress.	SMSEI Tech.	SMSEI-R Stress.	SMSEI-R Tech.
SMSEI Stressor	1.00	.61*	.67*	.51*
SMSEI Technique		1.00	.60*	.74*
SMSEI-R Stressor			1.00	.76*
SMSEI-R Technique	--			1.00

Note: $n = 93$; *p < .0001.

Content Validity

Results related to testing for the content validity on the SMSEI follow. Research question three was do the scores on the SMSEI show sufficient content related evidence to support validity? Content validity was assessed by using expert judges' ratings of the items and then computing the index of item congruence for each item on each scale. To explore this question, the researcher conducted an index of item congruence test. Items with an index of item congruence of .75 or greater met the accepted criterion level and provided support for item validity. In addition to index of item congruence, face validity was assessed by feedback from the ten subjects used to pilot the SMSEI before administering the instrument to the sample. For a more detailed discussion regarding the small pilot study and results please refer to chapter 3.

General Research Hypothesis three was scores on the SMSEI will show sufficient content related evidence to support validity. Table 4.5 provides the table of specifications

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related to the SMSEI as well as the index of item congruencies from the expert judge

ratings. The specific research hypothesis for question 3 was:

Specific Research Hypothesis 3. The items on the SMSEI will score greater than a

.75 on the index of item congruence test consistent with expert judge validity.

Results of testing specific research hypothesis 3 indicated that item's indices of

congruency ranged from .9 to 1 and that all 25 items corresponded to their correct

objective. Initially, four items resulted in indices less than .75 and they were removed

from the final version of the SMSEI. For a more detailed discussion of those items

removed please refer to the pilot study discussion in chapter 3. Both the specific and

general hypotheses related to research question three were accepted.

Table 4.5

SMSEI Table of Specifications with Indices of Item Congruencies (IOC)

Item	Stressors Scale	Techniques Scale	IOC on Stressor Scale	IOC on Technique Scale
1. Avoiding arguments with my teachers is ____ for me.	X		1**	-1
2. Asking for help from others is ___ for me.		X	-1	1**
3. Sharing my feelings is ___ for me.		X	-1	1**
*Relaxing is ___ for me.		X	-.4	.8**
*Dealing with tougher teachers is ____ for me.	X		1**	-1
*Distracting myself from things that are bothering me is ____ for me.		X	-.6	.6
4. Keeping my belongings safe from being stolen is ___ for me.	X		1**	-1
5. Being teased by others is ___ for me.	X		1**	-1
*Solving problems is ___ for me.		X	-.5	.5
6. Avoiding being sent to the principal's office is ___ for me.	X		.9**	-.9
7. Using exercise to make myself feel better is ___ for me.		X	-1	1**

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8. Talking to myself to calm down is ___ for me.		X	-1	1**
9. Getting along with my teachers is ___ for me.	X		1**	-1
10. Saying no to peer pressure is ___ for me.	X		1**	-1
11. Stopping and taking deep breaths when worried is ___ for me.		X	-1	1**
12. Having too much homework is ___ for me.	X		1**	-1
13. Changing the way I view a negative event is ___ for me.		X	-1	1**
14. Getting along with my parent(s)/caregivers is ___ for me.	X		1**	-1
15. Talking about my problems to a counselor is ___ for me.		X	-1	1**
16. Drawing or painting to help make myself feel better is ___ for me.		X	-1	1**
17. Meeting teacher's expectations is ___ for me.	X		1**	-1
18. Writing about my feelings or thoughts is ___ for me.		X	-1	1**
19. Imagining a peaceful scene is ___ for me.		X	-1	1**
20. Having schoolwork that is more difficult is ___ for me.	X		1**	-1
*Changing something that is stressing me is ___ for me.		X	.1	-.1
21. Not being part of the "in" group is ___ for me.	X		1**	-1
22. Being able to focus on positive things when stressed is ___ for me.		X	-1	1**
23. Talking to my friends about my problems is ___ for me.		X	-1	1**
24. Talking to my parent(s) or caregivers about my problems is ___ for me.		X	-1	1**
25. Avoiding getting into arguments with my classmates is ___ for me.	X		.9**	-.9

Note: *these items were removed from the final version of the SMSEI. **IOC's > .70 considered sufficient to support content validity.

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Construct Validity

Results related to testing for construct validity on the SMSEI follow. Research Question four was do the scores on the SMSEI show sufficient construct related evidence to support validity? A primary principal components analysis was conducted in order to test for construct validity. It was hypothesized that two factors would be present which represent the two scales in the SMSEI. When analyzing the results from the primary principal components analysis, a promax oblique rotation was used which allowed the factors to be correlated with one another. Standardized regression coefficients were used to analyze the primary principal components analysis. Factor loadings greater than .30 were considered sufficient evidence for construct validity (Tinsley & Tinsley, 1987). "This generalization derives from the observation that a factor loading of .30 indicates that approximately 10% of the variance in a given variable has been explained by that factor" (Tinsley & Tinsley, 1987, p. 442).

In addition to conducting a primary principal components analysis to test for construct validity, other measures were used in a multitrait-multimethod design to establish convergent and discriminant validity. To test for convergent validity, it was hypothesized that scores on the SMSEI would be positively correlated with scores on the SCSI (Ryan-Wenger, 1990) coping mechanism effectiveness scale. Although there is no other instrument specifically measuring stress management self-efficacy, because this scale is assessing for students self-report of coping mechanism effectiveness it was hypothesized that if a student believed their stress coping mechanisms to be effective that they would also believe themselves to be self-efficacious in managing their stress.

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To test for discriminant validity, it was hypothesized that scores on the SMSEI would be less correlated with scores on the RSE (Rosenberg, 1989) inventory. Since self-efficacy is defined and studied as a separate and different construct from self-esteem, it was hypothesized that a student's self-esteem score would be moderately correlated with their scores on the SMSEI.

General Research Hypothesis four was scores on the SMSEI will show sufficient construct related evidence to support validity. The specific research hypotheses related to research question four were:

Specific Research Hypothesis 4a. All twelve items intended for the specific

stressors scale will load on the same factor with factor loadings greater than .30.

Results from testing hypothesis 4a indicated that six of the 12 SMSEI stressor items loaded onto factor two with loadings ≥ .30. Item loadings of these six stressor items ranged from .37 to .82. One of the six items loaded on factor two with a .37 loading also loaded onto factor one with a .31 loading. The remaining six items loaded onto factor 1 and item loadings ranged from .31 to .60. Specific research hypothesis 4a was rejected.

Specific Research Hypothesis 4b. All thirteen items intended for the stress

management technique scale will load on the same factor with factor loadings

greater than .30.

Results from testing hypothesis 4b indicated that 11 of the 13 SMSEI technique items loaded onto factor one with loadings ≥ .30. Item loadings of these 11 technique items ranged from .33 to .67. These 11 items exhibited simple structure. Of the remaining two items, one item loaded onto factor 2 with a loading of .35 and the other item did not load on either factor. The correlation between the two factors was -.32 and factor 1 accounted

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for 4.1% of the variance and factor 2 for 2.9% of the variance. Although there was some partial support for hypothesis 4b, overall, specific research hypothesis 4b was rejected. Table 4.7 provides a summary of the factor loadings associated with testing hypotheses 4a and 4b.

Specific Research Hypothesis 4c. Total scores on the SMSEI will be positively correlated with scores on the SCSI (Ryan-Wenger, 1990) coping mechanism effectiveness scale. An *r-value* greater than .70 will be obtained.

Results related to the multitrait-multimethod design for testing construct validity were analyzed using Pearson's *r* correlations. Results for testing hypothesis 4c indicated a correlation of .08 between the SMSEI and the SCSI coping effectiveness scale, which was not a significant correlation. It was hypothesized that a positive correlation greater than .70 would exist between these two measures so hypothesis 4c was rejected.

Specific Research Hypothesis 4d. Scores on the SMSEI will be moderately correlated with scores on the RSE (Rosenberg, 1989) inventory.

Results for testing hypothesis 4d indicated a correlation of .54 ($p < .0001$) between the SMSEI and the RSE. The hypothesis stated that these two measures would have a moderate positive correlation so hypothesis 4e was accepted. For results of the multitrait-multimethod design for testing construct validity as well as the results from testing for criterion validity, please refer to Table 4.8. Overall, only one of the four specific research hypothesis for question 4 was accepted.

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Table 4.6

Construct Validity Results- Primary principal components Analysis

SMSEI Item		Factor 1	Factor 2
Stressors	1	-.11	**.82***
	4	**.32***	.24
	5	**.50***	-.08
	6	-.11	**.64***
	9	-.12	**.77***
	10	**.58***	.05
	12	**.58***	.12
	14	**.31***	**.37***
	17	.19	**.58***
	20	**.60***	.11
	21	**.35***	.13
	25	.13	**.65***
Techniques	2	**.46***	.14
	3	**.50***	.08
	7	**.34***	.21
	8	**.35***	.22
	11	**.46***	.27
	13	**.58***	-.13
	15	**.67***	-.31
	16	**.33***	.09
	18	.25	.24
	19	.28	**.35***
	22	**.62***	-.01
	23	**.45***	.05

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Table 4.6 Continued

SMSEI Item		Factor 1	Factor2
Techniques	24	**.59***	.01

Note: *Loadings ≥ ± .30 are given in boldface. *n*factor = 2.

After reviewing and analyzing the initial primary principal components analysis,

major concerns related to the stressors scale were present. While the items on the

techniques scale did not load perfectly, 11 of the items did load on the intended factor

thus providing support for an 11 item stressors scale on the revised version of the SMSEI.

When taking a closer look for patterns of loadings related to items on the stressors scale,

it appeared that items on the stressors scale related to authority relations were loading on

one factor and items related to peers and daily school situations were loading together on

another factor. Because of this finding, it was determined that an additional principal

components analysis would be conducted with a 3 factor solution being specified. While

this analysis was conducted post hoc to the study, results are included in this chapter to

remain consistent with the reporting of results.

Results from the principal components analysis when limiting to the analysis to

three factors were as follows. Of the five items on the stressors scale focusing on

authority figures such as teachers, principals, and parents, five loaded onto factor two

with loadings ranging from .36 to .77. Of the five items, only one item loaded on multiple

factors with a .36 on factor two and a .38 on factor one. This item was the only item of

the five that included parents in the question and not school authority figures such as

teachers.

Of the seven items on the stressors scale judged to be focusing more on peer

relations and daily situational hassles, four of the items loaded onto factor one with

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loadings ranging from .46 to .64. An additional item focusing on avoiding fights with

peers loaded with a .59 loading on the stressors authority figure factor. The final two peer

daily hassles stressor items did not significantly load onto any of the three factors.

Of the thirteen technique items, eight of the items loaded onto factor one with the

peer/daily hassles stressor items with loadings ranging from .34 to .63. Two of these eight

items also loaded onto factor 3 with the other technique items with loadings of .40 and

.35. The remaining five items loaded solely on factor three with loadings of .35 to .68.

None of these items loaded on multiple factors. Factor 1 was correlated with factor 2 with

an r value of -.19 and with factor 3 with an r value of -.34. Factors 2 and 3 were

correlated with an r value of -.15. Factor 1 accounted for 3.2% of the variance while

factors 2 and 3 accounted for 2.5% and 2.1% of the variance. A summary of factor

loadings from the analysis limiting to three factors can be found in Table 4.7.

Table 4.7

Construct Validity- Primary components Analysis with 3 factors.

SMSEI Item		Factor 1	Factor 2	Factor 3
Stressors	1	-.10	.77*	.15
	4	.24	.19	.21
	5	.50*	-.09	.04
	6	.10	.67*	-.20
	9	-.17	.70*	.22
	10	.46*	-.01	.25
	12	.56*	.08	.12
	14	.38*	.36*	.01
	17	.28	.57*	0
	20	.64*	.09	.03
	21	.22	.07	.26

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Table 4.7 Continued

SMSEI Item		Factor 1	Factor 2	Factor 3
Stressors	25	.11	**.59***	.18
Techniques	2	**.63***	.17	-.18
	3	**.61***	.09	-.10
	7	**.49***	.24	-.16
	8	-.03	.07	**.65***
	11	.14	.13	**.59***
	13	**.34***	-.22	**.40***
	15	**.56***	-.35	.18
	16	-.08	-.06	**.68***
	18	-.07	.10	**.56***
	19	-.02	.22	**.54***
	22	**.43***	-.09	**.35***
	23	**.51***	.06	-.04
	24	**.59***	-.01	.06

Note: *Loadings $\geq \pm$ .30 are given in boldface. nfactor = 3.

Although the three-factor analysis was more promising when looking at the stressors scale in terms of items breaking down into a stressors authority scale and stressors peer/daily hassles scale, the techniques scale did not fair as well. When taking a closer look at the way items loaded in the 3-factor analysis, another pattern became apparent regarding the way the items loaded together. It appeared that coping technique items focusing on the use of consulting or relating with others loaded together, while the more internalized coping techniques were loading together. Based on this discovery, the researcher hypothesized that rather than only one stressor and technique scale, it was possible that the scales were breaking down into two smaller scales each depending on

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the focus of the items. The researcher hypothesized that the SMSEI would be a four-factor measure with two stressors scales and two techniques scales. In addition, the researcher hypothesized that all seven peer/daily hassles stressors would load together and all five authority related stressors would load together. Also, it was hypothesized that all five relational related coping techniques would load together and all eight internal coping mechanisms would load together. To test these post hoc hypotheses, a factor analysis limited to four factors was run. Results of this analysis follow.

When limiting the factor analysis to four factors, all but one of the items loaded onto only one factor. All factor loadings of the 24 items were significant on their intended factor and ranged from .37 to .79. Of the seven peer/daily hassles stressor items, five of the items loaded onto factor one with loadings ranging from .39 to .67. One of the items focusing on keeping belongings safe did not load on any of the factors and the item asking about fighting with peers loaded with a .59 onto factor two with the remainder of the stressor items.

The five authority figure stressor items loaded onto factor two with loadings ranging from .37 to .77. The item focusing on parents/caregivers instead of school authority figures also loaded onto factor 1 with a loading of .51. Of the eight internal coping technique items, five loaded onto factor 3 with loadings ranging from .45 to .72. Two of the internalized coping items loaded onto factor 1 with loadings of .58 and .68 and one item loaded onto factor 4 with a loading of .46. Of the five relational coping items, four loaded onto factor 4 with loadings ranging from .40 to .79. The other item related to relational coping with parents loaded onto factor 1 with a loading of .55. Factor 1 was correlated with factor 2 with an r value of -.21, factor 3 with an r value of -.24, and

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factor 4 with an r value of -.28. Factor 2 was correlated with factor 3 with an r value of -.09 and factor 4 with an r value of -.08. Factor 1 accounted for 2.6 % of the variance and factor 2 accounted for 2.5% of the variance. Factors 3 and 4 accounted for 1.9% of the variance each. Implications of the four-factor analysis are discussed in Chapter 5 and a summary of results can be found in Table 4.8.

Table 4.8

Construct Validity- Primary components Analysis with Four Factors.

SMSEI Item		Factor 1	Factor2	Factor 3	Factor 4
Stressors					
Authority	1	-.10	**.77***	.17	0
	6	-.11	**.66***	.14	.20
	9	-.06	**.71***	.21	-.12
	14	**.51***	**.37***	-.14	-.03
	17	.30	**.57***	-.08	.05
Daily Hassles					
& Peers	4	.22	.18	.17	.12
	5	**.39***	-.10	-.02	.24
	10	**.46***	-.01	.16	.16
	12	**.67***	.09	-.06	.05
	20	**.64***	.09	-.11	.16
	21	**.56***	.09	.05	-.23
	25	.05	**.59***	.19	.11
Techniques					
Internalized	7	.12	.22	-.10	**.46***
	8	.05	.07	**.65***	.03
	11	.22	.13	**.54***	.05

Table 4.8 Continued

SMSEI Item		Factor 1	Factor2	Factor 3	Factor 4
Internalized	13	**.58***	-.21	.22	-.07
	16	-.07	-.07	**.72***	.08
	18	-.05	.10	**.59***	.05
	19	.23	.23	**.45***	-.15
	22	**.68***	-.08	.15	-.08
Relational	2	.22	.15	-.13	**.53***
	3	-.03	.05	.07	**.77***
	15	.33	.33	.17	**.40***
	23	-.16	.02	.17	**.79***
	24	**.55***	-.02	-.05	.20

Note: *Loadings $\geq \pm$ .35 are given in boldface. $n$factor = 4.

Criterion Validity

Results related to testing for criterion validity on the SMSEI follow. Research

Question 5 was do scores on the SMSEI show sufficient criterion related evidence to

support validity? To test for criterion related evidence, the STAIC (Speilberger et al.,

1973), and PCSR were utilized. When testing for criterion related evidence of validity, it

was hypothesized that scores on the SMSEI would be correlated to the criteria, which are

the scores on the STAIC (Speilberger et al., 1973), and PCSR. By using simultaneously

assessed criteria, concurrent validity was assessed. It was hypothesized that scores on the

SMSEI would be positively correlated with scores on the PCSR. That is, it was believed

that scores indicating a high level of stress management self-efficacy as reported by

students would correspond to high scores on the PCSR as reported by parents.

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Additionally, it was hypothesized that high scores on the stress management self-efficacy measure would also correspond to low scores on the STAIC (Speilberger et al., 1973), state and trait anxiety scales. That is, scores on the SMSEI would be negatively correlated with scores on the STAIC (Speilberger et al., 1973) state and trait anxiety scales.

General Research Hypothesis five was Scores on the SMSEI will show sufficient criterion related evidence to support validity? The specific research hypotheses related to research question five were:

> *Specific Research Hypothesis 5a.* Scores on the SMSEI will be significantly
>
> positively correlated with scores on the PCSR.

Results for testing specific hypothesis 5a yielded a Pearson's r correlation of .54 ($p <$ .0001) between the SMSEI total and the PCSR total score. Scale correlations between the SMSEI and PCSR were .56 ($p < .0001$) for the stressors scale and .46 ($p < .0001$) for the techniques scale. Hypothesis 5a was accepted.

> *Specific Research Hypothesis 5b.* Scores on the SMSEI will be significantly
>
> negatively correlated with state anxiety scale scores on the STAIC.

Results for testing hypothesis 5b indicated a Pearson's r correlation of -.58 ($p < .0001$) between the SMSEI and the state anxiety scale on the STAIC. Hypothesis 5b was also accepted.

> *Specific Research Hypothesis 5c.* Scores on the SMSEI will be significantly
>
> negatively correlated with trait anxiety scale scores on the STAIC.

When testing hypothesis 5c, results yielded a Pearson's r correlation of -.56 ($p < .0001$) between the SMSEI and the trait anxiety scale on the STAIC. This hypothesis was also accepted. Results for testing the criterion validity of the SMSEI are in Table 4.8.

Table 4.9

Summary of Multitrait-Multimethod Construct Validity and Criterion Validity

	SMSEI Stress.	SMSEI Tech.	SCSI Eff.	RSE Total	STAIC State	STAIC Trait	PCSR Total	PCSR Stress.	PCSR Tech
SMSEI Total	.88*	.91*	.08	.56*	-.58*	-.56*	.54*	.35*	.33*
SMSEI Stress.		.61*	.04	.52*	-.53*	-.49*	.34*	.56*	.28
SMSEI Tech.			.11	.49*	-.45*	-.35*	.29	.25	.46*
SCSI Eff.				.00	.07	.18	.07	.10	.13
RSE Total					-.54*	-.36*	.30*	.28*	.30*

Table 4.9 Continued

	SMSEI Stress.	SMSEI Tech.	SCSI Eff.	RSE Total	STAIC State	STAIC Trait	PCSR Total	PCSR Stress.	PCSR Tech
STAIC State						.50*	-.13	-.17	-.10
STAIC Trait							-.07	-.10	-.03
PCSR Total								.96*	.97*
PCSR Stress.									.86*

Note: *are given in boldface $p < .0001$.

Summary

The purpose of this study was to assess the initial psychometrics of the SMSEI, as well as the parent version of the SMSEI, the PCSR. In sum, eight of the 12 specific

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research hypotheses were accepted. Results of testing for internal consistency on the two SMSEI and PCSR scales yielded alpha coefficients ranging from .78 to .83. Test/Retest stability results yielded significant correlations of .67 and .74. Results relating to testing for content validity revealed all final 25 items on the SMSEI as meeting the accepted criterion on the expert judge's ratings. Testing for construct validity resulted in rejection of the four-related hypotheses. When conducting a primary principal components analysis limited to two factors, six of the 12 SMSEI stressor items loaded onto factor two with loadings $\geq$ .30 and 11 of the 13 SMSEI technique items loaded onto factor one with loadings $\geq$ .30. The SMSEI also did not correlate with the coping effectiveness scale on the SCSI as hypothesized, but did moderately correlate ($r = .54, p < .0001$) with the RSE as predicted. Finally, when testing for criterion validity, all three criterion variables significantly correlated with the SMSEI as predicted and yielded correlations ranging from -.58 to .54. A discussion of the results and implications of the study follow.

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CHAPTER V:

SUMMARY, CONCLUSIONS, AND IMPLICATIONS

The following chapter provides a brief summary and overview of the study in general with a reminder of the general and specific research hypotheses explored. In addition, each research question in the study is discussed focusing on the results as well as implications for the results generated. The chapter concludes with a discussion on ideas for future research related to the SMSEI as well as a final summary of the overall study.

Summary of the Study

The current study served to develop the SMSEI and then to explore the initial psychometric properties of the SMSEI and the PCSR, which is the parent version of the SMSEI. Statistical analyses were run to determine both the reliability and validity of the SMSEI to determine if it is a useful measure to use in determining the stress management self-efficacy levels of middle school students.

Statement of the Problem

Adolescence is a stage of life characterized by a variety of stressors and challenges. One significant challenge that occurs during this developmental period is the transition from elementary school into middle school. This transition can be stressful for young adolescents and, if not successfully resolved, can often result in mental or emotional damage (Omizo, Omizo, & Suzuki, 1988; Stark, Spirito, Williams, & Guevremont, 1989; Wenz-Gross & Siperstein, 1998; Wertlieb, Weigel, & Feldstein, 1987). Several studies have been conducted on the specific stressors occurring at this transition into middle school and the detrimental effect these stressors can play on a

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young adolescent's psychological and emotional development (e.g., de Anda, 1998; de Anda & Bradley, 1997; Elias, 2002; Elias, Gara, & Ubriaco, 1985; McCraty, Atkinson, Tomasino, Goelitz, & Mayrovitz, 1999; Rudolph, Lambert, Clark, & Kurlakowsky, 2001; Wenz-Gross, & Siperstein, 1998; Wertlieb, Weigel, & Feldstein, 1987). There appears, however, to be a lack of research focusing on how to measure how well adolescents believe they can manage their stress. There are instruments used in various studies which researchers have purported to measure adolescent coping styles (Brodzinsky, Elias, Steiger, Simon, Gill, & Hitt, 1992; de Anda, 1998; de Anda & Bradley, 1997; De Wolfe & Saunders, 1995; Dise-Lewis, 1988; Dubow et al., 1993; Ebatha & Moos, 1991; Frydenberg & Lewis, 1991; Henderson & Kelbey, 1992; McCraty et al., 1999; O'Gonzalez & Sellers, 2002; Patterson & McCubbin, 1987; Rudolph et al., 2001; Wenz-Gross & Siperstein, 1998). Only a minimal number of these instruments, however, focus on a child's appraisal of their abilities to cope and none of the measures actually assesses self-efficacy as it relates to stress management. The current study focuses on young people of age 10-14 during their sixth and seventh grade years in school, and involves designing an instrument intended to measure how self-efficacious these young adolescents believe themselves to be in relation to the management of their stress.

Statement of the Procedures

One hundred seventy six (male $N = 87$, female $N = 89$) middle school students voluntarily participated in this study. Students were first contacted in January of 2005 and the final contact was in May of 2005. Participating students completed research packets containing the SMSEI, the RSE, the STAIC, the SCSI, the PCSR and a demographic sheet. Two weeks after completing the initial research packet, students were asked to

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complete a second SMSEI. Of the 176 participating students, 93 completed the second SMSEI. After data was gathered and compiled, several statistical analyses were run to test the general and specific research hypotheses of the study. A summary of the research questions and hypotheses follow.

The Research Hypotheses

This section provides a review of the general research questions addressed in this study as well as the specific hypotheses tested relevant to each question.

Research Question 1. Do the scales on the SMSEI show adequate internal consistency? To answer this question, Cronbach's coefficient alpha was used. Because this is a new measure, internal consistency alphas of .70 were considered adequate (Nunnally, 1978), whereas alphas greater than .80 showed strong support for internal consistency. Anything less than .70 indicated low support for internal consistency.

General Research Hypothesis 1. Scales on the SMSEI will demonstrate adequate internal consistency values.

Specific Research Hypothesis 1a. The specific stressors scale on the SMSEI will have an internal consistency coefficient alpha greater than .70.

Specific Research Hypothesis 1b. The stress management technique scale on the SMSEI will have an internal consistency coefficient alpha greater than .70.

Research Question 2. Do the scales on the SMSEI show adequate test/retest (stability) coefficients to support reliability? To test for stability of the SMSEI, scores from the initial administering of the SMSEI were correlated with scores on the second administration of the measure. For this analysis, Pearson's *r* was used and a correlation of .80 or higher was considered a strong correlation showing strong support for test/retest

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stability. An *r-value* between .80 and .65 was considered moderate showing adequate support for test/retest reliability, while values smaller than .65 were considered weak and indicators of low stability over time (Crocker & Algina, 1986). Although measures related to personality often have lower coefficients of stability than aptitude tests, anything less than .60 would indicate poor reliability across a two week time period (Crocker & Algina, 1986).

General Research Hypothesis 2. Scales on the SMSEI will show adequate test/retest coefficients to support reliability.

Specific Research Hypothesis 2a. The test-retest reliability coefficient for the specific stressors scale on the SMSEI will be greater than a .65.

Specific Research Hypothesis 2b. The test-retest reliability coefficient for the stress management technique scale on the SMSEI will be greater than a .65.

Research Question 3. Do scores on the SMSEI show sufficient content related evidence to support validity? Content validity was assessed by using expert judges' ratings of the items and then computing the index of item congruence for each item on each scale. To explore this question, the researcher conducted an index of item congruence test. Items with and index of item congruence of .70 or greater met the accepted criterion level and provided support for item validity. In addition to index of item congruence, face validity was assessed by feedback from the ten subjects used to pilot the SMSEI before administering the instrument to the sample.

General Research Hypothesis 3. Scores on the SMSEI will show sufficient content related evidence to support validity.

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Specific Research Hypothesis 3. The items on the SMSEI will score greater than .75 on the index of item congruence test consistent with expert judge validity.

Research Question 4. Do scores on the SMSEI show sufficient construct related evidence to support validity? A primary principal components analysis was conducted in order to test for construct validity. It was hypothesized that two factors would be present which represent the two scales in the SMSEI. When analyzing the results from the primary principal components analysis, a promax oblique rotation was used which allowed the factors to be correlated with one another. Standardized regression coefficients were used to analyze the primary principal components analysis. Factor loadings greater than .30 were considered sufficient evidence for construct validity (Tinsley & Tinsley, 1987). "This generalization derives from the observation that a factor loading of .30 indicates that approximately 10% of the variance in a given variable has been explained by that factor" (Tinsley & Tinsley, 1987, p. 442).

In addition to conducting a primary principal components analysis to test for construct validity, other measures were used in a multitrait-multimethod design to establish convergent and discriminant validity. To test for convergent validity, it was hypothesized that scores on the SMSEI would be positively correlated with scores on the SCSI (Ryan-Wenger, 1990) coping mechanism effectiveness scale. Although there is no other instrument specifically measuring stress management self-efficacy, because this scale is assessing for students self-report of coping mechanism effectiveness it was hypothesized that if a student believed their stress coping mechanisms to be effective that they would also believe themselves to be self-efficacious in managing their stress.

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To test for discriminant validity, it was hypothesized that scores on the SMSEI would be less correlated with scores on the RSE (Rosenberg, 1989) inventory. Since self-efficacy is defined and studied as a separate and different construct from self-esteem, it was hypothesized that a student's self-esteem score would only be minimally correlated with their scores on the SMSEI.

General Research Hypothesis 4. Scores on the SMSEI will show sufficient construct related evidence to support validity.

Specific Research Hypothesis 4a. All fifteen items intended for the specific stressors scale will load on the same factor with factor loadings greater than .30.

Specific Research Hypothesis 4b. All fifteen items intended for the stress management technique scale will load on the same factor with factor loadings greater than .30.

Specific Research Hypothesis 4c. Total scores on the SMSEI will be positively correlated with scores on the SCSI (Ryan-Wenger, 1990) coping mechanism effectiveness scale. An *r-value* greater than .70 will be obtained.

Specific Research Hypothesis 4d. Scores on the SMSEI will be moderately correlated with scores on the RSE (Rosenberg, 1989) inventory.

Research Question 5. Do scores on the SMSEI show sufficient criterion related evidence to support validity? To test for criterion related evidence, the STAIC (Speilberger et al., 1973), and PCSR were utilized. When testing for criterion related evidence of validity, it was hypothesized that scores on the SMSEI would be correlated to the criteria, which are the scores on the STAIC (Speilberger et al., 1973), and PCSR. By using simultaneously assessed criteria, concurrent validity was assessed. It was

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hypothesized that scores on the SMSEI would be positively correlated with scores on the PCSR. That is, it was believed that scores indicating a high level of stress management self-efficacy as reported by students would correspond to high scores on the PCSR as reported by parents. Additionally, it was hypothesized that high scores on the stress management self-efficacy measure would also correspond to low scores on the STAIC (Speilberger et al., 1973), state anxiety scale. That is, scores on the SMSEI would be negatively correlated with scores on the STAIC (Speilberger et al., 1973) state anxiety scale.

General Research Hypothesis 5. Scores on the SMSEI will show sufficient criterion related evidence to support validity?

Specific Research Hypothesis 5a. Scores on the SMSEI will be significantly positively correlated with scores on the PCSR.

Specific Research Hypothesis 5b. Scores on the SMSEI will be significantly negatively correlated with state anxiety scale scores on the STAIC.

Specific Research Hypothesis 5c. Scores on the SMSEI will be significantly negatively correlated with trait anxiety scales scores on the STAIC.

<center>Conclusions and Implications</center>

Overall, testing for the initial psychometrics of the SMSEI provided results that were mixed. Below is a discussion regarding each general research question and the specific hypotheses tested. Results are paired with critiques and judgments as well as followed by a discussion of implications related to the results.

Internal Consistency Reliability

In exploring internal consistency of the SMSEI, it was hypothesized that both the stressor and technique scales would result in Cronbach's Coefficient alphas greater than .70. Both specific hypotheses related to internal consistency were accepted since the 12 items on the SMSEI stressor scale obtained an alpha of .79 and the 13 items on the technique scale obtained an alpha of .78. Results from testing internal consistency on the PCSR and retest version of the SMSEI were even stronger with alpha levels of .83 on both the PCSR stressor and technique scales and .82 on the SMSEI retest stressor scale and .84 on the technique scale.

While the alpha values for the initial administration of the SMSEI were adequate and demonstrated internally consistent scales, the scales on the PCSR and retest version of the SMSEI were higher and provided stronger support for the internal consistency of these measures. In sum, it is concluded that the SMSEI and the PCSR demonstrate adequate to strong support for reliability related to internal consistency. Implications of these results are that there is psychometric support for the SMSEI as a reliable tool to be used in middle schools with sixth and seventh grade students. School and mental health counselors using the SMSEI would be encouraged when using the SMSEI on a large group of students to compute internal consistency values to further provide support for the use of the SMSEI.

Reliability-Coefficient of Stability

When exploring for stability of the SMSEI over time, it was hypothesized that the scores on the initial administration of the SMSEI and the retest administration of the SMSEI would significantly positively correlate with one another with a correlation

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greater than .65. Similar to the results related to internal consistency, both hypothesis related to test/retest reliability were accepted. On the stressors scale, a Pearson's r of .67 was obtained and on the technique scale a Pearson's r of .74. Both these values were significant ($p < .0001$) and provide support for stability of the SMSEI over time.

Although significant and adequate in support for test/retest reliability, the correlations were somewhat low and could be explained due to the effects of learning, time, and maturation that can occur between first and second administration of an instrument. In terms of the stressors scale, it is likely that as the school year progressed, some students may have either had increased or decreased exposure to the stressors on the SMSEI scale and thus their responses most likely reflect their experiences in how they handled those situations. In addition, it is possible that in terms of stress management techniques, some of the students could have been introduced to new coping mechanisms during the two week time period that could have altered their perceptions of how efficacious they are in using these skills. It is extremely likely that had the researcher allowed a longer period of time to elapse between administrations of the SMSEI, that even lower correlations would have been obtained thus supporting the notion that with time and learning, stress management self-efficacy is not a stable trait.

One implication related to the possible unstable nature of stress management self-efficacy is related to how school counselors and school based mental health providers can use the SMSEI. Based on what a student scores on the SMSEI their initial time, school counselors or school based mental health providers can create interventions aimed at both alleviation of stressors and education of coping techniques, which in turn would help students become more self-efficacious in managing their stress. If a student or groups of

students score in the low range on the stressors scale, then helping professionals would want to target interventions aimed at reducing the situational stressors and providing feedback on how to problem solve or cope with these specific stressors. If a student or groups of students score in the low range on the techniques scale, helping professionals would gear interventions toward education, exposure, and rehearsal of positive stress management coping skills. Regardless of intervention strategy, the goal would be to increase overall stress management self-efficacy, which would be demonstrated by higher scores on the SMSEI the next time the student or groups of students took the instrument.

Content Validity

Results related to testing for the content validity of the SMSEI suggested strong support for both the face and content validity of the SMSEI. Content related validity was assessed by a small pilot study of fifth grade students and from feedback generated by expert judges in the counseling profession and middle school education. The initial SMSEI contained 30 items, but after conducting an index of item congruency test, five items were removed. The remaining 25 items all met the accepted index of item congruency criterion and demonstrated face validity by remarks made by students to the researcher. One student shared that she thought the test was easy to understand and when asked what she thought it was measuring, she stated "how I cope with stress". Another student commented that he believed the test to be looking at "how I can use what my counselor has taught me." In sum, the results from the pilot study and index of congruency test show strong support for the content validity of the SMSEI.

Implications related to the testing of the content validity are related to the use of the SMSEI with the intended student population. Based on the comments and remarks

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from the students involved in the pilot study, the SMSEI does have face validity related to measuring stress management self-efficacy and is a measure that can be easily read and understood by the majority of the intended middle school population. Future use of the SMSEI might include translating the test into Spanish or other needed languages and testing for psychometric properties of these different versions. School and mental health counselors using the SMSEI would need to take initiative in determining the need for different versions of the SMSEI in regards to their own student population.

Construct Validity

Results related to testing for construct validity were not supportive and suggested the need for future research and testing of the SMSEI. It was hypothesized that the SMSEI would be a two-factor structure and that all 12 stressor items would load together and all 13-technique items would load together. None of the specific research hypotheses related to a primary principal components analysis of the SMSEI were accepted. Since it was hypothesized that the SMSEI would have a two-factor structure, hypothesis 4a and 4b were tested by forcing a two-factor solution.

Results of the two factor forced primary principal components analysis were mixed. In relation to the stressors scale, seven of the items significantly loaded on factor one and six on factor two. One of the items loaded on both factors. Results related to the construct validity of the stressors scale suggest further exploration of the items on the stressor scale. When looking at individual items and their loadings, one interesting finding is that of the six items loading on factor two, five of the items are dealing with stressors related to authority figures such as principals, teachers, and parents. The remaining item focuses on peer relations. Of the seven items loading on factor one, only

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one item focuses on authority, which is the item that loads both on factor one and two, and the remaining items focus on peer or general school (i.e., homework) related stressors. Based on this initial analysis of item loadings and patterns, it is reasonable to state that there is little support for construct validity of the stressors scale and that most likely items are grouping together due to other reasons or a greater number of scale definitions may be needed. Further exploration and revision of the stressor scale is warranted and is discussed in a later section.

Results related to testing the construct validity of the techniques scale were stronger as 11 of the 13 technique items loaded onto factor one. Of the remaining two items, one item loaded on factor two, and the other item did not load on either factor. Although not all 13 items significantly loaded onto the same factor, which led to the rejection of specific research hypothesis 4b, it can be said that support for construct validity of the technique scale can be developed. When exploring the two items that did not load onto factor one, item 18 "writing about my feelings or thoughts is ___ for me" and item 19, "imagining a peaceful scene is ___ for me", no apparent differences or reasons for not loading stand out. Since the remaining 11 items load significantly onto one factor with loadings greater than .30, it would be reasonable to discard items 18 and 19 and have a revised SMSEI version with only 11 rather than 13 items on the techniques scale. Interestingly, removal of these two items would cause the internal consistency to drop from .79 to .78 respectively. While removing these two items may help create a more valid techniques scale, there still exists many concerns regarding the stressors scale.

After taking a closer look at the way items were loaded together, the researcher ran two additional post hoc factor analyses limiting the factors to three and then four.

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Based on the results from the three-factor analysis, previously discussed in Chapter Four, the researcher hypothesized that the SMSEI might actually consist of four smaller scales than the original two scales. Instead of the stressor and technique items created two scales, it was hypothesized post hoc that the stressors scale consist of two sub-scales, an authority stressor scale and a peer/daily hassles scale. In addition, it was hypothesized that the techniques scale would also consist of two sub-scales. One scale focusing on internal or individualized coping mechanisms and another scale made up of items relating to relational and consultative coping mechanisms. The post hoc four-factor analysis did provide support for these hypotheses.

When examining the results of the four-factor analysis, all five authority stressor items loaded onto the same factor with only one item loading onto a second factor. Item 14 "Getting along with parent(s)/caregivers is _____ for me" had a stronger loading on the factor related to the other stressor items and is perhaps explained by the fact that the other four authority stressor items all focused on school authority figures and item 14 focused on parents and caregivers. Future revisions of the SMSEI might involve either deleting this item and creating an additional school authority item or deciding to keep the item since it does load with the other parental items. A revised SMSEI measure is definitely needed and at this time the researcher is leaning toward keeping this item as one of the stressor items.

Of the seven peer/daily hassles stressor items, five loaded together on factor one with item 4 "keeping belongings safe from being stolen is _____ for me" not loading on any factor and item 25 "avoiding getting into fights with classmates is _____ for me" loading on factor 2 with the five authority stressor items. It is likely that item 25 is

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loading on the authority scale as a function of the items focus on relationships with others, however, at this time, the researcher is advocating deleting both items 4 and 25 in a revised version of the SMSEI with the intention to strengthen the overall validity of the stressors scale.

When examining the loadings of the 13 technique items, support for two sub-scales does exist. Of the eight items focusing more on individualized and internal coping mechanisms, five of the items significantly loaded on factor three. Item 7 "Using exercise to feel better is ____ for me" loaded with the relational technique items and items 13 "changing the way I view a negative event is ____ for me" and 22 "being able to focus on positive things when stressed is ___ for me" loaded onto factor one with the peer/daily hassles stressor items. While these items faired well in the initial pilot study, upon further examination the researcher decided to omit these items in the revised SMSEI as a result of the four-factor analysis.

Of the five relational coping technique items, four loaded on factor four and item 24 "talking to parents/caregivers about problems is ___ for me" loaded on factor one. Similar to the parent item on the stressor scale, this parent item also loaded onto the peer/daily hassles factor, which could be a function of the similar focus of these two items. Of the remaining relational coping items, the focus was on consulting and relating with peers, others, and counselors so it was determined that in the next version of the SMSEI, item 24 would be deleted.

After exploring the results from the four-factor analysis and deciding to delete six of the original items, a revised SMSEI was developed which included 19 items and four scales. The authority figure stressors scale contained five items and the peer/daily hassles

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stressors scale also consisted of five items. The internalized coping techniques scale

consisted of five items and the relational coping techniques scale contained the remaining

four items. While it is pertinent that this new revised version of the SMSEI be tested and

analyzed using a new sample of middle school students, the researcher did test for

internal consistency reliability and construct validity with an additional factor analysis by

including only the 19 items making up the revised SMSEI. Results of these post hoc

analyses follow.

When testing for internal consistency of the revised SMSEI on the four scales

results were not as strong as initially. On the stressors authority scale an alpha of .73 was

obtained while on the peer/daily hassles stressor scale an alpha of .68 was obtained. On

the internalized coping technique scale an alpha of .69 was obtained and on the relational

coping technique scale an alpha of .66 was obtained. While the alpha value for the

stressor authority scale is somewhat acceptable, the other alpha values are only

approaching an acceptable value, and thus it can be said that internal consistency of these

four new scales is not supported. However, the reduction from a 2-scale to a 4-scale

model has resulted in scales with small numbers of items. Thus, additional items need to

be developed and included to increase reliability and potential validity. Further testing of

these new items would then be needed.

In regards to the final post hoc factor analyses of the four scale revised SMSEI,

there are still concerns related to the construct validity of the SMSEI and further

development and testing is needed. While this final analyses did reveal stronger support

for the construct validity of these four scales, there still exists problems with three of the

items. Of the five authority stressor items, all five items loaded on factor two with

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loadings of .34 to .79. however, two of the items also loaded on factor one with loadings of .45 and .35. Item 14 focusing on parents loaded stronger on factor one and item 17 "meeting teacher's expectations is ___ for me" while loading on two factors, loaded more strongly on factor two with the additional authority items.

All five peer/daily hassles stressor items loaded on factor one with loadings of .57 to .72 showing strong support for construct validity for this scale. In addition, all five internalized coping technique items loaded on factor three with loadings of .53 to .68 also demonstrating strong support for the construct validity of this new sub-scale. The remaining four relational coping items loaded on factor four with loadings of .43 to .79, however, item 2 "asking for help from others is ___ for me" also loaded on factor one with a loading of .37. This item did load more strongly on its intended factor, however, so there is some support for construct validity for this scale as well. While the results of the final post hoc analyses of the revised SMSEI are more promising, it is still evident that future testing and revision is needed.

When exploring the variance accounted for by each factor, results indicate that 17% of the variance is accounted for by factor one, 15% for factor two, 7% for factor three, and 16% for factor four. Total variance explained is 55% with 45% of the variance unaccounted for. A summary of the post hoc analyses can be found in Tables 5.1 and 5.2 and a copy of the revised SMSEI can be found in Appendix I.

Table 5.1

Results of Post Hoc Revised SMSEI Internal Consistency Reliability Results

Scale	Sub-Scale	Cronbach's Coefficient Alpha
Stressors	Authority Scale	.73
	Peer/Daily Hassles	.68
Techniques	Internalized	.69
	Relational	.66

Table 5.2

Summary of Post Hoc Factor Analysis of Revised SMSEI

SMSEI Item		Factor 1	Factor 2	Factor 3	Factor 4
Stressors					
Authority	1	-.07	**.79***	.16	.0
	6	-.02	**.72***	-.21	.19
	9	-.08	**.75***	.20	-.10
	14	**.45***	**.34***	.0	-.10
	17	**.35***	**.56***	-.05	.04
Daily Hassles					
& Peers	5	**.57***	-.18	-.06	.18
	10	**.58***	-.09	.18	.14
	12	**.61***	.07	.05	.06
	20	**.72***	.01	-.03	.12
	21	**.60***	.04	.06	-.21
Techniques					
Internalized	8	.15	-.05	**.68***	-.02

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Table 5.2 Continued

SMSEI Item		Factor 1	Factor 2	Factor 3	Factor 4
Internalized	11	.28	.08	**.53***	.04
	16	-.16	-.07	**.75***	.20
	18	-.16	.15	**.54***	.20
	19	.25	.11	**.56***	-.19
Relational	2	**.37***	.15	-.18	**.43***
	3	.01	.14	.02	**.79***
	15	.13	-.25	.19	**.53***
	23	-.06	.06	.12	**.75***

Note: *Loadings $\geq \pm$ .35 are given in boldface. $n$factor = 4.

In regards to the remaining two specific research hypotheses related to testing for construct validity, a multitrait-multimethod design was used. It was hypothesized that scores on the SCSI coping effectiveness scale would significantly positively correlate with scores on the SMSEI. Results for testing this hypothesis indicate a non-significant relationship between the two measures ($r = .08, p = .28$), thus resulting in rejection of hypothesis 4c. Since a known instrument measuring stress management self-efficacy does not exist, one limitation to this current study was trying to find a measure to establish convergent construct validity. It was hypothesized that students who believe their coping strategies effective, would also have high stress management self-efficacy, but as the results indicated this was not the case.

One possible explanation for the lack of support for convergent validity with the SCSI is that while the SMSEI focuses solely on measuring efficacy with positive coping

skills, the SCSI looks at both the effectiveness of what this researcher identifies based on literature as adaptive and maladaptive coping mechanisms. Scale scores on the SCSI are generated by adding item values of both the positive and negative coping skills together and items are not recoded so it is difficult to determine what the actual scale score is representing in terms of coping skill frequency and effectiveness. As counseling practitioners, it would be difficult to diagnose or identify problem areas from the scale score without also looking at individual items. From a counseling standpoint, the SCSI would be a more effective and useful tool if items were split into adaptive frequency and effectiveness scales as well as maladaptive frequency and effectiveness scales. By creating these four scales, counselors would have a better tool and identification of a student's adaptive and maladaptive coping skill use and effectiveness.

While the initial hypothesis related to convergent validity was rejected, a post hoc analysis of the data revealed that when removing the items focusing on maladaptive coping mechanisms (i.e., eating, breaking things, picking on someone etc.), the correlation between the SMSEI and the SCSI coping effectiveness scale is .31 ($p <$ .0001). While this post hoc analysis is more reasonable in terms of the comparisons between instruments purporting to measure the same thing, support for convergent construct validity is still not established. Further exploration for a suitable convergent construct validity variable is warranted.

In addition to the concerns discussed above, there were also concerns related to the responses from students on the SCSI. Several of the students in the current study had scale scores of zero on either the frequency or effectiveness scales indicating that they never used any of the coping skills on the list. Since the SCSI contains 26 items with a

wide variety of skills represented, it is not plausible that a student would have never used or tried any of the coping skills on the list. It is most likely that since this was the last measure in the packet for students to complete, that many students just circled the never column on all of the items rather than answering truthfully. While there are these concerns related to the possibility of inaccurate reporting on the SCSI, analyses of the data with the zero scale scores removed, only minimally increased the correlation between the SMSEI and the SCSI from .08 to .09. Again, these concerns suggest that the use of the SCSI as a convergent validity variable was not appropriate and a different instrument, if found, needs to be used in the future.

In respect to testing for discriminant construct validity, it was hypothesized that the RSE and the SMSEI would be moderately correlated with one another thus providing support for the notion that self-esteem and self-efficacy are two distinct and separate constructs. Results indicated a significant moderate correlation of .54 ($p < .0001$) between the RSE and SMSEI resulting in acceptance of specific research hypothesis 4e. While self-esteem and self-efficacy are similar and related constructs, as discussed in chapter two, Bandura (1997b) defined self-efficacy as situational specific and self-esteem more general in nature and thus the two should not correlate highly with one another. While overall support related to construct validity was limited, results of testing for discriminant validity in relation to self-esteem were promising and provide theoretical support to Bandura's work on self-efficacy as well. Implications related to the construct validity of the SMSEI are that continued revision of the SMSEI take place as well as the researcher needs to generate more items related to the four sub-scales, which in turn could possibly increase the internal consistency of the scales as well as provide further

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support for construct validity. In relation to the four scales emerging in the SMSEI, school and mental health counselors could target specific interventions related to the different scale areas depending on where a child shows deficiencies. In addition, counselors could target psychoeducational groups and interventions on teaching the differences between internalized and relational coping mechanisms and educate students on the effectiveness of such skills in regards to the different stressors they face in middle school. Once a psychometrically sound SMSEI is developed, the researcher could then make revisions and alterations to items to be appropriate for elementary and high school levels, thus creating different age versions of the SMSEI as well.

Criterion Validity

Results related to testing for criterion validity were somewhat promising and provided minimal support for concurrent criterion validity. Since this was not a longitudinal study, predictive criterion validity was not tested, but testing for predictive validity would be a logical next step in establishing the SMSEI as a valid and useful tool and measure. When exploring the relationship between scores on the SMSEI and scores on the PCSR, which is the parent version of the SMSEI, all Pearson's r correlations were significant and hypotheses accepted. As hypothesized, the PCSR total scores correlated .54 ($p < .0001$) with SMSEI total scores and the scale scores correlated with one another at .56 ($p < .0001$) for the stressor scale and .46 ($p < .0001$) for the techniques scale. Not only do these results provide support for criterion validity of the SMSEI, but they also illustrate an interesting finding regarding parents/caregivers perceptions of their children's abilities to manage stress in relation to their children's perceptions. When looking at the mean totals of the PCSR and SMSEI, while the parent's and student's

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reported means are close for all three sets of scores (stressors, techniques, and total) post hoc analyses reveal, significant differences between means on the SMSEI and PCSR.

On the stressors scale, parents and/or caregivers reported significantly lower stress management self-efficacy scores [$t(174) = 2.7, p < .01$] than their student counterpart. The same pattern held true for the technique scale scores [$t(174) = 3.14, p < .01$] and for the total score [$t(174) = 3.31, p < .01$]. These findings, while not discounting the support for concurrent criterion validity, do raise questions regarding whether students might be over estimating their stress management self-efficacy levels or parents/caregivers underestimating student's abilities to mange their stress. Alternatively, perhaps, they are both accurate reporters regarding their perceptions of abilities and parents/caregivers might tend to view their students as less efficacious than they really are. Further exploration of these issues and/or questions is warranted in follow up studies using the SMSEI. Implications related to the differing perceptions regarding stress management self-efficacy between parents and students relate to the ways in which counselors might use the scores on the SMSEI and PCSR in working with students and their parents. After administering the two measures to parents and students, counselors could share the results and identify discrepancies present to students and their parents, which in turn would allow for discussion to explore why the discrepancies are present. In addition, should counselors discover parents are underestimating their child's ability to manage stress, this would provide for positive relationship building between parent and child in relation to understanding and communicating with one another in a more positive manner.

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In respect to the test for concurrent criterion validity using the STAIC state and trait anxiety scales, it was hypothesized that both scales would significantly negatively correlate with total scores on the SMSEI. Results indicated that the STAIC state anxiety scale correlated -.58 ($p < .0001$) with the SMSEI total and the STAIC trait anxiety scale correlated -.56 ($p < .0001$) with the SMSEI total score resulting in both specific research hypotheses being accepted. The use of such a sound and valid measure as the STAIC as a significant concurrent criterion variable for the SMSEI provides support for validity in the SMSEI.

Since poor stress management and coping abilities often manifest as anxiety symptoms, these results are not surprising. In addition, it is not surprising that state anxiety had a stronger inverse correlation with the SMSEI than the trait scale, since state anxiety is based on current levels of anxiety and less stable than trait anxiety and as discussed above, it is probable that stress management self-efficacy is also a less stable construct as factors such as learning and situations can greatly affect it. Further studies using the STAIC and SMSEI as predictors of stress related problems would serve beneficial as they might help support incremental validity of the SMSEI as well as demonstrate the time and cost effectiveness of the SMSEI over the STAIC in predicting stress and anxiety related problems.

SMSEI Normative Post-Hoc Data Analyses

In addition, to the post hoc analyses discussed above in the conclusions and implications section, the researcher explored the SMSEI data in further detail by looking at group differences between scores on the SMSEI and several demographic variables. The demographic variables explored were sex, age, grade, ethnicity, living situation, and

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SES as measured by whether or not a student qualifies for free or reduced lunch. Sex differences were already discussed in chapter four and it was demonstrated that there were no significant sex differences on either of the SMSEI scales or on the total mean SMSEI scores. This finding supports the use of the same normative scores for both males and females. While there is no reason to believe that item bias by sex exists, a differential item analysis of SMSEI items would be informative to further explore the issue of sex related differences, as well as the other group differences discussed next, on the SMSEI as well. A summary of all post hoc normative data analyses on the SMSEI is in Table 5.3. All model assumptions related to homogeneity of variance and normality were met in the following ANOVA analyses.

When exploring mean differences on the SMSEI by age the researcher had to collapse ages 13 and 14 into one category since there were only 2 students in the age 14 group. ANOVAS were used to compare mean differences and results indicated no significant findings, suggesting that the SMSEI norming data is suitable for middle school students ages 11 to 14. When exploring mean differences on the SMSEI by grade, no significant findings were indicated. Again, this lack of significant mean differences provides support for the use of one set of norming data for middle school students whether they are in the sixth or seventh grade. The fact that there were not any age or grade differences on the SMSEI mean scores also provides further support for the content validity of the SMSEI since item creation was based on research regarding situational stressors and coping techniques specific to the middle school student population in sixth and seventh grades.

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When exploring differences by ethnicity, the variable ethnicity was collapsed into Caucasian and Non-Caucasian as previously explained. In regards to mean differences on the SMSEI stressor and SMSEI total scores, there were no significant differences based on ethnicity. On the techniques scale, Caucasians reported a significantly higher mean scale score [$M = 36.66$, $SD = 5.77$; $F(1,175) = 4.24$, $p < .04$] than non-Caucasians ($M = 34.4$, $SD = 6.1$). There was only a small effect size associated with this finding. While this finding does not necessarily suggest that separate norms be used for different ethnic groups, it does imply that further exploration of this issue be conducted. While the sample data was representative of the population in the three middle schools used in this study, a large limitation to this study is the lack of non-Caucasian participants and data. Further research using the SMSEI with more representative samples and larger non-Caucasian participants is crucial. In addition, while continued research in this area would further the usefulness of the SMSEI in serving all populations, one implication for the current study regarding this finding is that non-Caucasian students in this sample reported feeling less self-efficacious in using positive stress management techniques so one target area of intervention could be in implementing stress coping skills training for ethnic minority groups in middle schools.

When exploring mean differences between groups by living situation, there were not enough students in the living with grandparents, other family, and other groups so these groups were not included in the analysis. Four student's results were discarded for this analysis and three groups were compared with $N = 172$. In regards to group differences on the SMSEI by living situation, no significant differences between groups by living situation were found on the SMSEI total scores or on the SMSEI technique

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scale scores. On the SMSEI stressors scale scores, a significant difference in-group means was found [$F(2,171) = 5.83, p < .004$]. Further analysis of group comparisons revealed that the only significant difference on stressors stress management self-efficacy mean scores was between those students living with two biological parents and those students living with one biological parent and one stepparent. Students living with both biological parents reported higher levels of stress management self-efficacy related to stressors ($M = 38.3, SD = 4.7$) than those students living with one biological parent and one stepparent ($M = 35.08, SD = 5.8$). The effect size for this comparison was approaching a medium effect size ($f = .24$), which further provides support for true differences in stress management self-efficacy levels between these two groups. All other group comparisons by living situation were not significant. In order to more closely explore and understand the possible reasons for a difference between students living with both biological parents and those living with one biological and one stepparent, it would be interesting to do a differential item analysis by living situation. Initially this difference might be explained due to the increased stress that can be caused by divorce and stepfamilies, however, it would then also be suspected that there would be differences between those students living with one biological parent as well. Further exploration of this issue is required.

The final group comparisons conducted were assessing whether or not SMSEI mean differences existed between students of differing SES. For this study, SES was determined by whether or not a child was eligible for free or reduced lunch. Again, as previously mentioned, students of lower SES or those that are eligible for free and reduced lunch were underrepresented in the study sample, which affect the

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generalizability of the results. Similar to the suggestions related to further research regarding the use of the SMSEI with varying ethnic groups, further research is also needed in relation to SES. In regards to the results from the current sample, there were not any significant group mean differences on the SMSEI total nor technique scores. On the SMSEI stressors scale, students of higher SES (not eligible for free or reduced lunch) scored significantly higher [$M = 37.76$, $SD = 4.8$; $F(1,174) = 4.46$, $p < .04$] than those students of lower SES ($M = 35.96$, $SD = 5.4$). These findings suggest that students of higher SES believe themselves to be more self-efficacious in handling situational stressors related to middle school than those students of lower SES, but to draw any other definite conclusions, more research is needed.

Table 5.3

Post Hoc Normative Data Analyses- Group Differences on the SMSEI

	N	SMSEI Total M (SD)	SMSEI Stressors M (SD)	SMSEI Techniques M (SD)
Sex				
Male	87	73.1 (10.7)	37.3 (5.5)	35.8 (6.2)
Female	89	73.8 (8.9)	37.3 (4.6)	36.6 (6.2)
		$F(1, 175) = .7$	$F(1, 175) = .21$	$F(1, 175) = .01$
		$f = .04$	$f = .07$	$f = .08$
Age				
11	44	73.5 (9.5)	37.4 (4.9)	36.1 (5.9)
12	85	73.7 (9.6)	37.6 (4.8)	36.0 (5.8)

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Table 5.3 Continued

	N	SMSEI Total M (SD)	SMSEI Stressors M (SD)	SMSEI Techniques M (SD)
13	47	73.1 (10.7) $F = .04$ (2, 173) $f = .10$	36.5 (5.6) $F = .79$ (2, 173) $f = .05$	36.6 (6.0) $F = .18$ (2, 173) $f = .09$
Grade				
6th	108	72.9 (9.9)	37.3 (4.9)	35.5 (6.0)
7th	68	74.5 (9.7) $F(1, 175) = 1.13$ $f = .03$	37.2 (5.2) $F(1, 175) = .03$ $f = .08$	37.3 (5.5) $F(1, 175) = 3.74$ $f = .13$
Ethnicity				
Caucasian	140	74.0 (9.6)	37.3 (4.9)	36.7 (5.8)
Non-Cauc.	36	72.0 (10.8) $F(1, 175) = 1.52$ $f = .06$	37.3 (5.6) $F(1, 175) = 0.0$ $f = .08$	34.4 (6.1) $F(1, 175) = 4.24*$ $f = .14$
Living Situation[a]				
2 Bio. Parents	97	74.7 (9.5)	38.3 (4.7)	36.4 (6.0)
1 Bio. Parent	37	73.4 (9.7)	37.4 (4.5)	36.0 (6.1)
1 Bio./1 Step.	38	71.1 (10.6) $F(2, 171) = 1.8$ $f = .10$	35.1 (5.8) $F(2, 171) = 5.83*$ $f = .24$	36.1 (5.6) $F(2, 171) = .09$ $f = .10$
SES				
Eligible	46	71.5 (9.7)	35.96 (5.4)	35.5 (5.3)
Not eligible	130	74.2 (9.8) $F(1, 175) = 2.64$ $f = .10$	37.76 (4.8) $F(1, 175) = 4.46*$ $f = .14$	36.4 (6.1) $F(1, 175) = .84$ $f = .03$

Note: $N = 176$; [a]$N = 172$; *indicates significant group differences ($p < .05$).

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Suggested Future Research and Limitations

Although several ideas for future research and limitations to the current study were discussed above, this section will provide a brief summary of those mentioned. In relation to reliability, while the two scales had adequate internal consistency values, further use of the SMSEI with varied samples would be useful to determine if the internal consistency results hold true across samples and studies. In addition, further exploration of whether or not stress management self-efficacy is a stable or changing construct in relation to test/retest reliability was suggested.

In relation to further research related to the validity of the SMSEI, it was suggested that while only minor revisions be made to the SMSEI techniques scale, the stressors scale still requires an extensive amount of revision and exploration. A closer examination of the stressor scale items is needed as well as a decision regarding whether or not the SMSEI requires such a scale or could be just as effective and useful as a coping techniques self-efficacy measure only. In addition, it was suggested that group comparison or differentiation studies using the SMSEI be conducted as to further explore and perhaps support the construct validity of the SMSEI. Post hoc analyses of a revised SMSEI measure provided some additional support for the construct validity of the instrument, but further revisions and research is required before the SMSEI can be established as a psychometrically sound instrument to use to measure stress management self-efficacy.

In relation to criterion validity, it was suggested that a prediction model study using the SMSEI to predict future stress related problems or symptoms be done. Also beneficial to supporting criterion validity would be to establish a teacher version of the

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SMSEI and test it against the SMSEI and the PCSR as well. Finally, in relation to the demographic post hoc analyses regarding group differences on the SMSEI, it would be beneficial to conduct studies looking not only at differential item functioning by the varying demographic groups, but also conduct larger studies using a more diverse and well represented pool of participants.

This study, while serving as an initial exploration of SMSEI psychometrics, did have limitations. Perhaps the greatest being the low response rate and use of strictly volunteer participants. Ideally, the researcher would have liked to have a sample of 300 randomly selected participants from one middle school, but unfortunately this was not a realistic expectation. Other limitations to the study are related to the lack of diversity in terms of demographic variables, which affect the generalizability of the results. Further use of the SMSEI in other's studies is encouraged to not only provide additional support for the use of the SMSEI but also to further explore the use of the SMSEI with varying groups.

Summary

Overall, results related to the initial psychometrics of the SMSEI are promising, but further research and validity establishment is required. While the SMSEI has strong support for reliability and content and criterion validity, mixed results regarding construct validity are indicated. Post hoc construct validity results do indicate support for the use of the revised SMSEI with four scales, but further revision and testing is needed. Further exploration of the use of these scales in prediction models is also needed to provide the support for the instruments' usefulness, incremental validity, and overall effectiveness. At this time, it is concluded that the revised SMSEI shows psychometric promise for

future research. After further revision and assessments it is likely that the SMSEI will be

a psychometrically sound instrument to measure stress management self-efficacy.

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APPENDICES

APPENDIX A

HUMAN SUBJECTS APPROVAL

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Research Support and Sponsored Programs
Office of the Director
120 Ozark Hall
Fayetteville, Arkansas 72701

(479) 575-3845
(479) 575-3846 (FAX)
E-mail: rsspinfo@uark.edu
http://www.uark.edu/admin/rsspinfo/

December 6, 2004

MEMORANDUM

TO: Kristin K. Higgins
Primary Investigator

Dr. Rebecca Newgent
Faculty Advisor

FROM: Rosemary Ruff
IRB Coordinator

RE: New Protocol Approval

IRB Protocol #: 05106

Protocol Title:

Review Type: ☐ EXEMPT ☒ EXPEDITED ☐ FULL IRB

Approved Project Period: Start Date 12/2/2004   Expiration Date 12/1/2005

Your protocol has been approved by the IRB. Protocols are approved for a maximum period of one year. If you wish to continue the project past the approved project period (see above), you must submit a request, using the form *Continuing Review for IRB Approved Projects*, prior to the expiration date. This form is available from the IRB Administrator or on the Compliance website (http://www.uark.edu/admin/rsspinfo/compliance/human-subjects/index.html). As a courtesy, you will be sent a reminder two months in advance of that date. However, failure to receive a reminder does not negate your obligation to make the request in sufficient time for review and approval. Federal regulations prohibit retroactive approval of continuation. Failure to receive approval to continue the project prior to the expiration date will result in Termination of the protocol approval. The IRB Coordinator can give you guidance on submission times.

If you wish to make *any* modifications in the approved protocol, you must seek approval *prior to* implementing those changes. All modifications should be requested in writing (email is acceptable) and must provide sufficient detail to assess the impact of the change.

If you have questions or need any assistance from the IRB, please contact the IRB Coordinator, 120 Ozark Hall, 5-2208.

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UNIVERSITY of ARKANSAS

February 28, 2005

MEMORANDUM

TO:	Kristin K. Higgins Primary Investigator
	Dr. Rebecca Newgent Faculty Advisor
FROM:	Rosemary Ruff IRB Coordinator
RE:	PROJECT MODIFICATION
IRB Protocol #:	05106
Protocol Title:	The Stress Management Self-Efficacy Inventory (SMSEI):
	Development and Initial Psychometrics
Review Type:	☐ EXEMPT ☒ EXPEDITED ☐ FULL IRB
Approved Project Period:	Start Date 12/02/2004 Expiration Date 12/01/2005

Your request to modify the referenced protocol has been approved by the IRB. Please note that this approval does not extend the Approved Project Period. Should you wish to extend your project beyond the current expiration date, you must submit a request for continuation using the UAF IRB form "Request for Continuation." The request should be sent to the IRB Coordinator, 120 Ozark Hall.

For protocols requiring FULL IRB review, please submit your request at least one month prior to the current expiration date. (High-risk protocols may require even more time for approval.) For protocols requiring an EXPEDITED or EXEMPT review, submit your request at least two weeks prior to the current expiration date. Failure to obtain approval for a continuation *on or prior to* the currently approved expiration date will result in termination of the protocol and you will be required to submit a new protocol to the IRB before continuing the project. Data collected past the protocol expiration date may need to be eliminated from the dataset should you wish to publish. Only data collected under a currently approved protocol can be certified by the IRB for any purpose.

If you have questions or need any assistance from the IRB, please contact the IRB Coordinator, 120 Ozark Hall, 5-2208.

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APPENDIX B

PERMISSIONS

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State-Trait Anxiety Inventory
for Children
Form C-1 and Form C-2

Duplication Set
Permission to
reproduce 150 copies in one year
from date of purchase:
October 12, 2004

**by Charles D. Spielberger, Ph. D.
in collaboration with
C. D. Edwards, R. Lushene, J. Montuori, Denna Platzek**

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From	"Ryan-Wenger, Nancy" <ryan-wenger.10@osu.edu>	►
Sent	Monday, October 11, 2004 10:53 am	
To	kkhiggi@uark.edu	
Cc		
Bcc		
Subject	RE: Use of the SCSI	
Attachments	SCSIinstructions.DOC 40K SCSI.doc	142K

Hello, Kristin! Thank you for the phone call...I remember reading this
e-mail at home, and planning to respond when I got to work, because that
is where my SCSI files are. Then, the message got buried under a bunch
of others!

I am pleased that you are interested in the SCSI. You may duplicate it
and use it for your dissertation. Let me know if I can be of any further
assistance to you.

Nancy A. Ryan-Wenger, PhD, RN, CPNP, FAAN
Professor and Associate Dean for Research
College of Nursing
Ohio State University
1585 Neil Avenue
Columbus, OH 43210-1289

Office: (614) 292-4078
FAX: (614) 292-4948
e-mail: ryan-wenger.10@osu.edu

-----Original Message-----
From: kkhiggi@uark.edu [kkhiggi@uark.edu]
Sent: Sunday, October 03, 2004 5:20 PM
To: ryan-wenger.10@osu.edu
Subject: Use of the SCSI

Dr. Ryan-Wenger,
I am a current docotoral student in Counselor Education at the
University of Arkansas. I am currently working on my dissertation and am
planning on developing an instrument to asses stress management
self-efficacy for the middle school population. In reveiwing the
literature and instruments related to stress and coping, I found your
article related to the development of the SCSI. After reveiwing the
article, I was interested in using the instrument in establishing
construct validity for my instrument. My chair, Dr. Rebecca Newgent at
the UofA, suggested I contact you to find out what the procedure would
be to obtain or purchase the SCSI in my study. I would be more than
happy to share my results with you once completed and of course your
instrument would be cited with your name. I appreciate your time and
response to this request and hope that I will be able to obtain the SCSI
for my disseration. Please let me know if you have any furhter questions
about my use of the SCSI o
r my study.

Thanks,

https://mail.uark.edu/frame.html?rtfPossible=true&lang=en   1 136

APPENDIX C

INFORMED CONSENT STATEMENT

AND PARENT LETTER

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Informed Consent

Title: The Stress Management Self-Efficacy Inventory (SMSEI): Development and Initial
       Psychometrics.

Investigators   Kristin K. Higgins, MS, LPC, Doctoral Student
              Rebecca A. Newgent, Ph.D., LPC, NCC, Dissertation Chair
              University of Arkansas, College of Education and Health Professions
              Department of Educational Leadership, Counseling and Foundations
              136 Graduate Education Building
              Fayetteville, AR 72701 479-575-7311 or   479-601-4762

Description: The present study will serve to establish the reliability and validity of the SMSEI, which is an instrument intended to measure stress management self-efficacy for the middle school population. Participants will be asked to complete the SMSEI, a brief demographic form, the Rosenberg Self-esteem inventory, and the Schoolager's Coping Strategies Inventory. Parents will also be asked to complete a parental form of the SMSEI.

Risks and Benefits: The benefits include contributing to the knowledge base in the area of stress management and adolescent coping. There are no anticipated risks to participating in this study.

Voluntary Participation: Participation in this study, defined as authorization to include your results in this research, is completely voluntary.

Confidentiality: Your child will be assigned a code number that will be used to match the demographic sheet to the instruments used in this study. All information will be recorded anonymously. All information will be held in the strictest of confidence and follow the American Counseling Association Code of Ethics and Standards of Practice in relation to this research. Results from this research will be reported as aggregate data only.

Right to Withdraw: You are free to refuse to participate in the research and to withdraw from this study at any time. Your decision to withdraw will bring no negative consequences to you or your child.

Informed Consent: I, _____, have read the description,
                    Please print student's name
including the purpose of the study, the procedures to be used, the potential risks, the confidentiality, as well as the option to withdraw from the study at any time. The investigator has explained each of these items to me, and I believe I understand what is involved. My signature below indicates that I freely agree to my child participating in this study and that I have received a copy of this agreement from the investigator. My child's signature also indicates that he/she agrees to participate. I know that the researcher listed above will be available to answer any questions I may have. If, at any time, I feel my questions have not been adequately answered, I may request to speak with either the dissertation chair or the University of Arkansas' Institutional Review board for Protections of Human Subjects (Attention: Rosemary Ruff, Ozark 120, 479-575-3845, rruff@uark.edu.

_____
       Parent/guardian consent signature   date

_____
          Student assent signature   date

I do not wish to participate in this study _____
                                          Signature- Parent/Guardian

Please provide the name of the student's homeroom teacher here _____

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Please have all forms returned by _____ to be eligible for the drawing and prizes. Also, please make sure your student's name is on the informed consent. Thanks.

Dear Parent/Guardian and Student at _____ Middle School,

My name is Kristin Higgins and I am currently working on my dissertation in Counselor Education at the University of Arkansas. My research project focuses on the development of an instrument to measure stress management self-efficacy for the middle school student. In other words, I am interested in designing an instrument that will assess how well a student believes they are coping with various stressors related to middle school as well as how well they believe they can use various stress management techniques.

I am sending this letter home with each student at _____ Middle School to request parent and student permission to participate in the study. The study will involve the student completing four short assessment instruments as well as a brief demographic sheet. In addition, the parent will be asked to complete a short assessment instrument as well. The instrument completion should take 30 minutes to an hour to complete and will be sent home with the students to complete on their own time.

Attached is an informed consent form outlining more details about the project as well as providing a place for you and your child to either agree or disagree to participate in the project. All students who return the form (regardless of whether or not they plan to participate) will be entered into a drawing for ten $5 dollar gift certificates to Hastings.

Please feel free to contact me if you have any questions at 479-790-5373 or by email at kkhiggi@uark.edu. I really appreciate your time and participation in my study.

Thank You,

Kristin Higgins, MS, LPC

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APPENDIX D

WRITTEN INSTRUCTIONS TO PARTICPANTS

<center>Participant Instructions</center>

Thank you again for you time and participation in my study. Enclosed are six inventories to be completed. Five of the inventories- the Stress Management Self-Efficacy Inventory, the Demographic Sheet, the Schoolager's Coping Strategies Inventory, How I feel Questionnaire, and the Rosenberg Self-Esteem Inventory- are to all be completed by the student. The final inventory, the Parent/Caregiver Child's Stress Report is to be completed by the parent or caregiver of the student. Please do not put your name on any of the inventories since they are numbered to protect your privacy and confidentiality. Please also remove the paperclip and name slip on the outer folder so that the student's name appears nowhere on the envelope either. Once completed, please place all inventories back in the envelope, seal the envelope, and have your student return the envelope to their homeroom teacher or to the office. Please try and have all inventories completed and returned within two weeks of getting them. If you choose not to participate, please return all materials anyway so that I will know that you have withdrawn and I can reuse the inventories, as they are very expensive. Please feel free to call me if you have any questions or concerns- Kristin Higgins- 479-601-4762. Again, thank you for your time and participation. I truly appreciate it.

APPENDIX E

DEMOGRAPHIC SHEET

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ID #: _____

DEMOGRAPHIC SHEET

Please place an X beside the appropriate response or fill in with the appropriate answer.

SEX: _____ Male _____ Female

GRADE: _____ Sixth _____ Seventh

AGE: _____

ETHNICITY: _____ African American _____ Asian

_____ Caucasian (non-Hispanic) _____ Native American

_____ Hispanic _____ Multi-Racial

_____ Other (please identify)

WHOM DO YOU LIVE WITH? _____ Both Biological Parents

_____ One biological parent _____ One Biological Parent/One Step Parent

_____ Grandparents _____ Foster Parents _____ Other Family Members

_____ Other (please identify)

ARE YOU ELIGIBLE FOR FREE AND REDUCED LUNCH?

_____ Yes _____ No

GRADE POINT AVERAGE (GPA): _____

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APPENDIX F

EXPERT JUDGE RATINGS OF INITIAL SMSEI ITEMS

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Instructions for Judges

Coping Techniques: Specific techniques or interventions intended to assist the individual using them in alleviating the negative physical, mental, or emotional symptoms of stress. These techniques can be behavioral, cognitive, or a combination of the two.

Stressors: Events or situations experienced by middle school students that could cause them stress.

Place a 1 in the column if the item appears to be measuring that scale, a 0 of unsure, and a -1 if it does not fit that scale.

ITEM	Stressor Scale	Coping Technique Scale
1. Avoiding arguments with my teachers is _____ for me.		
2. Seeking help from others is _____ for me.		
3. Sharing my feelings with others is _____ for me.		
4. Relaxing is _____ for me.		
5. Dealing with tougher teachers is _____ for me.		
6. Distracting myself from things that are bothering me is _____ for me.		
7. Keeping my belongings safe from being stolen is _____ for me.		
8. Being teased by others is _____ for me.		
9. Solving problems is _____ for me.		
10. Avoiding being sent to the vice principal's office is _____ for me.		
11. Using exercise to make myself feel better is _____ for me.		
12. Talking to myself to help calm myself down is _____ for me.		
13. Getting along with my teachers is _____ for me.		

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ITEM	Stressors Scale	Techniques Scale
14. Saying no to peer pressure is _____ for me.		
15. Stopping and taking deep breaths when worried is _____ for me.		
16. Having too much homework is _____ for me.		
17. Changing the way I view a negative event is _____ for me.		
18. Getting along with my parent(s) is _____ for me.		
19. Talking about my problems to a counselor is _____ for me.		
20. Drawing or painting to help make myself feel better is _____ for me.		
21. Meeting teacher's expectations is _____ for me.		
22. Writing about my feelings or experiences is _____ for me.		
23. Imagining a peaceful scene is _____ for me.		
24. Having more difficult schoolwork is _____ for me.		
25. Changing something that is stressing me is _____ for me.		
26. Not being part of the "in" group is _____ for me.		
27. Being able to focus on positive things when stressed is _____ for me.		
28. Talking to my friends about my problems is _____ for me.		
29. Talking to my parent(s) about problems is _____ for me.		
30. Avoiding getting into fights with my peers is _____ for me.		

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Expert Judge Ratings for SMSEI Items

Item	Scale	JUDGES					JUDGES					IOC Stressors	IOC Techniques
		1	2	3	4	5	1	2	3	4	5	Stressors	Techniques
1	S	1	1	1	1	1	-1	-1	-1	-1	-1	*1	-1
2	C	-1	-1	-1	-1	-1	1	1	1	1	1	-1	*1
3	C	-1	-1	-1	-1	-1	1	1	1	1	1	-1	*1
4	C	-1	0	1	-1	-1	1	0	1	1	1	-0.4	*0.8
5	S	1	1	1	1	1	-1	-1	-1	-1	-1	*1	-1
6	C	-1	-1	-1	1	-1	1	1	1	-1	1	-0.6	0.6
7	S	1	1	1	1	1	-1	-1	-1	-1	-1	*1	-1
8	S	1	1	1	1	1	-1	-1	-1	-1	-1	*1	-1
9	C	0	1	-1	-1	-1	1	-1	1	1	1	-0.5	0.5
10	S	1	1	1	1	1	0	-1	-1	-1	-1	*0.9	-0.9
11	C	-1	-1	-1	-1	-1	1	1	1	1	1	-1	*1
12	C	-1	-1	-1	-1	-1	1	1	1	1	1	-1	*1
13	S	1	1	1	1	1	-1	-1	-1	-1	-1	*1	-1
14	S	1	1	1	1	1	-1	-1	-1	-1	-1	*1	-1
15	C	-1	-1	-1	-1	-1	1	1	1	1	1	-1	*1
16	S	1	1	1	1	1	-1	-1	-1	-1	-1	*1	-1
17	C	-1	-1	-1	-1	-1	1	1	1	1	1	-1	*1
18	S	1	1	1	1	1	-1	-1	-1	-1	-1	*1	-1
19	C	-1	-1	-1	-1	-1	1	1	1	1	1	-1	*1
20	C	-1	-1	-1	-1	-1	1	1	1	1	1	-1	*1
21	S	1	1	1	1	1	-1	-1	-1	-1	-1	*1	-1
22	C	-1	-1	-1	-1	-1	1	1	1	1	1	-1	*1
23	C	-1	-1	-1	-1	-1	1	1	1	1	1	-1	*1
24	S	1	1	1	1	1	-1	-1	-1	-1	-1	*1	-1
25	C	1	1	-1	1	-1	0	-1	1	-1	1	0.1	-0.1
26	S	1	1	1	1	1	-1	-1	-1	-1	-1	*1	-1
27	C	-1	-1	-1	-1	-1	1	1	1	1	1	-1	*1
28	C	-1	-1	-1	-1	-1	1	1	1	1	1	-1	*1
29	C	-1	-1	-1	-1	-1	1	1	1	1	1	-1	*1
30	S	1	1	1	1	1	0	-1	-1	-1	-1	*0.9	-0.9

Items in boldface IOC > .75. S = stressors scale. T = techniques scale.

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APPENDIX G

INITIAL SMSEI

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The Stress Management Self-Efficacy Inventory
(SMSEI)

DIRECTIONS: Please do not put your name on this paper.

Below are several statements regarding things that might be causing you worry or stress and items asking about your use of stress management tools. Please fill in the blank in the sentence by circling the correct response to the right of the sentence. Please circle only one response per question.

1. Avoiding arguments with my teachers is _____ for me.

Very Hard	Hard	Easy	Very Easy

2. Asking for help from others is _____ for me.

Very Hard	Hard	Easy	Very Easy

3. Sharing my feelings with others is _____ for me.

Very Hard	Hard	Easy	Very Easy

4. Keeping my belongings safe from being stolen is _____ for me.

Very Hard	Hard	Easy	Very Easy

5. Being teased by others is _____ for me.

Very Hard	Hard	Easy	Very Easy

6. Avoiding being sent to the vice principal's office is _____ for me.

Very Hard	Hard	Easy	Very Easy

7. Using exercise to make myself feel better is ___ for me.

Very Hard	Hard	Easy	Very Easy

8. Talking to myself to calm down is _____ for me.

Very Hard	Hard	Easy	Very Easy

9. Getting along with my teachers is _____ for me.

Very Hard	Hard	Easy	Very Easy

10. Saying no to peer pressure is _____ for me.

Very Hard	Hard	Easy	Very Easy

11. Stopping and taking deep breaths when worried is _____ for me.	Very Hard	Hard	Easy	Very Easy
12. Having too much homework is _____ for me.	Very Hard	Hard	Easy	Very Easy
13. Changing the way I view a negative event is ____ for me.	Very Hard	Hard	Easy	Very Easy
14. Getting along with my parent(s)/caregiver is _____ for me.	Very Hard	Hard	Easy	Very Easy
15. Talking about my problems to a counselor is _____ for me.	Very Hard	Hard	Easy	Very Easy
16. Drawing or painting to help make myself feel better is _____ for me.	Very Hard	Hard	Easy	Very Easy
17. Meeting teacher's expectations is _____ for me.	Very Hard	Hard	Easy	Very Easy
18. Writing about my feelings or thoughts is _____ for me.	Very Hard	Hard	Easy	Very Easy
19. Imagining a peaceful scene is _____ for me.	Very Hard	Hard	Easy	Very Easy
20. Having schoolwork that is more difficult is _____ for me.	Very Hard	Hard	Easy	Very Easy
21. Not being part of the "in" group is _____ for me.	Very Hard	Hard	Easy	Very Easy
22. Being able to focus on positive things when stressed is _____ for me.	Very Hard	Hard	Easy	Very Easy
23. Talking to my friends about my problems is _____ for me.	Very Hard	Hard	Easy	Very Easy
24. Talking to my parent(s)/caregiver about problems is _____ for me.	Very Hard	Hard	Easy	Very Easy
25. Avoiding getting into fights with my classmates is _____ for me.	Very Hard	Hard	Easy	Very Easy

APPENDIX H

PCSR

The Parent/Caregiver Child's Stress Report
(PCSR)
Parent/Caregiver Version of the SMSEI

DIRECTIONS: Please do not put your name on this paper. Please have your parent(s) or caregiver complete this inventory.

Below are several statements regarding things that might be causing your student worry or stress and items asking about their use of stress management tools. Please fill in the blank in the sentence by circling the correct response to the right of the sentence. Please circle only one response per question.

1. Avoiding arguments with teachers is _____ for my student.	Very Hard	Hard	Easy	Very Easy
2. Asking for help from others is _____ for my student.	Very Hard	Hard	Easy	Very Easy
3. Sharing feelings with others is _____ for my student.	Very Hard	Hard	Easy	Very Easy
4. Keeping belongings safe from being stolen is _____ for my student.	Very Hard	Hard	Easy	Very Easy
5. Being teased by others is _____ for my student.	Very Hard	Hard	Easy	Very Easy
6. Avoiding being sent to the vice principal's office is _____ for my student.	Very Hard	Hard	Easy	Very Easy
7. Using exercise to feel better is ___ for my student.	Very Hard	Hard	Easy	Very Easy
8. Talking to him/herself to calm down is _____ for my student.	Very Hard	Hard	Easy	Very Easy
9. Getting along with teachers is _____ for my student.	Very Hard	Hard	Easy	Very Easy
10. Saying no to peer pressure is _____ for my student.	Very Hard	Hard	Easy	Very Easy

11. Stopping and taking deep breaths when worried is _____ for my student.	Very Hard	Hard	Easy	Very Easy
12. Having too much homework is _____ for my student.	Very Hard	Hard	Easy	Very Easy
13. Changing the way he/she views a negative event is _____ for my student.	Very Hard	Hard	Easy	Very Easy
14. Getting along with parent(s)/caregivers is _____ for my student.	Very Hard	Hard	Easy	Very Easy
15. Talking about problems to a counselor is _____ for my student.	Very Hard	Hard	Easy	Very Easy
16. Drawing or painting to help make him/herself feel better is _____ for my student.	Very Hard	Hard	Easy	Very Easy
17. Meeting teacher's expectations is _____ for my student.	Very Hard	Hard	Easy	Very Easy
18. Writing about feelings or thoughts is _____ for my student.	Very Hard	Hard	Easy	Very Easy
19. Imagining a peaceful scene is _____ for my student.	Very Hard	Hard	Easy	Very Easy
20. Having schoolwork that is more difficult is _____ for my student.	Very Hard	Hard	Easy	Very Easy
21. Not being part of the "in" group is _____ for my student.	Very Hard	Hard	Easy	Very Easy
22. Being able to focus on positive things when stressed is _____ for my student.	Very Hard	Hard	Easy	Very Easy
23. Talking to friends about my problems is _____ for my student.	Very Hard	Hard	Easy	Very Easy
24. Talking to parent(s)/caregivers about problems is _____ for my student.	Very Hard	Hard	Easy	Very Easy
25. Avoiding getting into fights with classmates is _____ for my student.	Very Hard	Hard	Easy	Very Easy

APPENDIX I

REVISED SMSEI

The Stress Management Self-Efficacy Inventory Revised
(SMSEI)

DIRECTIONS: Please do not put your name on this paper.

Below are several statements regarding things that might be causing you worry or stress and items asking about your use of stress management tools. Please fill in the blank in the sentence by circling the correct response to the right of the sentence. Please circle only one response per question.

1. Avoiding arguments with my teachers is _____ for me.

                                                                                       Very Hard   Hard   Easy   Very Easy

2. Asking for help from others is _____ for me.

  Very Hard   Hard   Easy   Very Easy

3. Sharing my feelings with others is _____ for me.

  Very Hard   Hard   Easy   Very Easy

5. Being teased by others is _____ for me.

  Very Hard   Hard   Easy   Very Easy

6. Avoiding being sent to the vice principal's office is _____ for me.

  Very Hard   Hard   Easy   Very Easy

8. Talking to myself to calm down is _____ for me.

  Very Hard   Hard   Easy   Very Easy

9. Getting along with my teachers is _____ for me.

  Very Hard   Hard   Easy   Very Easy

10. Saying no to peer pressure is _____ for me.

  Very Hard   Hard   Easy   Very Easy

11. Stopping and taking deep breaths when worried is _____ for me.

  Very Hard   Hard   Easy   Very Easy

12. Having too much homework is _____ for me.

  Very Hard   Hard   Easy   Very Easy

14. Getting along with my parent(s)/caregiver is
_____ for me.   Very Hard   Hard   Easy   Very Easy

15. Talking about my problems to a counselor is
_____ for me.   Very Hard   Hard   Easy   Very Easy

16. Drawing or painting to help make myself feel better is
_____ for me.   Very Hard   Hard   Easy   Very Easy

17. Meeting teacher's expectations is _____
for me.   Very Hard   Hard   Easy   Very Easy

18. Writing about my feelings or thoughts is _____ for
me.   Very Hard   Hard   Easy   Very Easy

19. Imagining a peaceful scene is _____ for me.

                                                        Very Hard   Hard   Easy   Very Easy

20. Having schoolwork that is more difficult is
_____ for me.   Very Hard   Hard   Easy   Very Easy

21. Not being part of the "in" group is _____ for
me.   Very Hard   Hard   Easy   Very Easy

23. Talking to my friends about my problems is _____
for me.   Very Hard   Hard   Easy   Very Easy

Note: Item numbers should be changed to number order when used for future studies.