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Emotion regulation as a moderator between coping and perceived stress with middle
school students in rural areas

By

Jabari M. Sellers

A Dissertation
Submitted to the Faculty of
Mississippi State University
in Partial Fulfillment of the Requirements
for the Degree of Doctor of Philosophy
in Educational Psychology with a Concentration in School Psychology
in the Department of Counseling, Educational Psychology and Foundations

Mississippi State, Mississippi

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As students mature the types and frequency of stressors increase with age. Notably, middle school can be a stressful transition period that includes new peer relationships and hormonal changes, along with an increased probability of experiencing bullying and suicide ideation. Stress has been shown to have negative effects in psychological and physiological functioning among adolescents (Brietzke et al., 2012; De Young, Kenardy, & Cobham, 2011; Green et al., 2010). Effective coping skills can help to buffer these issues, giving adolescents a repertoire of tools to use. Along with that, proper emotional regulation has been shown decrease the negative effects of stress on adolescents (Berking & Whitley, 2014; Braet et al., 2014; Moriya & Takashi, 2013). These skills may be particularly important amongst adolescents living in rural areas, as they face unique and often more difficult challenges compared their urban counterparts (Imig, Bokemeier, Keefe, Struthers, & Imig, 1997; Sherman, 2006). However, research exploring rural populations is limited and does not focus on the mostly rural populated areas of the southern United States (Strong, Del Grosso, Burwick, Jethwani, & Ponza, 2005). To address the gaps in research, the purpose of the current study was to

investigate if coping response styles predicted perceived stress scores in middle school students living in rural areas. Additionally, the purpose was to explore if emotional regulation moderated the relationship between coping and perceived stress. Multiple regression analysis was used to explore the predictability of coping on perceived stress scores (i.e., Perceived Stress Scale). Moreover, hierarchal regression analysis was used to explore moderation of emotional regulation on coping and perceived stress. Data were collected from a northeastern school in a rural area in Mississippi from a sample of 149 middle school students. The results indicated that coping is a statistically significant predictor of perceived stress scores, indicating that the better a student was at coping, the less likely he or she was to report perceived stress. Lastly, results revealed that a student's emotional regulation does not strengthen or weaken their coping responses effect on perceived stress. Understanding how these variables work together will provide educators with knowledge that is vital to development of prevention and intervention strategies.

DEDICATION

First, I would like to dedicate my dissertation to my two beautiful kids, Joshua and Jordyn. You gave me the motivation that daddy needed to keep going and to persevere to make life better for you two. Each day I wake up looking forward to spending time with the both of you and watching you two grow. I pray that I give you two the skills needed to be great adults when that time comes.

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CHAPTER I

INTRODUCTION

Stress has been an inquiry of research for some years; however, the term “stress” was not coined until the mid-1930s when Hans Selye discovered the general adaptation syndrome and later renamed it stress response (Selye, 1983; Szabo, Tache, & Somogyi, 2012). People are presented with stressful situations through all facets of life from environmental factors to interpersonal/intrapersonal situations. The accumulative effects of stress during maturation may present with problems later in life, requiring effective coping skills. Without knowing how people effectively deal with stress, it is difficult to develop preventative solutions to its potential long-term outcomes. Research involving stress has shown, to some extent, that psychological well-being is adversely affected by stress (Brietzke et al., 2012; De Young, Kenardy, & Cobham, 2011; Green et al., 2010). Additionally, chronic stress is shown to be predictive of various disorders (e.g., depression, anxiety, and behavioral disabilities; Brietzke et al., 2012) and health outcomes (e.g., heightened pain sensitivity and hypertension; Laceulle et al., 2014) during most developmental stages. That being said, it is important that through sound methodological investigations, an understanding of the effects of stress, coping, and emotional regulation be garnered (Laceulle et al., 2014). There are many negative outcomes associated with ineffective management of chronic stress, including meager academic achievement, poor psychological well-being, changes in brain systems,

psychopathology, and poor life satisfaction (Brietzke et al., 2012; Brown & Harris, 1989; De Young et al., 2011; Green et al., 2010; Lazarus & Cohen, 1977; Pechtel & Pizzagalli, 2011).

Across the lifespan, stressors increase in frequency during critical periods of development often changing in complexity and often becoming harder to navigate (Compas, 1987; Forman, 1993; Hauser & Bowlds, 1990; Seiffge-Krenke, 1998; Seiffge-Krenke, 2000). Moreover, children are expected to do more as they matriculate through an educational system and encounter new and oblivious situations that may elicit increased physiological responses. The increase in demands from teachers, as well as parents (i.e., children are faced with increased expectations; White, 1996), coupled with ambiguous and unexplored situations contributes to problems without a way of coping with the situations (Campbell, 2011). Research has shown that children naturally develop coping styles to deal with stressors as they get older (Ding & Yang, 2012). Often, if children acquire a way of coping with something they stick with it for the long-term, whether useful or not (McKernon, 2001).

Furthermore, learning a repertoire of effective coping responses (e.g., problem-solving approach) can be more practical than not having any coping responses or those responses being ineffective (e.g., emotion-focused) in nature. Earlier research has provided mixed results when studying elementary school-aged children (i.e., ages 6-12) versus older children (i.e., ages 13-17) on how the severity and frequency of the stressors occur (i.e., whether the seriousness of the stressors change with age; Groer, Thomas, & Shoffner, 1992; Lewis, Siegel, & Lewis, 1984; Patterson & McCubbin, 1983; Sharrer & Ryan-Wenger, 1995). Additionally, research studies examining age and gender effects of

children's coping with everyday stressors (e.g., late childhood, early, and middle adolescence) have provided data that suggest adolescents score lower on positive coping and higher on negative coping (Hampel & Petermann, 2005). These results were specific to interpersonal, and academic stressors along with other stressors (e.g., peer, family, and environmental) children may face.

A noted limitation of previous stress research methodology is not accounting for individual differences (e.g., perception, experiences, and maturation) in participants. Specifically, there may be differential perceptions of stressors and how students respond, being that some are perceived as more serious than others depending on the experience of the individual. The perception of a stressor could influence whether and what type of coping strategy a child uses. Studies that evaluate a child's awareness of stress should incorporate these differentiated perceptions. The problems with studies yielding inconsistent results with children's stress experiences in the past have come from the belief that the experiences of younger children are qualitatively different than those of older children, and these qualitative differences yield different results based on how stressors are being assessed (Sharrer & Ryan-Wenger, 1995). Furthermore, an instrument may have items asking questions dealing with stressors that have not been experienced or are ambiguous; however, instruments targeting perception of stress may allow participants to use stressful situations they have perceived pertaining to them and allow for those individual differences by obtaining a perceived stress score.

The ability to regulate one's emotion (i.e., emotional regulation) is related to the development and maturation of the adolescent (Eisenberg, Spinrad, & Eggum, 2010). A trajectory for typical development is aided by emotional regulation skills. Also, these

outcomes depend on other resources, such as the ability to coping and the environment (Eisenberg et al., 2010). Emotional regulation may have an extrinsic or intrinsic focus, but for the purposes of this research and in agreement with previous studies, the focus is on the intrinsic processes (i.e., self-regulation of emotion) to understand the possible relationship between stress and coping for the individual (Eisenberg et al., 2010; Eisenberg & Spinrad, 2004; Gross & Thompson, 2007). Early in the infant stage children use various modes of regulation to reduce negative stress (e.g., thumb sucking; Eisenberg et al., 2010). Over the course of development, this process becomes more sophisticated, thereby, reducing the reliance on parents for help with regulating emotions to a self-regulatory process in response to stressful situations (Eisenberg et al., 2010). In summary, although two separate concepts, appropriate emotional regulation and effective coping responses are shown to affect development. These skills are refined over time, but ineffective means of dealing with stress will still hinder the developmental process (Brietzke et al., 2012; Eisenberg et al., 2010).

The focus of the current study is on middle school-aged students because of the limited literature related to the unique population of sixth-grade to eighth-grade students. One reason that makes this population so unique is their rapid growth and development (Ding & Yang, 2013; Eccles, 1999). That rapid increase in development, arguably, results in a change in the emotional regulation and coping of students so that they are better able to respond to the acute and chronic stress that a school and home environment may bring. Therefore, older children should have better coping and emotional regulation skills, resulting in fewer stress-related adverse developmental outcomes compared to younger children (Ding & Yang, 2013). Lacking proper emotional regulation skills puts

children at an increased risk for poorer mental health (Berking & Whitley, 2014; Braet et al., 2014; Moriya & Takashi, 2013). Level of emotional regulation is inversely related to psychological well-being, making it a crucial skill for long-term psychological well-being (Berking & Whitley, 2014). Unfortunately, rural middle school aged student's coping, stress, and emotional regulation have been mostly neglected in literature, despite evidence showing this period to be of rapid physical and emotional development (e.g., Ding & Yang, 2013; Eccles, 1999), facing harsh life circumstances (e.g., trauma, poverty, and stereotypes on mental illness; Gallup-Black, 2005; Garbarino, 1998; Hetling & Zhang, 2010; Mattingly & Walsh, 2010), and receiving less resources and support (e.g., Jimerson, 2005).

Most Mississippians live in rural areas at 50.65% and Mississippi is 97.64% rural by area (U.S. Census Bureau, 2010b). Specifically, per the U.S. Census Bureau, 59 of the 82 counties in Mississippi are 50% or more rural, with 21 of them being 100% rural. A compounding problem facing children living in rural areas is due to a lack of mental health care workers, less government funded research and increased socioeconomic problems; which, increases their chance of adverse outcomes (George, 2006; Strong, Del Grosso, Burwick, Jethwani, & Ponza, 2005). As previously mentioned (i.e., Compas, 1987), middle school age is a developmental time period full of possible stressful situations, and coupled with living in rural areas proves to be more problematic. The experiences (i.e., socioeconomic, mental health stereotypes, trauma, less support from local resources, and poverty) that these children face are unique in their ways from those experienced in urban areas (Imig et al., 1997; Sherman, 2006).

Furthermore, rural poverty has occurred at a higher rate than urban poverty since the 1960s (Albrecht, Albrecht, & Albrecht, 2009; Flora, Flora, & Fey, 2004; Struthers & Bokemeier, 2000; Summers, 1995). Living in poverty is a source of stress that negatively influences development (e.g., learning impairment, physiological problems, externalizing and internalizing problems, and physical disorders; Garbarino, 1998; Grant, Finkelstein, & Lyons, 2003; Kim, Conger, Elder, & Lorenz, 2003; McLoyd, 1998). Jimerson (2005) noted that school districts suffer adverse effects of poverty including limited resources for students, employment related issues, and bias from government policy (i.e., accountability provisions, sanctions, and highly qualified teacher provisions). More specifically, schools with limited resources may have fewer buses and bus routes available to children, forcing more students to travel long distances to get to school. Also, schools in more poverty-stricken areas face greater teacher turnover and have difficulty recruiting highly qualified replacements. Policies for accountability, such as the No Child Left Behind Act (NCLB) of 2001, now Every Student Succeeds Act (ESSA) of 2015, result in these schools being more likely to be labeled as unsuccessful, making them less attractive as employment options (Jimerson, 2005).

Additionally, assessing emotional regulation could yield a better understanding of the impact of coping and emotional regulation on a child's perception of the stress they face. Furthermore, the focus is solely on rural adolescents in middle schools from southern rural areas. A previous study investigated rural and urban differences in coping (Elgar, Arlett, & Groves, 2003) with seventh and eighth-grade students in Canada's rural Midwest. Results suggested that adolescents' coping strategies served microscopic benefits concerning behavioral outcomes. Elgar and colleagues (2003) pointed out that

the Ways of Coping Revised instrument may not have described relevant coping strategies for adolescents and that they responded in a situation specific way, while having little impact on buffering the effects of stress. An additional limitation of the study was their categorization of what was a rural or urban area in Newfoundland could be different for other countries.

Moreover, the many problems previously mentioned for adolescents in rural areas are compounded by additional experiences with traumatic events such as domestic partner homicide (Gallup-Black, 2005), domestic violence (Hetling & Zhang, 2010), and physical and sexual abuse (Mattingly & Walsh, 2010). All are among factors that have a higher rate of occurrence in rural compared to non-rural or metropolitan areas. Moreover, rural families that have been reported for abuse to local child protective services agencies have also reported more family stress and financial difficulties compared to urban families (Mattingly & Walsh, 2010).

Rural children experience equal frequencies of other types of abuse (e.g., neglect and multiple cases of abuse) as urban children (Mattingly & Walsh, 2010). However, there is less research on these topics for rural than for urban children (Strong et al., 2005). Government funds for rural research on child well-being are scarce while those for urban areas are often plentiful (Strong et al., 2005). These rural communities are faced with additional problems, such as little to no corporate donors, small economic bases, and smaller governments (Strong et al., 2005). Treatment for mental illness in rural communities is viewed more negatively than their urban counterparts (New Freedom Commission, 2004). Likewise, there is a scarcity of after school programs for children, tutoring and mentoring programs, and domestic violence services (Belanger & Stone,

2008; New Freedom Commission, 2004). A new, prevalent factor adding to the stressors faced by students in rural areas is the rising production and use of methamphetamines (National Association of Countries, 2005).

In conclusion, research on coping, emotion regulation, and stress with children in rural populations has revealed few and mixed results. For example, it was found that as children age their experience of stress becomes less intense and more efficient coping mechanisms are developed (Rew, Principe, & Hannah, 2012). Research on similar topics (e.g., stress, coping, and emotion regulation; Arsenio & Loria, 2014; Coyle & Vera, 2013; Devonport, Lane, & Biscomb, 2013; Epstein-Ngo, Maurizi, Bregman, & Ceballo, 2013; Persike & Seiffge-Krenke, 2012) included urban populations of older adolescents (above the ages of 11-14 years) where the majority of middle school children age range falls. With so much of the United States being rural and so many children being faced with challenging situations every day, especially with the advent of social networks, research to understand these areas and populations is needed to engage in developing preventative measures to improve the outcomes for this population.

Statement of Problem

Children who lack appropriate coping skills to deal with daily stressors may be more vulnerable to developing emotional, behavioral and social difficulties (Frydenberg & Lewis, 2000; McMahon et al., 2013). To provide interventions to at-risk students, one would need to evaluate the child's coping response style and emotional regulation and their effects on stress. Whether those coping responses reduce or increase stress, researchers need to understand how students are affected for the development of preventative or intervening solutions. Poor psychological well-being in childhood is often

compounded due to ineffective coping responses (Brietzke et al., 2012; De Young et al., 2011; Green et al., 2010; Shaw, 2003). Additionally, these children experience poor academic outcomes (Arsenio & Loria, 2014), learning impairments (McEwen & Saplosky, 1995), and a greater possibility of depression and a negative outlook on life (Brietzke et al., 2012). Lastly, research has shown an increase in behavioral problems (Frydenberg & Lewis, 2000) for children who suffer from chronic stress and trauma with poor coping (De Young et al., 2011).

Rural students are at-risk because they experience a different environment of stress and increased poverty (Jimerson, 2005). The schools have fewer resources (e.g., mental health staff services, support staff, and high teacher turnover), and there is less research conducted in rural areas across the United States (Jimerson, 2005; Strong et al., 2005). Preventing significant psychological and behavioral problems via effective coping responses is a mental health issue, an issue that will continue to get worse if not addressed. Therefore, school-wide preventative measures should be in place to ensure all students have the skills they need to succeed.

Many schools have a multi-tiered system of supports (MTSS) incorporating empirically-based practices into preventing and treating academic, emotional, behavioral, and social problems with children (Cook, Burns, Browning-Wright, & Gresham, 2010). MTSS is proactive in nature and uses this prevention based framework to meet students' needs using evidenced-based practices (Strein, Hoagwood, & Cohn, 2003). The MTSS framework provides an opportunity to intervene meaningfully on ineffective coping skills, equipping children and adolescent with the resiliency tools necessary to improve

upon potentially harmful outcomes that may be associated with difficulties coping with stress and living in a more rural setting.

Positive behavior interventions and supports (PBIS), a component of a comprehensive MTSS system, is a widely used behaviorally-based system to prevent, reduce, and intervene on problems associated with children in schools with efforts to enhance the schools, families, and communities with research-validated practices (Horner & Sugai, 2015). It is the perfect vehicle for introducing a school-wide primary, secondary, or tertiary level of interventions aimed at teaching children the most efficient coping responses to deal with life's circumstances. Through research, we can learn which coping responses are effective at reducing stress and those that are not. Additionally, we could find out how to regulate emotion correctly in the presence of stressful situations and if that affects which responses are chosen, and if those responses are useful or not (Raio, Orederu, Palazzolo, Shurick, & Phelps, 2013).

Purpose of the Study

The purpose of the current study was to investigate whether coping response style predicted the level of perceived stress in rural middle school aged students. More specifically, this study explored whether avoidance and approach coping response styles resulted in higher or lower scores of perceived stress. Also, the study evaluated whether emotional regulation strategies (i.e., expressive suppression and cognitive reappraisal) moderated the relationship between coping responses and the level of perceived stress.

Research Questions

Within the study, the researcher explored the following research questions:

1. Do coping responses (i.e., approach and avoidant) predict perceived stress (i.e., Perceived Stress Scale) in rural middle school students?
2. Does emotional regulation (i.e., expressive suppression and cognitive reappraisal) moderate the relationship between coping responses (i.e., approach and avoidant) and perceived stress (i.e., Perceived Stress Scale) in rural middle school student?

CHAPTER II

REVIEW OF LITERATURE

All too often news stories appear involving children being bullied or rejected by their peers, leading to instances of suicide or school violence (e.g., 14-year-old Charles “Andy” Williams or 11-year-old Rebecca Sedwick). Although such stories may be considered rare, suicide among adolescents is becoming a global health problem (Kim, Han, Trksak, & Lee, 2014), suggesting a growing need for a better understanding of how to best manage these phenomena. One such method of management may be the use of coping skills. Effective coping responses could serve to reduce suicide and other maladaptive outcomes existent among adolescents experiencing chronic stress (e.g., poor academic achievement, poor psychological well-being, psychopathology, changes in neurology, and reduced life satisfaction; Brietzke et al., 2012; Brown & Harris, 1989; De Young et al., 2011; Green et al., 2010; Lazarus & Cohen, 1977; Pechtel & Pizzagalli, 2011).

As children grow, the increasing amount of ambiguous demands from teachers and parents along with the possibility of additional stressful events (e.g., transitions, establishing interpersonal relationships, cliques) create a compounding problem (Campbell, 2011). These and other stressors cause a physiological reaction requiring the body to use resources and adapt (e.g., controlling emotional response; Lazarus & Folkman, 1984). The ability to regulate emotion and cope during this period of

development is crucial to preventing adverse outcomes and trajectories (Goodman & Southam-Gerow, 2010). For example, ineffective emotional regulation can lead to extreme reactions (e.g., aggression, depression, hopelessness; Ding & Yang, 2013; Eisenberg et al., 2010). In efforts to extend the current literature base, the present study explored the theoretical and conceptual underpinnings related to stress, coping, and emotion regulation, as well as the current research surrounding perceived stress, stress, and coping.

Theoretical Model and Conceptual Framework

Folkman and Lazarus (1985) define coping as a process that is highly reflexive and evolves over time. Related to coping, emotion regulation is an individual's ability to actively regulate his or her emotions (e.g., control self from becoming consumed by anger; Eisenberg et al., 2010). Across the lifespan, both coping and emotional regulation evolves in such a way that students are better equipped to respond to the daily stress (Ding & Yang, 2012). Arguably, the most relevant framework about coping with stress and emotional regulation is the cognitive-emotional framework, which proposes that emotional and cognitive appraisals influence the selection of various coping responses (Duhachek, 2005).

Duhachek's (2005) cognitive-emotional framework is based on Lazarus' theoretical model of stress and coping (Lazarus & Folkman, 1984), claiming there is an inseparable link between coping and emotion, and that the process of coping is a result of evolving environmental conditions that affect emotional states. Duhachek (2005) believed separating the appraisal of emotions and coping responses would fail to provide a comprehensive model explaining how emotions relate to cognitive appraisals and how

someone copes. Cognitive appraisal is how a person interprets a situation (i.e., threat or not a threat; Lazarus & Folkman, 1984). These theoretically separate but necessary factors influence an individual in whether they use problem-focused coping, emotion-focused coping, or both. There are alternatively used dichotomies such as avoidance versus approach coping that is in line with the underpinnings of problem-focused and emotion-focused coping. Duhachek's (2005) model presents a theoretical framework used to investigating the active effects of coping.

Previous models imply that as a person processes stressful stimuli, the strategies that are used for coping affect the nature of their ensuing emotional reactions and also their ensuing cognitive appraisals (Lazarus, 1991; Zajonc, 1984). Duhachek's (2005) model suggests coping responses influence corresponding emotions, thereby affecting the ensuing coping process. His model also posits that both cognitions and emotions signal coping. That being said, this model does not attempt to explain the relationships between emotion and cognition, only that they influence coping. Duhachek (2005) argues that there is a lack of research on coping and the interaction of emotions and cognitive appraisals. While Duhachek's (2005) framework has been applied to emerging adults (i.e., undergraduates), it has not been explored with younger children. The downward extension of the model for use with younger children is necessary for the creation of a more robust theoretical framework.

The current study uses the foundational frameworks related to both Lazarus and Folkman (1984) and Billings and Moos (1981; 1984). Both proposed two conceptual approaches to classifying coping responses: (a) emphasis on the focus of coping is problem focused or emotion focused, and (b) emphasis on the method (i.e., active or

avoidance) of coping is either cognitive or behavioral. In developing the Coping Response Inventory, Moos (1988; 1993) focused on both approaches (i.e., the focus of coping and methods of coping) to categorizing coping responses, thereby bring more conceptual clarity to varying coping responses throughout literature (Wong, Reker, & Peacock, 2006). Approach coping is conceptually related to problem-focused coping, and avoidance is conceptually related to emotion-focused coping (Wong et al., 2006).

Perceived Stress

Perceived stress is a thought and/or feeling a person has about how stressed they are at a point in time (Lazarus & Folkman, 1984; Shah, Hasan, Malik, & Sreeramareddy, 2015). When considering the measurement of stress, it is important to note that adolescence is a period with marked increases in actual stress and perceived stress (Galvan & McGlennen, 2012; Stankovic, Fairchild, Aitken, & Clark, 2014). Measuring stress can be obtained in varying ways; psychological questionnaires, blood pressure, vagal tone, electrocardiography, and salivary cortisol strips (Center for Studies on Human Stress, 2007). Some of these require more resources, time, and trained personnel. Involving no additional equipment, psychological questionnaires are likely the most efficient. A questionnaire of perceived stress is a way of measuring stress (Cohen, Kamarck, & Maemelstein, 1983).

Assessment of stress level can be obtained through measures that give a picture of how controllable and predictable one feels about stressful events in their life (e.g., *Perceived Stress Scale*; Cohen et al., 1983). Without being domain specific (e.g., psychosocial, academic, and family stress), these measures provide a score of global stress. This global indicator of stress is useful when studying the construct.

Sontag and Graber (2010) examined perceived peer stress (i.e., *Responses to Stress Questionnaire*; Connor-Smith, Compas, Wadsworth, Thomsen, & Saltzman, 2000) and how it relates to psychopathology in a sample of middle school students. When exposed to peer stress, children had a greater propensity to react to perceived peer stress with uncontrollable thoughts. Additionally, the children had increased heart rates, cognitive interference, and other involuntary responses, increasing the groups' chances of emotional and behavioral problems (Sontag & Gaber, 2010). The childrens' perception coincided with their physiological response (i.e., they perceived they were stressed and their body engaged in a stress response). The researchers also noted higher perceived peer stress was strongly related to higher amounts of anxiety and depression for girls over boys.

Relatedly, additional research has found that higher perceived stress can lead to negative factors such as depression, aggression, health problems, and declining academic functioning with students (Misra, McKean, West & Russo, 2000; Pengilly & Dowd, 2000). While the majority of these studies targeted college students, some did involve younger children. Kokonyei and colleagues (2015) investigated the relationship between perseverative thoughts and somatic complaints and whether that association was mediated by perceived stress in middle and high school students. Their results suggest perceived stress does mediate this relationship along with negative affectivity.

Similarly, another study had a sample of middle school students complete the *Perceived Stress Scale* (PSS; Cohen, Kamarck, & Mermelstein, 1983) to investigate if there was a relationship between stress, hope, and loneliness (Yarcheski, Mahon, & Yarcheski, 2011). Researchers used the PSS score as a measure of stress and found there

was a significant association between the three factors (Yarcheski et al., 2011).

Specifically, higher scores on the PSS was significantly related to higher scores of loneliness and lower scores on hope.

In summary, measuring stress can be obtained in a number of ways, but the most convenient and financially applicable way of measuring stress is through psychological questionnaires, specifically a measure of perceived stress. Perceived stress gives an overall measure of the stress individuals face daily (Cohen et al., 1983). It also incorporates individual differences by using how one perceives how controllable and predictable a stressful event is (Cohen et al., 1983). Using perceived stress, research has shown that it coincides with children's physiological response, and higher perceived stress equates to more psychological and behavioral consequences (Sontag & Gaber, 2010). That being said, the literature is relatively limited when comparing adults to young children.

Stress and Coping

When it comes to research about stress or coping, it was difficult to separate the two terms. When stress occurs, there will be some form of coping, whether it is positive or negative (Lazarus & Folkman, 1984). Adolescence is a particularly stressful developmental period in life. Adolescence is characterized by rapid physical growth, as well as significant physical, emotional, psychological, and spiritual changes (Thaker & Verma, 2014). This developmental period is characterized by complex neurobiological changes and heightened vulnerability to psychiatric illness (Sinclair, Purves-Tyson, Allen, & Weickert, 2014). Significant chronic stress during adolescence has been shown to have detrimental effects on the psychological well-being of adolescents (Shaw, 2003).

During adolescence, stress may contribute to increased alcohol consumption, risky sexual behaviors, aggression, and psychiatric disorders in adulthood (Copeland-Linder, Yi-Fu, & Ialongo, 2011; Hurland et al., 2015; Liu & Kaplan, 2004; McKay & Cole, 2013; Moskowitz, Stein, & Lightfoot, 2013; Snyder, Barry, & Valentino, 2015). Additionally, suicide is a possible adverse outcome associated with stress during adolescence (Wilson et al., 1995). Wilson and colleagues (1995) compared a population of adolescents who had made suicide attempts with those who had no psychiatric symptoms. They were given coping and stress measures in which standard scores were derived. They found that children who previously attempted suicide had more life stress and an inaccurate appraisal of stress-related events, which contributed to their suicidal ideation. Essentially, those that previously attempted suicide had coping scores indicative of maladaptive coping versus those who had not previously attempted suicide (Wilson et al., 1995).

Gellman and Turner (2013) defined stress as a thought or feeling (i.e., perception) someone has about how much stress they are facing at that period of time. This is particularly relevant to the current study as it involves the perception of the individual experiencing the stress. Stress exerts a compounding toll on the emotional and physical well-being; specifically, because of allostatic load, stress may add to diseases and disorders (Compas, 2006). Additionally, it takes a toll on brain regions, causing disruption in areas associated with coping (Compas, 2006). This damage is likely related to the position that coping is the evolving exertion of cognitive and behavioral resources through evaluation to achieve a balance between external and/or internal demands (Lazarus & Folkman, 1984). There are a number of ways children cope with perceived

stressful events. Usually, the process of recognizing something as stressful is a simultaneous process of primary and secondary appraisal, which happens instantaneously (Lazarus & Folkman, 1984).

In summary, research has shown that children who experience significant amounts of stress often exhibit maladaptive behavior (Copeland-Linder et al., 2011; Hulland et al., 2015; Liu & Kaplan, 2004; McKay & Cole, 2013; Moskowitz et al., 2013; Snyder et al., 2015). Additionally, stress effects brain maturation and increases suicide ideation and attempts (Wilson et al., 1995). Moreover, chronic stress affects the ability to cope, but having more efficient coping responses can buffer those effects (Compas, 2006).

Types of Coping Responses

Lazarus and Folkman (1984) and Billings and Moos (1981; 1984) identified several types coping responses (i.e., problem and emotion-focused & avoidant and approach coping) that could result in a positive or negative outcome. Specifically, research (e.g., Billings & Moos, 1981) has shown that problem focused and approach coping results in less stress compared to avoidant and emotion-focused coping. These methods and focuses of coping include using different responses (e.g., taking control, information seeking, seeking alternative rewards, keeping yourself busy, and distracting yourself) in the presence of a stressful situation.

Emotion-focused Coping

Likewise, emotion-focused coping is a process involving the reduction of negative emotional responses (e.g., fear, anxiety, and depression) associated with stress

(Lazarus & Folkman, 1984). An external focus of control gives the perception of emotion-focused being the only option (Levenson, 1981). Types of emotion-focused coping include distraction, eating, drinking, and using drugs (Herman & Tetrick, 2009). Emotion-focused responses are ineffective because the source of the stress is ignored and focus is on the emotion (Herman & Tetrick, 2009).

Avoidance Coping

Relatedly, avoidance coping reflects cognitive and behavioral attempts to avoid thinking about a stressor and its implications, or to manage the effect associated with the stressor (Herman & Tetrick, 2009; Holahan, Moos, Holahan, Brennan, & Schutte, 2005). The problems that elicited the stress is never confronted (Billings & Moos, 1981). Types of avoidance coping involve eating, smoking, or drinking (Billings & Moos, 1981).

Problem-focused Coping

Problem-focused coping involves identifying the cause of stress and ways to solve the problem (Lazarus & Folkman, 1984). Types of problem-focused coping include problem-solving, time management, and obtaining social support (Herman & Tetrick, 2009). Problem-solving coping is believed effective because it removes the stressor and deals with the cause of the problem directly (Penley, Tomaka, & Weibe, 2012).

Approach Coping

Relatedly, approach coping reflects cognitive and behavioral efforts to master and resolve life stressors (Penley et al., 2012). Approach coping is an attempt to manage the appraisal of the stressful event (Billings & Moos, 1981). Additionally, it involves

behaviors aimed at dealing with the problem directly such as seeking additional information and taking positive action (Billings & Moos, 1981).

In conclusion, there are four related concepts of coping (e.g., problem-focused and emotion-focused coping; approach and avoidant coping) which could result in positive and negative outcomes (Billings & Moos, 1981; Lazarus & Folkman, 1984; Wong et al., 2006). Emotion-focused and avoidant coping has been shown to be ineffective, and problem focused and approach coping have been shown to be efficient (Billings & Moos, 1981; Lazarus & Folkman, 1984; Wong et al., 2006)

Effects of Stress on Coping

Children as young as preschool benefit from active coping responses (Yeo, Frydenberg, Northam, & Deans, 2014). Being that coping has a developmental aspect, the preschool age is appropriate for review to make comparisons and show trajectories (Yeo et al., 2014). Parents of the children filled out the parent rating form of the *Children's Coping Scale-Revised*. Results revealed the children used three different types of coping responses most consistent with literature for children of this age; active coping, negative coping – emotional expression, and negative coping- emotional inhibition (Yeo et al., 2014). Additionally, children with higher ratings of anxiety were more likely engaging in negative coping responses while less anxious children used more active coping responses. Maladaptive coping is present early in life, which has the possibility of progressing into later years (Yeo et al., 2014).

Zimmer-Gembeck, Lees, and Skinner (2011) investigated if a socially competent child used more approach coping styles versus those who were less competent. The children (e.g., Grades 3 to 7) were exposed to controlled interpersonal stress (i.e.,

bullying and social rejection) via videotape and completed coping measures. Socially competent children used more approach coping responses (i.e., problem-solving and support seeking) less competent children used negative coping responses.

In relation to adolescence, Scott, Shell, and Gazelle (2015) investigated their coping response to peer stress. These were 195 (i.e., 56% females) students administered coping surveys during the fall semester of the sixth grade. Results revealed students high in anxiety experienced more peer stress than non-anxious children. An observed difference in response to the stressors on the surveys was noted. Voluntary engagement was used universally while engaged and disengaged voluntary coping was employed by the anxious students (Scott et al., 2015).

Previous research revealed adolescents' response to stress is domain specific, depending on the source of stress (Nicolai, Laney, & Mezulis, 2013). The sample involved high school students, but give implications for future research indicate assessing stress and coping strategies based on domains relative to the sample (e.g., perceived school and peer problems). Relatedly, parent and school-related stress are shown to be highest among adolescents while peer-related stress was lowest (Persike & Seiffge-Krenke, 2012). However, this study did not include middle school students (Persike & Seiffge-Krenke, 2012). Overall, older adolescents in regions across the world have developed an array of coping styles in response to high perceived stress (Persike & Seiffge-Krenke, 2012).

Likewise, Amikhan and Auyeung (2007) attempted to identify coping across age groups (i.e., years 9-12; 13-15; 16-18; 20-29). Results revealed all age groups used similar types of coping, with problem-solving coping used with older participants

(Amikhan & Auyeung, 2007). However, the study was limited to private and public school students in southern California where there is access to more resources (e.g., proximity to a university nearby and majority middle-class socioeconomic status; Amikhan & Auyeung, 2007).

Lastly, research on coping and stress revealed numerous findings on Latino/Latina, African-American, and international adolescents (e.g., Israeli, South African, & Iranian; Saffari, Ghofranipour, Mahmoudi, & Montazeri, 2011; van Rooyen, 2014). However, the regional base of these samples involved urban or inner city areas with older adolescents aged 14-18 years (Arsenio & Loria, 2014; Coyle & Vera, 2013; Davenport et al., 2013; Epstein-Ngo et al., 2013; Persike & Seiffge-Krenke, 2012). Mostly, similar findings revealed that coping responses acted as moderators/mediators or protective factors to measures of psychological well-being, response to stress, academic, and behavior problems (McMahon et al., 2013). For example, Coyle and Vera (2013) found that for urban adolescents living in the Midwest, active coping served as a moderator between negative affect and uncontrollable stress. Additionally, active coping was related to positive affect (Coyle & Vera, 2013). Although similar results were found in a study of rural adolescents in high school, the sample was not representative of middle schools (George, 2006).

In summary, having effective coping responses can benefit children of all ages and reduce negative outcomes (Yeo et al., 2014). Children with better social competence use more effective coping than those less competent (Zimmer-Gembeck et al., 2011). Although literature on the effects of stress is broad, studies (e.g., Amikhan & Auyeung, 2007; Arsenio & Loria, 2014; Coyle & Vera, 2013; Davenport et al., 2013; Epstein-Ngo

et al., 2013; Persike & Seiffge-Krenke, 2012) tend to focus less on rural middle school students compared to other populations and regions (Strong et al., 2005).

Stress and Coping Response Styles in Rural Populations

Literature searches using search terms ‘stress and coping’, ‘rural areas’, and ‘adolescents’ with variations of verbiage (e.g., adolescences) revealed a limited database of studies. Due to the database producing numerous unrelated duplicates, a small sample of studies could be used.

In regard to related studies focusing on stress and coping, a previous study included 1,568 elementary students (e.g., Grades 4 to 6; Rew, Principe, & Hannah, 2012) living in a rural school district in central Texas. The sample consisted of majority Hispanic/Latino population. Student’s perceived stress was measured using *The Feel Bad Scale* (Lewis, Siegel, & Lewis, 1984) and their coping strategies were measured using *The Schoolagers’ Coping Strategies Inventory* (Ryan-Wenger, 1990). Researchers investigated if the frequency and intensity of stress changes with age. Results revealed that as children got older they experienced less intense stressors. Also, girls experienced more stressors than boys (Rew et al., 2012). Due to a decrease in stress score over time, researches asserted that children’s perception of stress changes as they get older because of the development of more intricate cognitive skills. Moreover, results revealed children in lower grades used more effective coping when compared with upper grades and the frequency of those coping strategies decreased. Researchers suggested their findings could be due to children replacing coping strategies they previously used with new ones. Lastly, the sample involved a 51% representation of the Hispanic population, which is not common among most rural southern and eastern regions of the United States (Rew et

al., 2012). A noted limitation by Rew and colleagues (2012) was that there are new stressors (i.e., poverty, community and personal violence, drugs, and diseases) for children that their instruments may have not included. The current study takes a different approach by looking at coping response styles instead of specific strategies and measures perceived stress by allowing students to think of their own stressor to be more relevant to their maturation and age.

Likewise, studies with rural geographical areas did not include students (e.g., African American) representative of southern rural areas (i.e., only American Indian and Caucasian; Eitle & Eitle, 2014). The focus of the study (i.e., Eitle & Eitle, 2014) was the effect of coping on substance abuse.

Relatedly, rural middle school children in rural areas experience a high frequency of stressful situations that increase symptomatology (Christiansen, Copelan, & Stapert, 2008). Christiansen and colleagues (2008) had a sample of 138 seventh and eighth grade students living in a rural midwestern state complete measures of perceived daily hassles, coping strategies, ability to alleviate a negative mood state, and degree of somatic symptomatology. The sample was comprised of 94% Anglo students. Results revealed that the student's daily hassles were most predictive of symptomatology. Additionally, researchers found that interpersonal relationships were the only coping factor that significantly reduced the prediction of symptomatology. The current study uses a sample from a southern rural area versus a midwestern rural area of sixth through ninth grades students, which could give alternate descriptions of factors of stress and coping for students living in rural areas.

Lastly, previous research has revealed that economic strain and life stress predicted psychological symptoms for parents and adolescents (Wadsworth, Raviv, Compas, & Connor-Smith, 2005). Additionally, researchers found that involuntary stress responses were associated with increased psychological symptoms, and primary and secondary control coping was associated with fewer psychological symptoms. Wadsworth and colleagues (2005) used a sample of 57 parent-adolescent dyads of lower income from a rural area in Vermont. The majority (i.e., 97%) of the respondents identified as Caucasian. The students attended a local junior-senior high school. Instruments to measure stress was the *Life Stress Questionnaire* which measured the amount of stressful life events for both parents and students. Additionally, they completed the *Response to Stress Questionnaire* (Connor-Smith, Compas, Wadsworth, Thomsen, & Saltzman, 2000) on how they would respond to an economic strain. Psychological symptoms were also measured. Implications presented suggested that effective coping is associated with a better overall functioning, while disengagement coping is not. A limitation of Wadsworth and colleagues (2005) study is the small sample size (i.e., 57), and use of mailing in surveys to be completed. The conclusion of whether the parents completed the surveys for their children cannot be determined. An additional limitation of the study was a lack of a representational summary in regard to ethnicity.

In summary, there is an apparent lack of literature related to middle school students (sixth through eighth grade) living in rural areas. Most studies were focused on older adolescents (i.e., ages 14-18 years; Nicolai et al., 2011), elementary aged students (e.g., 6-10 years; Rew et al., 2012), urban/inner city youth (Strong et al., 2005; Cole &

Vera, 2013), or adolescents from different countries (e.g., Saffari et al., 2011). Previous research has not focused on combining the middle school age groups (i.e., 11 to 14 years) to make comparisons. Rural youth need more attention in research (Jimerson, 2005; Strong et al., 2005). To research the types and effects of stressors and challenges faced for inner city youth without considering other regional areas could constrict outcomes derived from that research. To get a more comprehensive view of stress, coping, and emotion regulation in children, literature should expand and give more focus to rural areas. Rural areas make up about 47% of the World's population and about 20 percent of the United States population (U.S. Census, 2010a; World Bank, 2014).

Emotional Regulation

Emotional regulation literature has not been combined with coping (Compas, 2009). Thompson (1994) defined emotional regulation as an extrinsic and intrinsic dynamic that monitors, appraise, and adjusts emotions to accomplish an intended goal. Gross (1998; 2002) further explained that emotional regulation involves situation selection, situation modification, attention deployment, cognitive change (i.e., cognitive reappraisal), and response modulation (i.e., suppression). The study of emotional regulation, particularly in adolescence, is important because a lack thereof could pose serious threats to mental health and psychopathology (Berking & Whitley, 2014; Braet et al., 2014; Moriya & Takashi, 2013). There is a significant association between regulating affective states and mental health disorders (Berking & Whitley, 2014).

Flouri and Mavroveli (2013) investigated emotional regulation and coping's mediation and moderation on the relationship between change in life stress and adolescent (i.e., ages 12 to 16 years) problem behavior. Their sample consisted of 159

adolescents with an average age of 14 years. A measure for assessing life stress was assessed using the *Adverse Life Events Scale* (Tiet et al., 1998); which, the items are comprised of traumatic events. Emotion regulation was measured using the *Emotion Regulation Questionnaire* and coping was measured using the *Children's Coping Strategies Checklist-Revision 1* (Ayers & Sandler, 1999). Researchers found no mediation between coping and emotional regulation on change in life stress and problem behavior (Flouri & Mavroveli, 2013). However, avoidance coping and expressive suppression was related to an upsurge in adolescent problem behavior (Flouri & Mavroveli, 2013). Moreover, cognitive reappraisal (i.e., positive emotion regulation skill) had a moderating effect on increases in life stress and deterioration of problem behavior, suggesting that cognitive reappraisal was a protective factor (Flouri & Mavroveli, 2013). Flouri and Mavroveli (2013) concluded that coping and emotion regulation were inter-related constructs. Although similar relationship between variables were observed, the study consisted of primarily Caucasian (i.e., 88%) students attending a state secondary school in London.

When it comes to emotion regulation, the strategies that encompass the construct, expressive suppression and cognitive reappraisal, are used differently depending on the maturation of a child. However, it is important that children are using the most effective one. Emotional regulation has been shown to act a mediator for various relationships (e.g., affect dysfunction and borderline personality symptoms; violence exposure and internalizing problems; Lougheed & Hollenstein, 2012). When students have limited use of effective emotional regulation strategies, there is an increased relationship to internalizing problems (Lougheed & Hollenstein, 2012). Although the findings are

helpful, the study's (e.g., Lougheed & Hollenstein, 2012) sample resided in a non-rural city in Ontario, Canada. A need for the expansion of stress, coping, and emotional regulation related literature is evidenced by ambiguous results on the development of students' use of emotion regulation (Rawana et al., 2014). Previous investigations into the development of emotional regulation strategies reveals that children aged 9-15 decreased their use of expressive suppression strategies as they got older (Gullone, Hughes, King, & Tonge, 2010). Additionally, more stability of cognitive reappraisals was present across time (Gullone et al., 2010). The stability of these two strategies (i.e., cognitive reappraisals and expressive suppression; Gullone et al., 2010) helps to appropriate the right instruments for future research.

Likewise, Murphy (2013) argues there is less literature examining emotional regulation use in adolescence. Murphy (2013) used a longitudinal sample of 68 10 to 11-year-olds, and examined their emotional regulation strategies from elementary to middle school in a setting in the United Kingdom. Expressive suppression and cognitive reappraisal were found to be related to significant outcomes of school adjustment (e.g., self-perceived global self-worth and behavior problems; Murphy, 2013). Specifically, cognitive reappraisal use after transitioning to middle school was positively related with self-perceived self-worth and the inverse was observed with expressive suppression use. Lastly, expressive suppression was positively associated with behavior problems. Murphy was able to contribute to the understanding of how emotion regulation affects early adolescent in a middle school environment for students living in the United Kingdom, but doesn't contribute to the understanding of the entire age range of students (i.e., 11-14 years) attending middle school and living in rural areas.

Among a sample of 7,978 high school students living in rural or micropolitan regions, difficulties with emotional regulation were related to previous suicide attempts (Pisani et al. 2013). Suicide attempts were measured using the *Youth Risk Behavior Survey* and emotion regulation was assessed using the *Difficulties in Emotion Regulation Scale* (Gratz & Roemar, 2004). A noted limitation of the study was that the schools used for obtaining the sample of students mostly served white students. Although the sample did not include middle school students, the study raises important implications for needing to understand emotional regulation in younger children for preventative reasons. Additional implications could result in a screening process for students at risk.

Emotional Regulation and Coping

According to Compas (2009), coping combined with emotional regulation is a mostly unexplored inquiry of research. Literature shows that children who use effective emotional regulation skills have higher levels of approach coping when dealing with their difficulties (Zalewski, Lengua, Wilson, Trancik, & Bazinet, 2011). Additionally, children with less efficient strategies had higher appraisals of threat and use of avoidance coping (Zalewski et al., 2011). The sample consisted of 214 children in fourth to sixth grade. However, the sample did not include students from rural areas and was limited to the late childhood to early adolescent ages of 9-12 years. Measures of emotional regulation were done using emotion eliciting task, and not through questionnaires. Researchers noted that no such questionnaires existed for their age group. Coping styles were measured using the *Children's Coping Strategies Checklist* (Ayers, Sandler, West, & Roosa, 1996) and appraisal style was measured using the *What I Felt Scale* (Sheets, Sandler, & West, 1996). The aim of the study was not prediction, but rather associations.

Relatedly, Wang and Saudino (2011) inferred through their review that individuals varied in their capacity to regulate emotions and cope with stress. These abilities were found to be different across age groups suggesting separate but related concepts (Wang & Saudino, 2011). Limitations of the study were that the researchers made inferences from previous studies, but did not investigate any of the variables. Additionally, samples from which the researchers made inferences could have varied based on the geographical regions, ethnicities, and countries; making it harder to generalize findings.

In summary, the study of coping and emotional regulation in rural populations is little to non-existent. The literature base lacking with combining coping and emotional regulation research with stress, giving important consideration for how future research should be conducted in these areas (Compas, 2009). Avoidance coping and expressive suppression were related to increased problem behavior (Flouri & Mavroveli, 2013). Cognitive reappraisal is shown to be a protective factor for the effect of stress on the body (Flouri & Mavroveli, 2013). Lastly, emotional regulation deficits have been known to cause adverse outcomes for children in relation to their mental health status and school functioning (Berking & Whitley, 2014; Braet et al., 2014; Flouri & Mavroveli, 2013; Moriya & Takashi, 2013).

Summary

Based on a review of research, it is known that coping is a process that is reflexive and evolves over time as one gets older (Folkman & Lazarus, 1985). Additionally, when stress occurs, there will be some form of coping. Research has shown that the broad concepts of problem-focused coping and emotion-focused are

related conceptually to approach coping and avoidance coping (Wong et al., 2006). Moreover, it is known that there is a link between coping and emotion that cannot be separated in research (Duhachek, 2005). When measuring stress, research has shown that perceived stress measures are most cost effective and give an overall measure of stress individuals face daily (Cohen et al., 1983). Perceived stress also incorporates individual differences by using how one perceives the controllability and predictability of a stressful event. Likewise, perceived stress coincides with an individual's physiological response, and higher perceived stress is associated with more psychological and behavioral consequences (Sontag & Gaber, 2009).

Relatedly, the period of adolescence is one that one of rapid physical growth, as well as physical, psychological, emotional, and spiritual changes (Thaker & Verma, 2014). Moreover, this period of development encompasses complex neurobiological changes and heightened vulnerability to psychiatric illnesses (Sinclair et al., 2014). Research on stress during adolescence has shown that it can cause numerous detrimental and negative effects to their functioning in the home and school environment.

Research has shown that the most effective ways of dealing with stress and producing more favorable outcomes involve using approach coping, while avoidant coping is shown to be less effective (Billings & Moos, 1981; Lazarus & Folkman, 1984; Wong et al., 2006). It is known in the literature that having effective coping responses can benefit children of all ages and reduce negative outcomes (Yeo et al., 2014).

Although literature examining the effects of stress is broad, studies tend to focus less on middle school students living in rural areas compared to other regions (Strong et al., 2005); and, the samples used for inquiry do not represent (i.e., majority Caucasian)

other ethnicities very well. Across coping, stress, and emotion regulation research, studies focused more on either elementary aged students, older adolescents, urban/inner city children, parents, or adolescents from different countries other than the United States. Additionally, previous research has limited samples combining the middle school age groups (i.e., 11 to 14 years). What is not widely known is how these variables (i.e., stress, coping, and emotion regulation) interact with this under-researched population of students.

Addressing the Gaps in Previous Research (Purpose of study)

The purpose of this study is to investigate if the type of coping response (i.e., approach and avoidant coping) predict levels of perceived stress in rural middle school students. Moreover, the purpose is to evaluate if emotional regulation strategies (i.e., expressive suppression and cognitive reappraisal) moderate the relationship between coping and perceived stress in rural middle school students.

Previous research is limited in studies that involve rural middle school populations for the effects stress on coping (Amikhan & Auyeung, 2007; Arsenio & Loria, 2014; Coyle & Vera, 2013; Davenport et al., 2013; Epstein-Ngo et al., 2013; Persike & Seiffge-Krenke, 2012). Living in rural areas is a compounding problem for children in that there less access to resources, people are often of lower socioeconomic status, and higher rates of drug and alcohol use (Johnson et al., 2008). There are fewer qualified health personnel in these areas to help with physical, emotional, and psychological issues that could arise with this population (The National Rural Health Association, 2012). Studies have consistently suggested that there is a relationship between coping strategies and psychological well-being, academic outcomes, and peer

related outcomes (Brietzke et al., 2012; Brown & Harris, 1989; De Young et al., 2011; Green et al., 2010; Laceulle et al., 2014; Lazarus & Cohen, 1977; Pechtel & Pizzagalli, 2011).

Furthermore, the study adds to a limited research base combining coping and emotional regulation (e.g., Compas, 2009) and adds to research on studies of the Perceived Stress Scale (Cohen et al., 1983). There have been artificial boundaries dividing coping research and emotion regulation research. Aspects of emotional regulation have not been related to coping where the two areas of research can be empirically examined in the context of mediation or moderation. Compas (2009) argues that the investigation of coping should pursue the relationship of coping and emotional regulation. Additionally, coping measurements are broad and do not give much detail on any single coping response. Including emotion regulation measures enable studies to assess a more comprehensive array of coping (Compas, 2009)

There is scarce literature on rural populations with regards to emotional regulation. Likewise, there is little to no research that evaluates emotional regulation and coping as part of one theoretical framework (Compas, 2005; Duhachek, 2005). Previous studies have suggested that meager emotion regulation strategies can result in poor mental health when dealing with stressful situations (Berking & Whitley, 2014; Braet et al., 2014; Flouri & Mavroveli, 2013; Lougheed & Hollenstein, 2012; Moriya & Takashi, 2013). Additionally, less efficient emotional regulation resulted in higher appraisals of threat and use of avoidant coping (Zalewski et al., 2011). Suicide attempts are higher for students with ineffective emotion regulation strategies. Lastly, previous research, mostly,

has not involved children's individual differences when it comes to perceptions of stress in relation to other variables.

Research Questions

Within the study, the researcher explored the following research questions:

1. Do coping responses (i.e., approach and avoidant) predict perceived stress (i.e., *Perceived Stress Scale*) in rural middle school students?
2. Does emotional regulation (i.e., expressive suppression and cognitive Reappraisal) moderate the relationship between coping responses (i.e., approach and avoidant) and perceived stress (i.e., *Perceived Stress Scale*) in rural middle school student?

CHAPTER III

METHODOLOGY

Rural areas are different in some ways from other regions of the world. There are limited resources for schools to utilize and shortage of mental health professionals in these areas (Jimerson, 2005). Often, studies have focused on the more populated urban areas as inquiries of research and have left out rural areas (Rew et al., 2012). Specifically, middle school students in their late childhood stage to adolescence have not been adequately examined in research topics related to stress, coping, and emotional regulation. This study will attempt to address the gaps in research related to the aforementioned topic areas for this population and regional area.

Furthermore, this study has two purposes: (a) to investigate whether the type of coping response (i.e., active coping and avoidance coping) predicts levels of perceived stress in rural middle school students; and (b) to evaluate if emotional regulation moderated the relationship between coping and perceived stress in rural middle school students.

Participants were enrolled in a rural middle school in northeastern Mississippi. Students completed the *Coping Response Inventory* and the *Emotional Regulation Questionnaire* (i.e., factors of cognitive reappraisal and expressive suppression) for measures of coping and emotional regulation efficiency. Lastly, students completed a self-report measure of perceived stress. Measures were presented in a randomized order.

Sampling

This study required a sample size of 146 participants for multiple regression analysis (see Appendix B) to achieve a power of .95 at a .05 level of significance (G*Power v 3.1.9.2; Faul, Erdfelder, Buchner, & Lang, 2009) with a medium (i.e., $f^2 = .15$ according to G* power) effect size. Effect sizes are used to determine the effectiveness, or practical significance; of the coping responses and the moderation of the coping response on perceived stress by emotional regulation (Selya, Rose, Dierker, Hedeker, & Mermelstein, 2012). A medium effect size of $f^2 = .15$ is used in this study to determine if at least 13% of the variance in perceived stress scores is accounted for by the independent variables of the study. Effect sizes allow for direct comparisons of the independent variables being measured on different scales (Selya et al., 2012). There were two G* Power analyses conducted based on the research questions which in the recommended samples sizes of 107 for Research Question One and 146 for Research Question Two. The greater of the two requisite *Ns* was selected as the target sample size for this study.

Participants

A sample size of 149 students (i.e., 12% response rate) was obtained, having the following demographics: By sex, 40.3% male and 59.7% female; By ethnicity, 51% of the students were African American, 5.4% Asian, 28.9% Caucasian, 2% identified as Hispanic, Latino, or Spanish origin, 6% identified as Multi-Racial, and 6.7% identified as other; By age, 27.5% of the students being 11, 43% of the students being 12, 20.8% of the students being 13, and 8.7% of the students being 14. Finally, by grade, the sample included 62.4% sixth graders, 16.1% seventh graders, and 21.5% eighth graders. Based on total population of students by gender, there was a 15% response rate for females and

9% response rate for males. Based on total for student ethnicity; 9% response rate for students identifying as African American; 12% response rate for students identifying as Caucasian; 21% response rate for students identifying as Asian; and 25% response rate for students identifying as Hispanic, Latino, or Spanish origin. Response rate for other identifying ethnicities could not be determined.

Setting

The setting for the study took place in a rural northeastern area of Mississippi. Data collection took place at a single middle school. The school district is one of the largest in the state, with a student enrollment of more than 4,300 students. The school district is 48.1% female and 51.5% male students. Additionally, the school includes 68.3% African American students, 27.5% Caucasian students, and all other ethnicities accounting for fewer than 5% (i.e., Asian, Hispanic, Native American, Multi-Racial, and Pacific Islander). The city in which the school district is located is mostly made up of lower to middle class families. For the state of Mississippi, there are only five areas (i.e., Gulfport, Hattiesburg, Jackson, Memphis, TN--MS—AR, and Pascagoula) that are considered urbanized areas and the rest are considered rural (U.S. Census Bureau, 2012).

Instruments

Coping Response Inventory

The *Coping Response Inventory* (CRI; Moos, 1993) is an individually self-administered instrument used to measure different types of coping responses to stressful life circumstances. It assesses eighth different coping responses (e.g., Logical Analysis, Positive Reappraisals, Seeking Guidance and Support, Problem Solving, Cognitive

Avoidance, Acceptance or Resignation, Seeking Alternative Rewards, and Emotional Discharge). Four coping responses (i.e., Logical Analysis, Positive Reappraisal, Seeking Guidance and Support, and Problem Solving) are related to approach coping responses and four (i.e., Cognitive Avoidance, Acceptance or Resignation, Seeking Alternative Rewards, and Emotional Discharge) are related to avoidance coping. The CRI comes in two different forms; CRI-Adult and CRI-Youth. The CRI-Youth is for respondents ages 12-18 years.

The measure consists of 48 items that take about 10-15 minutes to complete and can be administered in a group or individual format. The questions are answered on a Likert-type response scale from zero being 'not at all' to three being "fairly often" on their coping responses. Respondents are asked to think of a situation that causes them to be stressed and respond to what they would normally do during that stressful situation. For each subscale (i.e., (e.g., Logical Analysis, Positive Reappraisals, Seeking Guidance and Support, Problem Solving, Cognitive Avoidance, Acceptance or Resignation, Seeking Alternative Rewards, and Emotional Discharge), six items contribute to each. Scores are presented as T-scores ($M = 50$ and $SD = 10$) for the eight coping response styles. The psychometric characteristics of the instrument were based on 315 youth from the first wave of the field trial when developing the inventory and 85 from who were assessed later. Due to copyright restrictions, a copy of the *Coping Response Inventory* could not be provided in the appendix.

Scores on the different coping response scales are reported in the form of T-scores ($M = 50$ and $SD = 10$). Internal consistency reliability estimates, via Cronbach's alphas, for the four approach scales range from .68-.72 for boys and .68-.79 for girls. Cronbach's

alphas for the four avoidance scales range from .55-.72 for boys and .59-.72 for girls. Higher alphas for boys (i.e., .79 and .76) and girls (i.e., .79 and .71) were reported when the four approach and four avoidance scales were combined into overall approach and avoidance scores (Zanini & Mendonca, 2010). Validity evidence for the CRI reveal predictive validity for alcohol use and depression for avoidance coping (Hamdan-Mansour, Kim, Puskar, & Amer, 2008) and perceived social support for approach coping via a sample of participants from rural high schools. Factorial validity revealed that the approach coping scales measured the same underlying construct and the same was observed for avoidance coping (Hamdan-Mansour, et al., 2008).

For the purposes of this study and due to evidence of higher Cronbach's alphas, the scores making up approach coping were averaged for an overall approach score and the scores composing of avoidance coping were averaged for an avoidance score. Each subscale could range from zero to 18, while each approach and avoidance score is the average of the four subscales for each type of coping (i.e., approach and avoidance). A high score in approach coping implies the student uses approach coping more often and the same for avoidance coping. Additionally, students were asked to write down the stressful event they are using for completing for the scale on the Coping Response Inventory. A variety of stressful events were mentioned (e.g., If responses were missing, the participant's data was not used.

Emotional Regulation Questionnaire

This instrument (ERQ; Gross & John, 2013) is a 10-question, self-report measure that is used to assess individual differences in the typical use of two emotion regulation strategies including cognitive reappraisal and expressive suppression. The questions are

presented on a 7-point Likert-type scale with one being ‘strongly disagree’ to seven being “strongly agree’ and they are about how an individual controls his or her emotions. The scoring for the questionnaire is done by obtaining the mean of the scores for the items related to expressive suppression (i.e., four items) and cognitive reappraisal (i.e., six items). The range of scores range from one to seven. A higher average score on one scale (i.e., expressive suppression and cognitive reappraisal) over the other is interpreted as that individual endorsing that style of emotional regulation more. For the purposes of this study, both scores for the scales of cognitive reappraisal and expressive suppression were used to determine if the moderation of coping on perceived stress occurs from one scale over the other, or both. Questionnaires with missing data will be removed the sample. Both scales have been used together in previous in research to determine prediction, causality, or moderation (Cutuli, 2014; Fucito, Juliano, & Toll, 2010; Ioannidis & Siegling, 2015; Meyer, Smeets, Giesbrecht, & Merckelbach, 2012).

Furthermore, as for the psychometrics of the questionnaire, estimated internal consistency reliabilities are .79 and .73 for reappraisal and suppression derived from a sample of undergraduate students, respectively (Gross & John, 2003). Test-retest reliability was estimated at .69 across three months for both scales for a sample of undergraduate students. Additionally, the results from the development of this scale show that there is replication of reliability results across four different samples (Gross & John, 2003). The two-factor structure accounted for over 50% of variance for all samples on factors related to each scale. However, the sample did not involve young adolescents.

Perceived Stress Scale

The PSS is a self-report questionnaire norm-referenced scale developed by Cohen and colleagues (1983) used to measure a person's evaluation of stressful situations in the previous month of his or her life (Cohen & Janicki-Deverts, 2012; Warttig, Forshaw, South, & White, 2013). Questions are answered using a 5-point Likert-type scale. It is the most widely used psychological instrument for measuring the perception of stress (Cohen et al., 1983; Monroe & Kelley, 1995). It is a measure of the degree to which situations in one's life are appraised as stressful. The items for this instrument were designed to assess how unpredictable, uncontrollable, and overloaded respondents find their lives.

The PSS was designed for use in community samples with at least a junior high school education (Cohen et al., 1983). Additionally, the items were developed to be easy to understand, and the response alternatives are simple to grasp (Cohen et al., 1983). Furthermore, the questions are of a general nature and hence are relatively free of content specific to any subpopulation group.

Original normative data were obtained on a sample of 2,387 respondents in the U.S for ages ranged 18 years and older (Cohen et al., 1983). Normative data were collected on a 2006 and 2009 sample of 2,000 respondents in the U.S for ages 18 years and older (Cohen & Janicki-Deverts, 2012). Internal consistency reliability obtained from a 2006 and 2009 national sample revealed an estimated reliability .91 for total score (Cohen & Janicki-Deverts, 2012). Scores are summed for all the questions using a reversal scoring method giving a single score for a measure of perceived stress. Scores can range from 0-40. The higher the score, the more perceived stress the student is

experiencing. Scores at around 12 are average and scores at 20 or higher reveal a high amount of stress.

As evidence for criterion-related validity, scores on the PSS was shown to have high correlations ($r = -.70$) with the mental health status on the *Medical Outcomes Study-Short Form* among a sample of adults who had survived the death of a spouse or family member by suicide (Lee, 2012; Mitchell, Crane, & Kim, 2008). Moreover, the PSS was moderately associated ($r = .67$) with depression on the *Beck Depression Inventory* among a sample of Chinese policewomen. Additionally, it was moderately associated ($r = .73$) with anxiety on the State-Trait Anxiety Inventory among undergraduate students (Lee, 2012).

Demographic Questionnaire

The demographic questionnaire contains four items. The questionnaire collects information about a respondents' sex, ethnicity, age, and grade. A sample of the questionnaire is included in Appendix B.

Research Design

The current study is a large N survey (i.e., correlational) study. The study employed a two (i.e., coping and emotion regulation) x four (approach coping, avoidant coping, expressive suppression, cognitive reappraisal), factorial guided data collection (e.g., Knight, 2010) that was used to determine predicted relationships between variables of coping on the outcome variable of perceived stress as well as for the moderation of coping and perceived stress by way of emotional regulation. The independent/predictor variables for coping for this study were measured from the *Coping Response Inventory*

(i.e., approach and avoidant coping response style). Specifically, for *Coping Response Inventory* the scales of Logical Analysis, Positive Reappraisals, Seeking Guidance and Support and Problem Solving represent the approach (i.e., problem-focused) coping style and the scales of Cognitive Avoidance, Acceptance or Resignation, Seeking Alternative Rewards, and Emotional Discharge represent the avoidant (i.e., emotion-focused) coping style. The moderator variables came from the *Emotional Regulation Questionnaire* (i.e., Cognitive Reappraisal and Expressive Suppression). For the *Emotional Regulation Questionnaire*, the variables came from the scales of cognitive reappraisal and expressive Suppression. The dependent (i.e., outcome) variable is the perceived stress score obtained from the PSS.

Data Analysis

Multiple Regression

To examine the first research question (i.e., Do coping response styles predict perceived stress?), a multiple regression analysis was used to assess if the independent variables (i.e., approach and avoidant) predict the dependent variable (i.e., perceived stress). Significance will be determined at the .05 level for all test. A multiple linear regression analysis assesses the effects of a set of predictor variables on a criterion variable (Hair et al., 2010; Jaccard, Guilamo-Ramos, Johnasson, & Bouris, 2006). Multiple linear regression is a widely-used type of data analysis in child and adolescent psychology (Jaccard et al., 2006). In both applied and basic research, multiple regression has been used at an increasing rate attributable to the work of Cohen in 1968 (Hoyt, Leierer, & Millington, 2006). In social science disciplines, such as education, multiple regressions have been used previously to test for moderation and interaction of variables;

as well as for testing casual influences of independent variables on outcomes (Aguinis, Peterson, & Pierce, 1999; Jaccard et al., 2006; Mason & Perreault Jr., 1991; Shieh, 2010).

Prior to conducting multiple regression analysis, researchers must ensure that the relevant assumptions of this statistical analysis are met (Osborne & Waters, 2002; Sevier, 1957). There are important essential assumptions that need be satisfied to establish the validity of multiple regression models (Poole & O' Farrell, 1971). By ignoring the assumptions that must be met for a regression analysis, one faces the threat of invalid parameter estimates which tarnishes inferences and generalizations (Antonakis & Deitz, 2011). Moreover, when the data do not meet the assumptions, there is a chance for Type I or Type II errors, or distorted estimation of the significance of the effect size (Osborne & Waters, 2002). The critical assumptions that need to be addressed are linear relationship or linearity, homoscedasticity, multivariate normality, the absence of multicollinearity, and independence of errors (Hair et al., 2010).

Assumptions of Multiple Regression

Normality. The normality assumption indicates that variables have normal distributions (Osborne & Waters, 2002). There are numerous ways to test this assumption. For the normality assumption, data cleaning is invaluable (Tabachnick & Fidell, 2000). Therefore, researchers are encouraged to check for univariate and multivariate outliers. Univariate outliers can be detected by transforming the data to z -scores (Osborne & Waters, 2002). Additionally, multivariate outliers can be identified using the Mahalanobis distance method (Hair et al., 2010). Multivariate outliers, if any, were noted. Furthermore, inspection of the skewness and kurtosis values is encouraged (Osborne & Waters, 2002). The normality assumption is met when skewness and

kurtosis values of a distribution are close to zero (Osborne & Waters, 2002). Skewness and kurtosis values can be obtained in statistical outputs provided using a statistical software package (e.g., SPSS). The normality assumption can be assessed using a normal probability plot (Keith, 2006). If the normality assumption is met, the plot will form a straight line.

Linearity. The linearity assumption requires that a linear relationship between the independent variables (i.e., predictors) and the dependent variable (i.e., criterion) existed (Darlington, 1968, Hair et al., 1968). This assumption could be considered one of the most important that needs to be satisfied for applied research (Keith, 2006). When the linearity assumption is met, researchers can efficiently evaluate the relationship between predictor and criterion variable (Osborne & Waters, 2002). This assumption can be tested by obtaining a scatter plot of the residuals (Hair et al., 2010, Keith, 2006; Osborne & Waters, 2002). The ideal plot would show a random scatter of the standardized residuals going along the horizontal line without any clustering or systematic pattern of residuals (Stevens, 2009).

Homoscedasticity. This assumption assumes that errors have equal variance across the range of values of the independent variables of study (Hair et al., 2010; Keith, 2006; Osborne & Waters, 2002). Homoscedasticity is relatively easy to check, and can be done with statistical software such as SPSS (Keith, 2006). The assumption is evaluated through a visual analysis of a scatterplot of the residuals by the standardized predicted values of the regression (Keith, 2006; Osborne & Waters, 2002). An even distribution is obtained when residuals are randomly scattered around the horizontal line

(Osborne & Waters, 2002). However, the homoscedasticity assumption is violated when there is evidence for the distribution to be uneven (e.g., winged or fan shapes).

Independence of Errors. The independence of errors assumption indicates that errors are independent of one another, and that participants are not discussing the instruments content and their responses with each other before or during testing (Stevens, 2009). In studies in the discipline of social sciences, one wants to accurately portray the true relationships of variables representative of the population (Osborne & Waters, 2002). Therefore, while collecting data and to protect against violation of the independence of errors, researchers must ensure that participants do not share their responses with one another.

To evaluate if this assumption has been met, an analysis of the residuals by way of boxplots can be conducted using a statistical software program such as SPSS (Keith, 2006). The boxplot shows the values from low to high and those that have extreme values. By examining the variability of the values, one can evaluate if the assumption has been violated (Keith, 2006).

Multicollinearity. To avoid multicollinearity, there should be little correlation among the independent variables (Keith, 2006). When there is multicollinearity, the predictor variables are highly correlated with each other (Keith, 2006). In the absence of multicollinearity, interpretation of the regression coefficients as effects of the predictor variables on criterion variables is accurately made (Keith, 2006; Poole & O'Farrell, 1971). There are several ways to detect if the independent variables are highly correlated and threaten the assumption of no multicollinearity.

One way this can be assessed is by getting a measure called the variance inflation factor (VIF; Hair et al., 2010; Mason & Perreault Jr., 1991). The VIF is an index that measures the degree to which the variance of an estimated regression coefficients is inflated due to collinearity in comparison to situations where the predictor variables are not correlated (Hair et al., 2010; Keith, 2006). If the VIF amount is over ten then there may be a problem with this assumption (Hair et al., 2010; Keith, 2006; Shieh, 2010). Moreover, another way to check for multicollinearity is to examine the correlation matrix of the independent variables and determine whether all coefficients are smaller than .80 (Hair et al., 2010).

Hierarchical Regression

To examine the second research question (e.g., Does emotional regulation moderate the relationship between coping responses and perceived stress in rural middle school students?), a hierarchical regression analysis will be utilized. Significance will be determined at the .05 level for all test. A hierarchical regression is similar to that of multiple regression, except the method of input of the predictor variables into the model is predetermined by the researcher (Hoyt et al., 2006). Specifically, in hierarchical regression, researchers assess changes in predictability contributed to predictor variables that will be entered later in the analysis beyond the changes associated with predictors that were previously entered into the analysis. The input of variables is determined at each block of the analyses. For block one, the independent variables (i.e., avoidant coping and approach coping) will be entered along with the dependent variable (i.e., perceived stress score). For block two, the independent variables and moderator variables (i.e., expressive suppression and cognitive reappraisal) will be entered. Lastly,

for block three, the independent variables, moderator variables, and the interaction of the independent variables and moderator variables will be entered. Interactions are created using SPSS compute function (i.e., approach coping x expressive suppression, approach coping x cognitive reappraisal, avoidant coping x expressive suppression, and avoidant coping x cognitive reappraisal). Moderation is determined at the $p < .05$ level by examining the coefficients and observing their significance/non-significance. If there is significance, then moderation is present. If there are no significant interactions, then moderation is not present.

Assumptions of Hierarchical Regression

Because hierarchical regressions are multiple regression with an added step (e.g., predetermined adding of variables in blocks), they are subject to the same assumptions and considerations that were previously discussed (Hair et al., 2010; Hoyt et al., 2006).

Procedure

Prior to contacting the school, approval for research was sought from the Institutional Review Board (IRB) at Mississippi State University. Following IRB approval (, school administrators were contacted to plan a start date. Prior to meeting with administrators, a trial run was completed on a sixth grader familiar to the researcher to determine the approximate amount of time required to complete the three measures. It was observed that it would take approximately 20-30 min to complete all three measures. Upon meeting with the administration, the requirements of the research were thoroughly explained as well as the potential benefits of the project. Additionally, samples of the instruments to be used were given to the administration. The primary researcher set

arrangements with the principal regarding the most appropriate and least invasive time to collect all data. Parents were sent consent forms requesting the participation of their children in the study along with a letter explaining the details and potential benefits from the study. Teacher team leaders were given consent forms to pass out to their team of teachers. The teachers returned consent forms to their team leaders. The consent forms were collected each day from team leaders. A list of students that returned consent forms was generated and compiled. Students that returned their consent forms (no matter if they consented or not) were given incentives (e.g., goodie bags of candy, pencils, and erasers). There was a total of 149 participants with 12% participation rate based on total student population (i.e., 1223 total students).

To control the order of effects, instruments' order of presentation was randomized and made into folders that were given to each participating child. This is done to eliminate order effects. The first page of every packet had an assent form followed with the Demographics Questionnaire. Depending on randomization, the three instruments followed the Demographics Questionnaire.

All data were collected during the school day during the morning hours. Packets were distributed during the breakfast hours in the cafeteria of the school site. The researcher administered the surveys and instructed the children to fill them out in the order that they appear in the packets and to not place their names on the instruments and *Demographic Questionnaire*. Students were instructed to read the assent form first and if they agreed to continue then to proceed with filling out the demographics form and surveys.

CHAPTER IV

RESULTS

The purpose of this study was to investigate if coping responses (i.e., Avoidance and Approach Coping) predict perceived stress in rural middle school students. Additionally, the purpose was to investigate whether the relationship of coping response scores with perceived stress scores were moderated by emotional regulation (i.e., cognitive reappraisal and expressive suppression). The present study has two research questions to investigate this purpose: (a) Do coping responses (i.e., Approach and Avoidance) predict perceived stress (i.e., *Perceived Stress Scale*) in rural middle school students?, (b) Does emotional regulation (i.e., Expressive Suppression and Cognitive Reappraisal) moderate the relationship between coping responses (i.e., Approach and Avoidant) and perceived stress (i.e., *Perceived Stress Scale*) in rural middle school student? To answer these questions, analyses focused on multiple regression and hierarchal regression.

Question 1: Do coping response styles predict perceived stress?

To answer the question of whether coping responses predicted perceived stress in rural middle school students, a multiple regression analysis was conducted. Independent variables for the study were mean scores for coping responses that make up an Approach Coping scale (i.e., Logical Analysis, Positive Reappraisals, Seeking Guidance and

Support, and Problem Solving) and Avoidance Coping scale (i.e., Cognitive Avoidance, Acceptance or Resignation, Seeking Alternative Rewards, and Emotional Discharge). The dependent variable for this analysis was respondents' perceived stress score. The average Approach Coping response score for the sample was 9.28 and the average Avoidance Coping response score was 9.04. Refer to Table 1 for summary statistics of variables used for multiple regression analysis and Table 2 for correlations among variables used in the analysis. When checking for assumptions, a Shapiro-Wilk test of normality for the dependent variable of perceived stress and revealed there were no problems with the assumption of univariate normality ($p > .05$). Moreover, to examine multivariate normality, Mahalanobis D^2 scores were generated and then converted to probabilities, which revealed no problems with the assumption of multivariate normality ($p > .001$). To examine the linearity assumption, a scatter plot of the residuals was generated and inspection of the plot resulted in a judgment that the assumption was met. Because this assumption is met, multiple regression analysis can efficiently evaluate the relationship between predictor and criterion variables (Osborne & Waters, 2002). To evaluate the assumption of independence of errors, a box plot was generated and revealed no problems with this assumption. To evaluate the assumption of homoscedasticity, a visual analysis of a scatterplot of the residuals by the standardized predicted values of the regression was examined and revealed this assumption was met. Finally, the assumption of multicollinearity was examined by observing VIF scores for both Approach (1.55) and Avoidance (1.55) coping and revealed that no presence of multicollinearity.

According to the data, Coping Responses predicted Perceived Stress scores in the sample. The results of the multiple regression analysis (See Table 3) revealed that the

coping response accounted for 11% of the variance in perceived stress, which was statistically significant ($p < .001$). Results of the ANOVA summary table reveal that the multiple regression model was statistically significant ($p < .001$) for predicting perceived stress at better than chance level. For each additional point higher on the avoidance score, the estimated increase in perceived stress is 0.89 points. Meaning, that as a student has a higher score on Avoidance Coping, it is predicted at a statistically significant ($p < .001$) level that the student will score higher on perceived stress. For each additional point higher on the approach score, the estimated decrease in perceived stress is 0.57 points. So, as a student scores higher on Approach Coping it is predicted at a statistically significant level ($p < .05$) that the student will score lower on their perceived stress. In summary, the data support the answer to the first research question that coping does predict perceived stress.

Table 1

Summary Statistics for Variables Used in Multiple Regression Analysis

	<i>M</i>	<i>SD</i>
Approach Coping	9.28	2.88
Avoidant Coping	9.04	2.98
Perceived Stress Score	19.99	6.44

Table 2

Pearson Correlation Among Variables Used in Multiple Regression Analysis

	Perceived Stress Score	Avoidance Coping	Approach Coping
Perceived Stress Score	1.00	.26**	-.01
Avoidance Coping	.26**	1.00	.60**
Approach Coping	-.01	.60**	1.00

Note: ** = Correlation is significant at the .01 level.

Table 3

Multiple Regression Model Summary Table

R	R ²	Std. Error	R Square Change	F Change	df1	df2	Sig.
.33	.11	6.12	.11	9.008	2	146	<.001

Note. Statistical significance was determined at $p < .05$.

Question 2: Does emotional regulation moderate the relationship between coping responses and perceived stress in rural middle school students?

To answer the question of whether emotional regulation moderates the relationship between coping and perceived stress in rural middle school students, a hierarchical multiple regression analysis was conducted. Summary statistics for variables used in hierarchical regression analysis are provided on Table 4 and correlations among variables are presented on Table 5. The moderator variables for the study were mean scores for Expressive Suppression and mean scores for Cognitive Reappraisal on the Emotion Regulation Questionnaire (See Table 6). Because hierarchical multiple regressions are multiple regressions with added steps, they are subject to the same assumptions of multiple regression. However, the moderator variables of Expressive

Suppression and Cognitive Reappraisal were checked for the same assumptions as the independent variables of the multiple regression analysis. Assumption checks revealed the assumption of normality, linearity, independence of errors, homoscedasticity, and multicollinearity were all satisfied.

Table 4

Summary Statistics For Variables Used in Hierarchical Regression Analysis

	<i>M</i>	<i>SD</i>	Zero-Order Correlations
Approach Coping	9.28	2.88	-.01
Avoidance Coping	9.04	2.98	.26
Expressive Suppression	3.79	1.35	.21
Cognitive Reappraisal	4.88	1.11	-.29

Table 5

Correlations Among Independent and Moderator Variables

	Approach Coping	Avoidance Coping	Expressive Suppression	Cognitive Reappraisal	Perceived Stress Score
Approach Coping	1	.60**	.02	.35**	-.01
Avoidance Coping	.60**	1	.19*	.12	.26**
Expressive Suppression	.02	.19*	1	.03	.21**
Cognitive Reappraisal	.35**	.12	.03	1	-.29**
Perceived Stress Score	-.01	.26**	.21**	-.29**	1

Note: ** = Correlation is significant at the .01 level

* = Correlation is significant at the .05 level

A three-stage hierarchical regression with Perceived Stress as the dependent variable was conducted. The independent variables of Avoidance Coping and Approach Coping were entered at Block One for the base model. For Block Two, Avoidance Coping and Approach Coping were entered again with the addition of the moderator variables of Expressive Suppression and Cognitive Reappraisal. Independent and moderator variables were entered again at block three with the addition of interaction terms for Avoidance Coping x Expressive Suppression, Avoidance Coping x Cognitive Reappraisal, Approach Coping x Expressive Suppression, and Approach Coping x Cognitive Reappraisal. Summary statistics of emotional regulation scores by age are provided on Table 6. For expressive suppression, 11 and 12-year-old respondents scored, on average, below the mean. For 13 and 14-year-old respondents, they scored, on average, above the mean. For cognitive reappraisal, 11 to 13-year-old respondents score, on average above the mean, while 14-year-old respondents scored, on average, below the mean. Compared to recent samples (e.g., Gullone et al., 2010) in research, respondents' scores on expressive suppression were not typical. However, scores on cognitive reappraisal was typical.

Table 6

Average Emotional Regulation Score By Age.

Scale	<i>n</i>	Age	<i>M</i>	<i>SD</i>	Overall Mean
Expressive Suppression	41	11	3.74	1.31	3.79
	64	12	3.66	1.37	
	31	13	3.97	1.36	
	13	14	4.12	1.43	
Cognitive Reappraisal	41	11	4.9	1.09	4.88
	64	12	4.93	1.18	
	31	13	4.91	.97	
	13	14	4.53	1.16	

Table 7

Summary Statistics of Hierarchical Regression Analysis

	<i>b</i>	<i>t</i>	<i>R</i> ²	<i>R</i> ² Change	Significance
Block 1			0.11	0.11	0.001
Avoidance Coping	0.89	4.243			<.001
Approach Coping	-0.571	-2.625			0.010
Block 2			0.208	0.098	<.001
Avoidance Coping	0.710	3.453			0.001
Approach Coping	-0.230	-1.032			0.304
Expressive Suppression	0.761	2.096			0.038
Cognitive Reappraisal	-1.751	-3.762			<.001
Block 3			0.249	0.041	0.112
Avoidance Coping	2.185	1.922			0.057
Approach Coping	-1.773	-1.552			0.123
Expressive Suppression	2.531	1.788			0.076
Cognitive Reappraisal	-3.226	-2.129			0.035
Avoidance x Expressive Suppression	-0.191	-1.37			0.173
Avoidance x Cognitive Reappraisal	-0.161	-0.789			0.431
Approach x Expressive Suppression	0.003	0.025			0.980
Approach x Cognitive Reappraisal	0.329	1.825			0.070

Note. Statistical significance was determined at $p < .05$.

Summary statistics for the hierarchical regression are presented in Table 7.

Cronbach's Alpha's of each scale are provided in Table 8. The hierarchical regression for Block One revealed, as expected, identical results to that of the multiple regression for Research Question One. Introducing the moderator variables accounted for an additional 9.8% of variation in Perceived Stress and this change in R^2 was significant, $F(2,144) = 8.92, p < .001$. Specifically, when the moderator variables were entered in along with the independent variables at Block Two, Approach Coping was no longer statistically significant, whereas Cognitive reappraisal becomes the most heavily weighted of the predictor variables. For each additional point higher on the avoidance score, the estimated

increase in perceived stress is 0.71 points. For each additional point higher on the expressive suppression score, the estimated increase in perceived stress is .76 points. For each additional point higher in cognitive reappraisal score, the estimated decrease in perceived stress is 1.75 point. Adding the interaction of coping responses by emotion regulation to the model at block three explained an additional 4.1% of the variation in Perceived Stress score, but this change in R^2 was not statistically significant, $F(4,140) = 1.91, p = .112$. Specifically, when the interaction terms were entered along with the independent and moderator variables at Block Three, Avoidance Coping and Expressive Suppression were no longer statistically significant. Cognitive Reappraisal remained significant even with the addition of the interaction terms. For each additional point in cognitive reappraisal, the estimated decrease in perceived stress is 3.23 points. Finally, there were no observed significant interactions, and that suggest there was no moderation. In summary, emotional regulation does not moderate the relationship between coping responses and perceived stress in middle school students living in rural areas.

Table 8

Cronbach Alpha of Coping Scale, Emotion Regulation Scale, and Perceives Stress Scale

	Scale	Cronbach's Alpha
Coping	Approach Coping	.82
	Avoidance Coping	.82
Emotion Regulation	Cognitive Reappraisal	.61
	Expressive Suppression	.49
Perceived Stress	Perceived Stress Scale	.55

CHAPTER V

DISCUSSION

The purpose of this study was to investigate if approach and avoidance coping predicted perceived stress, and to investigate if the relationship between coping and perceived stress were moderated by expressive suppression and cognitive reappraisal. Previous literature examining the factors of coping, stress, and emotion regulation is scarce with regards to middle school students, specifically middle school students in rural areas.

Overview of Findings

The initial research question explored the statistical significance of coping response styles to predict perceived stress in rural middle school students. Results indicated that coping responses predicted perceived stress scores in rural middle school students. Furthermore, the study explored whether avoidance and approach coping response styles predicted higher or lower scores of perceived stress. Perceived stress is defined as a thought and/or feeling someone currently has about how stressed they are at that moment. Research by Billings and Moos (1981) has shown that approach coping results in less stress than avoidant coping responses. These findings support previous research by Billings and Moos (1981) in that as a student scored higher on avoidance

coping, they would higher on scores of perceived stress. Additionally, as a student scored higher on approach coping, they scored lower of scores of perceived stress. Hampel and Petermann (2005) explored age effects of adolescent coping and found that these children scored lower on positive (i.e., approach coping) and higher on negative coping (i.e., avoidant coping). However, results from this study differed from those findings as the differences in scores were less than one fourth points for the current sample across the two CRI subscores used for this study. In thinking about the size of the sample for eighth grade students in the current study, it is possible that similar result could be seen if there were more eight grade students. Moreover, a limitation of Hampel and Petermann (2005) was that when measuring a stressful event and how they would cope with it, students' individual differences in how they perceived the stressful experience were not accounted for. The students were given the stressful event to respond to instead of one that could potentially apply to them. The CRI asked students to give think of their most stressful event in the past year. The perception of a stressor could influence the type of coping strategy a child uses. While one child may think that losing a family pet is their most stressful event, another could think that failing a class is their most stressful event. This could explain why the Hampel and Petermann (2005) findings differed from the results found with the current study. The current study measurement of students' coping was gathered based on the student thinking of their own stressful experience and responding based on their perception.

Interestingly, Yarcheski and colleagues (2011) examined the relationships between stress, hope, and loneliness in middle school students. They reported that students having higher perceived stress scores tended to have both higher loneliness and

lower hope scores. These relationships were statistically significant. Furthermore, Zimmer-Gembeck and colleagues (2011) found that children who display social competence use more effective coping (i.e, approach coping) than students who are less socially competent. Socially competent students tend to have more friends and are, in result, not as lonely as less socially competent students. Results from the current study provide more insight and extends the research to results of the aforementioned studies as to the reasons for the outcome found. With the current study, students having higher avoidance coping scores tended to report higher perceived stress. Types of avoidance coping responses include eating, smoking, or drinking (Billings & Moos, 1981). Moreover, the problems that elicited the increase in stress are not confronted with avoidance coping. Maybe students that use avoidant coping such as the examples given alienate themselves from their peers because of their lack of social skills, and this perception of loneliness and hope is internalized. Flouri and Mavroveli (2013) found that avoidance coping is related to increases in problem behavior in adolescents. The importance of students using the more efficient and effective approach coping responses cannot be overstated.

The second research question went further than exploring the predictability of coping on perceived stress. The research questioned explored whether emotion regulation moderated the relationship between coping and perceived stress. Moderation occurs when the introduction of variables and their interaction to the independent variables strengthen or weaken the relationship between the independent and dependent variables to a significant degree. Emotional regulation is an intrinsic and extrinsic dynamic that monitors, appraise, and adjust emotions to accomplish a goal (Thompson,

1994). The results of the current study revealed that moderation does not occur when moderator variables and their interactions to the independent variables are entered into the hierarchical regression model. Specifically, when the moderator variables are introduced into the hierarchical regression model, approach coping was no longer a significant predictor. However, the moderator variables accounted for a significant change in the differences in the scores that were accounted for. The predictability of approach coping to reduce perceived stress was changed, while the moderator variables became significant predictors in addition to coping, and, subsequently were eliminated as predictors. When the coping responses, emotional regulation, and the interaction of coping responses and emotional regulation were included in the hierarchical regression model, expressive suppression no longer was a significant factor. Moreover cognitive reappraisal became a significant predictor to perceived stress, while all other predictors were non-significant. This finding extends the research by Flouri and Mavroveli (2013) when they found that cognitive reappraisal had a moderating effect on increases in life stress and decrease in problem behavior, which acted as a protective factor. This is important because it adds to the information known about cognitive reappraisal as a significant contributing factor to combat stress. The interaction of the independent variables with the dependent variables all returned non-significant results for predictability within the hierarchical regression model. Although it was expected that there would be some statistical significant interactions, the model may have garnered different results if the size of the sample were larger, giving the equation more power for prediction. These results provide further evidence for and are in line with framework by Duhachek (2005) who proposed that emotion and cognitive appraisals influence the

selection of various coping responses. When emotional regulation was introduced into the hierarchical model, the main effect of its factors (i.e., expressive suppression and cognitive reappraisal) changed the predictability of the model in a way that changed coping responses ability to predict perceived stress. Therefore, it could be proposed that regulating one's emotion through cognitive appraisal would change the way a person decides to cope with stress.

Furthermore, Gullone and colleagues (2010) found a decrease in expressive suppression use and a stability of cognitive reappraisal use across time for children aged 9-15. Current research differs from the results on expressive suppression use and reaffirming the results of cognitive reappraisal use by examining averages of emotional regulation scores by age (see Table 6). Reasons for the current findings when compared to Gullone and colleagues (2010) study could be that the sample used in their study came from a population of students living in a metropolitan area in Melbourne, Australia; whereas the current sample came from a population of adolescents living in a rural area in the southeastern part of the United States. Additionally, the age ranges for the current study were not as broad (11-14 years) and focused more on adolescents. This is important to note as it can extend the previous research and give a better overall picture of emotion regulation use of students residing in a different regional area, indicating more research needs to be done for students relevant to the population that results can be applied to.

Implications

There are many implications that can be taken from the results of the study. First, having a clearer understanding of what types of coping responses do a better job at reducing the cumulative effects of stress can help to develop preventative solutions to the

potential long term consequences of stress (e.g., decline in academic achievement, poor psychological well-being, psychopathology, poor life satisfaction; Brietzke et al., 2012; Brown & Harris, 1989; De Young et al., 2011; Green et al., 2010; Lazarus & Cohen, 1977; Pechtel & Pizzagalli, 2011). The results of the current study help understand how to predict the likelihood of a students' level of stress. Reviewing the different events students wrote down on the coping measure could give implications for how the students responded. Also, understanding which coping responses (i.e., whether approach or avoidance) respondents are using could aid with intervening students who use avoidance coping. Effective coping responses such as approach coping could potentially reduce suicide and other maladaptive outcomes among adolescents who are under constant stress (e.g., poor academic achievement, reduced life satisfaction, changes in neurology, & etc.; Wilson et al., 1995). As well, previous research has shown that rural area students with emotional regulation problems have had issues with previous suicide attempts (Pisani et al., 2013). However, the sample was limited to high school students. The current study explored a younger population and gives implications on emotional regulation use in younger adolescents that could be used for preventative reasons. Specifically, cognitive reappraisal was shown to be significant in predicting perceived stress. Cognitive reappraisal score duplicates or shares relevant variance with the CRI approach score. Having poor emotional regulation increases the risk for poorer mental health and poor psychological well-being (Berking & Whitley, 2014; Braet et al., 2014; Moriya & Takashi, 2013). Moreover, results from this study and related studies could result in a screening process for students at risk by getting students' scores on emotional regulation and coping measures, and using equations produced from multiple and hierarchical

regressions for predictability. The trajectory of typical development in children is aided by effective emotional regulation skills along with effective coping responses (Eisenberg et al., 2010).

In addition to prevention, understanding copings' relationship to emotional regulation and stress could give implications for intervention to at-risk students. Intervention could involve teaching students approach coping responses and cognitive reappraisal emotion regulation to give students a better chance at dealing with their stressors. To accomplish this, schools could utilize models (e.g., MTSS & PBIS) that are already in place without having to 'reinvent the wheel'. MTSS incorporates empirically-based practices into prevention and treating emotion and behavioral problems with children (Cook et al., 2010). PBIS is a component of a MTSS using a behaviorally-based system to prevent, reduce, and intervene on problems children experience in school using research-validated practices (Horner & Sugai, 2015).

Lastly, an interesting result of the interaction of the variables of approach coping and cognitive reappraisal did not produce significant results when added at the third block of the hierarchical regression model. This could imply that both variables involve some similar process and, therefore, using one over the other would give the student a fair chance. Meaning, that if students are engaging in cognitive reappraisal, it could serve a protective factor to the propensity to use avoidance coping. One of the subscales that makes the scale of approach coping scale is positive reappraisal. This could mean that the individual is already engaging in some type of positive response so, therefore, there would not be much of a change with this emotion regulation strategy.

Limitations and Future Directions

Limitations

There were several notable limitations to the current study. First, the study only included one middle school in a rural area, which could make it difficult to generalize these results to an entire rural population, although it does give a better picture of an area rarely explored. Being that rural areas have fewer schools relative to their location to gather samples from, this would require a lot of traveling and more researchers to overcome this limitation. Secondly, there was a smaller sample of seventh and eighth grade students included in the study. This is a limitation because it does not represent the entire population of middle school students. Having a larger sample of seventh grade and eighth grade students could give differing results for coping responses when examining age effects. Moreover, a limitation with the CRI and measuring a student's coping to stress is that even though the measure asks students to think of a stressful event, they could still use an event that significantly differs from another student, which could affect the ensuing coping response. Lastly, there were not many previous studies using methodology similar to the present study, from which to reference. By continuing to build a research base in these areas, it would provide more evidence to turn research into practice.

Future Research

Future research should continue to explore the effects of coping on stress in rural middle school students. As mentioned previously, this area of research inquiry is lacking and needs more literature that incorporates emotion regulation as a possible protective factor affecting coping and stress. Additionally, future research should include more than

one school of this area to better generalize findings. In addition to moderation, future studies could explore mediating effects to examine if they give some explanation to the relationship that coping has on stress. A larger more encompassing sample with more of an equal representation of students in middle school should be a direction that future research goes towards. Lastly, longitudinal studies should be conducted taking the initial steps of the current study and adding to the literature by teaching the students effective coping responses and then measuring their stress at increments along the school year to give more evidence for approach coping responses and cognitive reappraisal to be used in a PBIS system in schools. The next steps would be to add more literature that is being produced currently to provide further evidence for practice. Additionally, replicating this study with an even larger sample size in another rural area similar to the current study would add to the research base and give rural areas more of a presence in current produced research. Additional research questions that have come from this study include: Are there gender differences in the ability for coping to predict perceived stress?; Are there gender differences in emotional regulation's ability to moderate the relationship between coping and perceived stress?; and Are there differences in ethnicities' perceptions of or response to stress based on one's ethnicity?. To do this, there would need to be a better sampling method used to ensure an equal representation of males and females and a better representation of the ethnicities being explored.

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APPENDIX A
EMOTION REGULATION AND STRESS MEASURES

Perceived Stress Measure

PERCEIVED STRESS SCALE

Sheldon Cohen

The *Perceived Stress Scale* (PSS) is the most widely used psychological instrument for measuring the perception of stress. It is a measure of the degree to which situations in one's life are appraised as stressful. Items were designed to tap how unpredictable, uncontrollable, and overloaded respondents find their lives. The scale also includes a number of direct queries about current levels of experienced stress. The PSS was designed for use in community samples with at least a junior high school education. The items are easy to understand, and the response alternatives are simple to grasp. Moreover, the questions are of a general nature and hence are relatively free of content specific to any subpopulation group. The questions in the PSS ask about feelings and thoughts during the last month. In each case, respondents are asked how often they felt a certain way.

Evidence for Validity: Higher PSS scores were associated with (for example):

- failure to quit smoking
- failure among diabetics to control blood sugar levels
- greater vulnerability to stressful life-event-elicited depressive symptoms
- more colds

Health status relationship to PSS: Cohen et al. (1988) show correlations with PSS and: Stress Measures, Self-Reported Health and Health Services Measures, Health Behavior Measures, Smoking Status, Help Seeking Behavior.

Temporal Nature: Because levels of appraised stress should be influenced by daily hassles, major events, and changes in coping resources, predictive validity of the PSS is expected to fall off rapidly after four to eight weeks.

Scoring: PSS scores are obtained by reversing responses (e.g., 0 = 4, 1 = 3, 2 = 2, 3 = 1 & 4 = 0) to the four positively stated items (items 4, 5, 7, & 8) and then summing across all scale items. A short 4 item scale can be made from questions 2, 4, 5 and 10 of the PSS 10 item scale.

Norm Groups: L. Harris Poll gathered information on 2,387 respondents in the U.S.

Norm Table for the PSS 10 item inventory

Category	N	Mean	S.D.
Gender			
Male	926	12.1	5.9
Female	1406	13.7	6.6
Age			
18-29	645	14.2	6.2
30-44	750	13.0	6.2
45-54	285	12.6	6.1
55-64	282	11.9	6.9
65 & older	296	12.0	6.3
Race			
white	1924	12.8	6.2
Hispanic	98	14.0	6.9
black	176	14.7	7.2
other minority	50	14.1	5.0

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Perceived Stress Scale

The questions in this scale ask you about your feelings and thoughts **during the last month**. In each case, you will be asked to indicate by circling *how often* you felt or thought a certain way.

Name _____ Date _____

Age _____ Gender (Circle): **M** **F** Other _____

0 = Never 1 = Almost Never 2 = Sometimes 3 = Fairly Often 4 = Very Often

- | | | | | | |
|--|---|---|---|---|---|
| 1. In the last month, how often have you been upset because of something that happened unexpectedly? | 0 | 1 | 2 | 3 | 4 |
| 2. In the last month, how often have you felt that you were unable to control the important things in your life? | 0 | 1 | 2 | 3 | 4 |
| 3. In the last month, how often have you felt nervous and "stressed"? | 0 | 1 | 2 | 3 | 4 |
| 4. In the last month, how often have you felt confident about your ability to handle your personal problems? | 0 | 1 | 2 | 3 | 4 |
| 5. In the last month, how often have you felt that things were going your way?..... | 0 | 1 | 2 | 3 | 4 |
| 6. In the last month, how often have you found that you could not cope with all the things that you had to do? | 0 | 1 | 2 | 3 | 4 |
| 7. In the last month, how often have you been able to control irritations in your life? | 0 | 1 | 2 | 3 | 4 |
| 8. In the last month, how often have you felt that you were on top of things?.. | 0 | 1 | 2 | 3 | 4 |
| 9. In the last month, how often have you been angered because of things that were outside of your control?..... | 0 | 1 | 2 | 3 | 4 |
| 10. In the last month, how often have you felt difficulties were piling up so high that you could not overcome them? | 0 | 1 | 2 | 3 | 4 |

Please feel free to use the *Perceived Stress Scale* for your research.

Mind Garden, Inc.

info@mindgarden.com

www.mindgarden.com

References

The PSS Scale is reprinted with permission of the American Sociological Association, from Cohen, S., Kamarck, T., and Mermelstein, R. (1983). A global measure of perceived stress. *Journal of Health and Social Behavior*, 24, 386-396.
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APPENDIX B
DEMOGRAPHICS QUESTIONNAIRE

Demographic Questionnaire Form

If you have chosen to participate in the study, please fill out the following form.

1. What is your biological sex? Male Female

2. Please check the ethnicity that best describes you:
 - African American
 - Asian
 - Caucasian
 - Hispanic, Latino, or Spanish origin
 - American Indian or Alaska Native
 - Multi-Racial
 - Other _____

3. What is your age? _____

4. What grade are you currently attending? 6th 7th 8th

APPENDIX C
COMPUTATION OF REQUIRED SAMPLE SIZE

Research Question 1

[11] -- Tuesday, May 17, 2016 -- 08:57:04

F tests – Linear multiple regression: Fixed model, R^2 deviation from zero

Analysis: A priori: Compute required sample size

Input:	Effect size f^2	=	0.15
	α err prob	=	0.05
	Power ($1-\beta$ err prob)	=	0.95
	Number of predictors	=	2
Output:	Noncentrality parameter λ	=	16.0500000
	Critical F	=	3.0837059
	Numerator df	=	2
	Denominator df	=	104
	Total sample size	=	107
	Actual power	=	0.9518556

Research Question 2

[12] -- Tuesday, May 17, 2016 -- 09:37:14

F tests – Linear multiple regression: Fixed model, R^2 deviation from zero

Analysis: A priori: Compute required sample size

Input:	Effect size f^2	=	0.15
	α err prob	=	0.05
	Power ($1-\beta$ err prob)	=	0.95
	Number of predictors	=	6
Output:	Noncentrality parameter λ	=	21.9000000
	Critical F	=	2.1644088
	Numerator df	=	6
	Denominator df	=	139
	Total sample size	=	146
	Actual power	=	0.9507965

APPENDIX D
IRB APPROVAL EMAIL

IRB Approval Email

From: <jbr6@msstate.edu>

Date: November 11, 2016 at 10:20:27 AM CST

To: <js980@msstate.edu>, <dg989@msstate.edu>, <dtm10@msstate.edu>, <lgm136@msstate.edu>, <tne1@msstate.edu>

Subject: IRB Protocol Approved: IRB-16-595, Jabari Sellers

IRB has approved the protocol with the following details.

Protocol ID: IRB-16-595

Principal Investigator: Jabari Sellers

Department: Educational Psychology

Protocol Title: Emotion Regulation as a Moderator Between Coping and Perceived Stress with Middle School Students in Rural Areas

Review Type: EXPEDITED

Approval Date: November 11, 2016

To access your approval documents, log into myProtocol and click on the protocol number to open the approved study. Your official approval letter can be found under the Event History section. For non-exempt approved studies, all stamped documents (e.g., consent, recruitment) can be found in the Attachment section and are labeled accordingly.

If you have any questions that the HRPP can assist you in answering, please do not hesitate to contact us at irb@research.msstate.edu or 662.325.3994.