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The Effects of Deficits in Emotional Self-Regulation on Relationship Satisfaction in Young Adults

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The Effects of Deficits in Emotional Self-Regulation on Relationship Satisfaction
in Young Adults

A Thesis
Presented to
The Faculty of the Department of Psychology
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Of the Requirements for the Degree
Master of Science

By
Murphy Harrell
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Abstract

Effective emotional self-regulation is essential for evaluating a situation, giving meaning to the experience and to regulate emotions in order to achieve a desired goal. Emotional self-regulation is an essential feature of executive functioning, which affects a number of functional domains across the lifespan and is specifically important for sustaining healthy interpersonal relationships. Research to date shows that adults with ADHD and emotional dysregulation have poor social relationships, due to a variety of problems such as: not following social norms, missing nonverbal cues, interrupting conversations, not following through with promises, appearing impatient or rude, and not thinking before speaking. Despite these findings, there is minimal research on how these deficits affect romantic relationship satisfaction for young adults. This present study employed psychological self-report measures, as well as an experimental task designed to induce frustration, to better understand the interaction(s) between ADHD symptomology, executive functions, emotional self-regulation and romantic relationship satisfaction. Results indicated that ADHD symptomology and deficits in executive functions are related to greater emotional dysregulation. In addition, these three variables are related to lower levels of romantic relationship satisfaction. There are significant clinical implications for understanding these relationships. Primarily, one's ability or lack thereof, to regulate emotions should be considered when examining executive functioning, specifically in the context of ADHD and its impact on romantic relationship satisfaction.

Keywords: Emotional Self-Regulation, Executive Functioning, ADHD symptomology, Romantic Relationship Satisfaction, Young Adults

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**The Effects of Deficits in Emotional Self-Regulation on Relationship Satisfaction
in Young Adults**

Adults continually face situations where exercising self-regulation, especially emotional regulation, is needed to successfully meet the challenges of interacting with others on a daily basis. Whether it be in career, educational, or social settings, appropriate self-regulation is essential for establishing and maintaining effective interpersonal relationships and fulfilling emotional connections with others. The ability to exercise self-control, or self-regulation, and its effects on adult functioning and adjustment has been the focus of research for decades. At a global level self-regulation is a multifaceted and complex construct, comprised of interrelated components, including the ability to regulate one's behaviors, cognitions, and emotions (Karoly, 1993). Although the literature offers numerous definitions and models of self-regulation, there is an overarching theme common in most; that is, individuals deploy self-regulatory skills in order to adapt to the specific demands of the environment so that goals can be accomplished (Berger, 2011, p. 4). According to Barkley (2012) self-regulation has three interacting components: (1) any action an individual directs at himself that (2) results in a change in his behavior (behavioral inhibition) in order to (3) change the likelihood of a future consequence or attainment of a desired goal. In addition, specific *mental abilities* are required to properly execute self-regulation, including self-restraint, self-awareness, self-speech, self-sensing and imagery, self-motivation, self-directed play for problem solving, and self-control of emotion in order to manage behavior, thoughts, and emotions and ultimately succeed in goal attainment.

In an effort to provide a context for the current study, it is important to review a number of constructs including the basic facets of self-regulation and emotional self-regulation to build a rationale for the study hypotheses.

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Components and Development of Self-Regulation

Self-regulation affects multiple domains of social, emotional and behavioral functioning from early childhood into adulthood (Pollak & Tolley-Schell, 2004). Carlson (2005) found that the majority of two-year-old children displayed self-restraint in some situations and were able to avoid peeking at an open gift when left alone in a room. Research investigating the development of self-regulation demonstrates that the ability to use private or self-directed speech to exert control over one's behavior (i.e., internalization of language) develops early during the elementary school years of childhood (Vygotsky, 1962; Bronson, 2000). Barkley (2012) argued that self-motivation is an important component in regulating one's behavior to reach a desired goal, and involves the ability to inhibit or delay immediate reinforcement or reward to achieve long term goals. Fishbach (2009) stated that motivation is driven by one's desire to choose a behavior, thought, or emotion that will reduce the tension one feels when faced with competing goals. When multiple goals are pursued, Fishbach asserts that different regulatory skills, such as the ones defined by Barkley (2012), might be employed.

Another essential component of self-regulation is the ability to direct one's attention. Berger (2011) defined attention as the mechanisms that support adaptive behavior by "selecting, integrating, and prioritizing among competing demands on our cognitive and emotional systems" (p.20). In one of the most well established models, Posner and Peterson (1990) described three important facets of attention including: (1) orienting one's focus to a specific stimulus, (2) maintaining attention, and (3) exercising executive attention. Executive attention, often used interchangeably with executive control, is necessary for controlling goal-directed behavior and encompasses the ability to: selectively attend to a stimulus, disregard unimportant stimuli, resolve conflicts between competing stimuli, inhibit responses, and monitor and detect errors in

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Comment [1]: The majority of your paper need to be in past tense – please review here and throughout.

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Comment [2]: This paragraph needs more focus – your first sentence suggests that it is about how self-reg develops.

I would encourage you to reverse outline your paper to improve the organization. To do this, review each paragraph for the main point & list these points in outline format. If you do this, you will see how your organization may be improved. This will also help with having your headings match the points that follow.

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self-regulatory processes (Berger & Posner, 2000). In a review of attention research, Posner (2004) asserted that executive attention is essential for regulating both emotions and attention. For purposes of this study, emotional self-regulation will be the primary focus to determine how one's ability to manage frustration affects relational satisfaction.

Emotional Self-Regulation

While self-regulation involves a number of dynamic, interacting skills (e.g., cognitive, linguistic, attentional, motivational and behavioral), this study focuses on emotional regulation and how it impacts interpersonal relationships and relational satisfaction in young college-aged adults. Emotional self-regulation is one aspect of self-regulation that has been extensively studied. Since the later part of the 20th century, researchers have been interested in the processes that contribute to appropriate regulation of emotions including understanding the factors that lead to the inability to control, regulate and manage strong, negative emotions (Thompson, 1994).

A complex interaction of emotional, temperamental, and cognitive factors contribute to the development of emotional regulation, so a consensus on the definition of emotional regulation has not been reached (Stifter, 2002). Barrett and Campos (1987) believed that emotions are social or "relational processes" that have both interpersonal and intrapersonal effects. On the other hand, cognitive researchers emphasize the cognitive aspects of emotional regulation including goal directed behaviors, language and memory processes (Kopp, 1982); while, developmental researchers focus on differences in temperament and its effect on the communication and attentional processes that regulate emotions (Rothbart, 1989). Thompson (1994) stated that emotional regulation consists of extrinsic and intrinsic processes that monitor and adjust emotional reactions so that goals can be achieved. Gyrurak, Gross and Etkin (2011) suggested that implicit processes are automatic, while explicit, or those requiring conscious effort, are

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processes involved with the development of healthy emotional regulation, which allow for flexibility in responding to immediate and long-term goals in any given situation.

Many of the processes that contribute to emotional self-regulation develop early in life; so much of the research on emotional self-regulation has been conducted on children. Explicit factors that affect the development of emotional self-regulation, especially caretaker influences, occur when parents implement daily routines that consist of age-appropriate emotional demands for their children (Gross & Thompson, 2007). Initially parents help regulate their child's negative emotions by soothing, calming, or meeting their needs thereby reducing over-reactions or extreme distress. These external or explicit processes become internalized, as children develop the ability to self-soothe or calm themselves, thereby exerting control over their own emotions. A number of implicit processes related to the development of emotional self-control have been studied including inhibition, attention, and cognitions (Eisenberg & Spinrad, 2004).

Research has shown that effortful control is linked to one's ability to maintain attention for long periods of time and to shift attention to more pleasant, less distressful stimuli (Rothbart & Bates, 1998). In his model, Gross (1998) described five elements of emotional self-regulation including: situation selection, situation modification, attentional deployment, cognitive change, and response modulation. Gross emphasized the importance of antecedents (i.e., situations or events) that elicit emotional responses, and suggests that individuals search for and evaluate emotional cues depending on the situations. Once situational cues are evaluated, an array of emotional responses, including behavioral, experiential, and physiological, are evoked (Gross, 1998). Finally, emotional self-regulation includes the ability to modulate or to regulate responses to fit a specific situation or social context (Gross, 1998).

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The ability to direct or deploy attention, especially when situations cannot be changed or modified, is an essential feature of emotional self-regulation (Gross & Thompson, 2006; Rothbart, Zaire, & O'Boyle, 1992). Furthermore, the ability to focus on something pleasant or to redirect attention to less disturbing aspects of the event affects how we react and respond, and requires effortful control of one's behavior. Rothbart and Bates (1998) defined conscientious, effortful control of emotions as the ability to inhibit a dominant response when a subdominant response is more effective for goal attainment. Fox and Calkins (2003) also found that the development of response inhibition assists in regulating both approach and avoidance behaviors. Effortful control or response inhibition allows an individual to successfully attain goals by regulating behavior to meet the rules or expectation of the environment, even when situations are stressful or adverse (Fox & Calkins, 2003).

Emotional self-regulation requires us to direct our attention to specific stimuli or situations, to exert effortful control or to inhibit competing responses, and to engage in a process of appraisal – that is, to evaluate the situation, give meaning to the experience and to regulate emotions in order to achieve a desired goal. Emotional regulation is based on (1) how effectively one manages his or her emotions in a given situation, (2) how one alters cognitive appraisals to decide how a situation will be managed, and (3) how one selects an appropriate experiential, behavioral, and/or physiological responses (Gross, 1998; Gross, 2001). Typically changing or altering one's cognitions occurs when we attach a positive or more useful emotional meaning to the situation, which in turn guides our responses or reactions. These internal processes develop early in life, as individuals learn to exert effortful control over their emotions (Rothbart & Bates, 1998), continue into adolescence and often improve into adulthood (Williams, Ponsesse, Schachar, Logan, & Tannock, 1999).

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Research has shown that emotional regulation is a dynamic multistep process, where we develop the ability to exert sufficient emotional regulation when confronted with emotionally charged stimuli or situations. Specifically, the process requires efficient attentional deployment, effortful control, and cognitive reappraisal of emotional cues so that emotional responses produce optimal outcomes in the psychological, physical, and emotional well-being of the individual. While this is a normal developmental process, research has shown that individuals differ in their ability to regulate emotions. Cole, Mitchel and Teti (1994) found that during infancy and early childhood, experiences arising from interpersonal relationships provide opportunities to experience emotions, to learn how emotions work, to vary emotional responses based on their consequences, to discuss the interactions between emotions and consequences, and ultimately to self-regulate and inhibit emotions. When emotional self-regulation is not learned early in life or is impaired, these deficits can have a profound impact on social, behavioral, and psychological functioning in adulthood. These deficits can manifest in a variety of psychiatric disorders including: ADHD, major depression and bipolar disorders, borderline personality disorder, generalized anxiety disorders, alcohol dependence and substance abuse, and disruptive behavior disorders (Bardeen, Ferugus, & Orcutt, 2012; Mitchell, Robertson, Anastopoulos, Nelson-Gray, & Kollins, 2012).

Is Emotional Self-Regulation a Feature of Executive Functions?

By integrating longitudinal research with prominent cognitive and neuropsychological theories, Barkley draws a clear connection between self-regulation and executive functions (Barkley, 2012). The term ‘executive function’ refers to those self-directed actions of the individual that are used to self-regulate (Barkley, 1997), which ultimately guide future behavior and maximize positive outcomes including healthy social interactions. Executive functions are

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“conscious, voluntary, effortful actions” and constitute the means for goal-directed behaviors (Barkley, 1997). Barkley described an extended phenotype of executive function in which there is a pre-executive level of functioning that precedes the level at which executive functions occur. In his model, Barkley suggested that emotional self-regulation, directed attention, and effortful control are the automatic or routine processes that form the foundation for the development of the executive functions and self-regulation (Barkley, 2012). Emotional regulation occurs in stages where: (1) strong emotional reactions are inhibited, and (2) self-regulatory actions are activated by employing self-soothing, moderating emotional reactions and redirecting attention so that more positive, acceptable mood states can be accessed (Barkley & Murphy, 2007).

Individuals with ADHD demonstrate deficient executive functions that are manifested as poor impulse control, inattention, distractibility, disorganization and poor memory, which eventually interfere with long-term goal attainment (Barkley, 2012; Barkley & Murphy, 2007). The Diagnostic and Statistical Manual of Mental Disorders, 4th Edition, Text Revision (DSM-IV-TR; APA 2004) as well as the recently released Diagnostic and Statistical Manual of Mental Disorders, 5th Edition (DSM-V; APA, 2013) define ADHD as a recurrent pattern of inattention and/or hyperactivity that is more frequently observed in individuals than when compared to their same-age peers. Both DSM-IV and DSM-V describe inattention symptoms as follows: failing to give close attention to detail or making careless mistakes; difficulty sustaining attention in tasks or play activities; does not seem to listen when directly spoken too; does not follow through on instructions and fails to finish schoolwork, chores, or duties in the workplace; difficulty organizing tasks and activities; often avoids, dislikes, or is reluctant to engage in activities that require sustained mental effort; often losses things necessary for activities; often easily distracted by extraneous stimuli; and is often forgetful in daily activities. Symptoms of

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hyperactivity/impulsivity are characterized by fidgeting with hands or squirming in seat, difficulty remaining seated in situations where it is expected to remain seated, often runs or climbs excessively in situations where the behavior is inappropriate, often has difficulty engaging in leisure activities, is often “on the go,” often talks excessively, often blurts out answers before questions have been completed, often has difficulty awaiting turn, and often interrupts or intrudes on others. Although the DSM-V attempted to address ADHD through the lifespan, most symptoms focus on problems found in childhood (APA, 2013). This has led to more research examining how ADHD symptomology presents in adulthood, how this differs from childhood symptomology, and the ongoing debate regarding adults who present with symptoms of ADHD but do not meet a formal diagnosis of the disorder. Each of these will be discussed in more detail in the following sections.

Based on findings from major longitudinal studies of ADHD, Barkley and Murphy (2007) examined the most common complaints observed in adults presenting with ADHD symptoms from childhood, identified how these symptoms affected numerous domains of life activities and adaptive functioning, and compared these to a community control group as well as a clinical control group to determine discriminating features of ADHD. Barkley and Murphy (2007) found that there were seven symptoms that differentiated adult ADHD, including: easily distracted by extraneous stimuli; makes decisions impulsively; has difficulty stopping activities or behaviors when he/she should do so; starts a project or task without reading or listening to directions carefully; shows poor follow-through on promises or commitments made to others; has trouble doing things in the proper order or sequence; and, more likely to drive a motor vehicle much faster than others. Two additional factors were found to slightly increase classification accuracy between the ADHD and community groups including: often has difficulty

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sustaining attention in tasks or play activities and often has difficulty organizing tasks and activities.

In their extensive study of adults, Barkley and Murphy (2007) found that hyperactivity did not significantly contribute to differentiating adults with ADHD from non-ADHD controls. These researchers found that symptoms of hyperactivity reported in the hyperactive/impulsive subtype of ADHD during childhood often declines with age, and advised clinicians to focus on symptoms of distractibility, impulsive decision-making, and poor executive functioning when investigating adults with ADHD. Kessler et al. (2010) also reported that executive functioning deficits discriminate ADHD from non-ADHD adults better than the classic core symptoms of inattention, hyperactivity, and impulsivity. Of those symptoms that had the most discriminatory power, all but the first (e.g., often distracted by extraneous stimuli) were correlated with Barkley's description of executive functions. Barkley (2012) concluded that ADHD involves deficits in self-restraint, self-awareness, self-speech, self-sensing and imagery, self-control of emotion, self-motivation, and self-directed play for problem solving. The current study will examine the relationship between self-control of emotion and symptoms of ADHD.

How Do Symptoms of ADHD fit into the Discussion of Emotional Dysregulation?

Although emotional dysregulation is not unique to ADHD, current neurocognitive models suggest the importance of exploring emotional self-regulation in more detail (Barkley, 2009). Recent research has shown that emotional dysregulation is an aspect of executive functions (EF) and that it is an "additional feature of ADHD that should be incorporated into theoretical conceptualizations and diagnostic criteria" (Mitchell, Robertson, Anastopoulos, Nelson-Gray, & Kollins, 2012, p. 511). Barkley (2009) reported that deficits in self-regulation lead to emotional impulsiveness and poor inhibition of inappropriate behaviors especially in the

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face of strong emotions. Difficulties managing or suppressing negative emotions are expressed as low frustration tolerance, impatience, quickness to anger, and greater emotional excitability and reactivity. These behaviors contribute to impairments in numerous functional domains such as occupational, educational, criminal, driving, and financial, which far exceed the core symptoms of ADHD (Barkley & Fischer, 2010).

While the relationship between emotional dysregulation and symptoms of ADHD in adults is a contemporary field of study, research examining these factors is still in its infancy. In a recent study conducted by Mitchell, McIntyre, English, Dennis, Beckham, and Kollins (2013), adults diagnosed with ADHD from 18 to 50 years of age were recruited and randomly assigned to either an 8-week course in a group-based mindfulness treatment or a waitlist group. Before treatment began, all of the participants completed several self-report measures of ADHD symptoms, including the DSM-IV-TR symptomology checklist, current deficits in psychosocial and executive functioning which contains a global executive composite, a behavioral regulation index, a metacognitive index, and a measure of emotional dysregulation. Emotional dysregulation was assessed using the Deficits in Emotion Regulation Scale (DERS; Gratz & Roemer, 2004) and the Distress Tolerance Scale (DTS; Simons & Gaher, 2005). Mitchell et al. (2013) found that when compared to the waitlist group, participants in the group-based mindfulness treatment condition reported a decrease in overall ADHD symptomology and impairment associated with the symptoms; increased executive functioning in self-management, self-organization, and self-discipline; and, significant gains in the ability to regulate emotions and tolerate stress in the context of experiencing an aversive emotional state. In addition to showing the effectiveness of a non-pharmacological treatment protocol for ADHD in adults, this study implied that there is a direct relationship between ADHD symptomology and emotional

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dysregulation.

**Emotional Dysregulation in Adults with ADHD Symptomology without a Clinical
Diagnosis**

Childhood ADHD persists into adulthood for about 50-60% of individuals who continue to display severe symptoms and approximately 4.4% of adults have ADHD (Kessler et al., 2006). The research base for understanding the long-term outcome of ADHD into adulthood is complicated by several factors such the decrease or change in some ADHD symptoms (i.e., hyperactivity) from childhood to adulthood; the rigid nature of categorical diagnostic approaches like the DSM-IV-TR and DSM-V (e.g., 6 or more of 9 symptoms of Inattention or 6 of 9 symptoms of Hyperactivity-Impulsivity, etc.); and, the difficulties involved with getting accurate retrospective data about the presence of ADHD in childhood (age of onset; Faraone et al., 2006). In an effort to address these issues these researchers investigated the functional impairment of various probands including: 127 adults with persistent ADHD meeting full DSM symptom criteria including the age-of-onset, 79 adults with full DSM symptom criteria without age-of-onset criteria, 41 adults with subthreshold ADHD who never met DSM criteria but reported three or more inattentive symptoms or three or more hyperactive-impulsive symptoms, and 123 non-ADHD adults with no present or past symptoms of the disorder. In this study, Faraone et al. (2006) found that participants with subthreshold ADHD were more impaired than non-ADHD groups (i.e., higher rates of oppositional defiant disorder, academic and work adjustment difficulties, etc.), but appeared to have a milder form of ADHD than those meeting full criteria for the disorder. Not only does this study show that regardless of DSM diagnostic criteria, ADHD symptoms persist into adulthood, but that the symptoms are more related to deficits in executive functioning, and therefore, deficits in emotional self-regulation,

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and that the symptoms are less related to the core childhood symptoms of inattention, hyperactivity, and impulsivity.

The finding that adults with subclinical symptoms appear to have functional impairment similar to those with a clinical diagnosis (Barkley & Murphy, 2006), and that teens and young adults are at-risk for serious psychiatric problems including depression, eating disorders, panic attacks, post traumatic disorders, smoking and alcohol consumption (Malmberg, Edbom, Wargelius, & Larsson, 2011) has generated interest in investigating college students with subclinical ADHD. Depending on the study, prevalence rates for subclinical ADHD range from 5-10% in young adults (Bussing, Mason, Bell, Porter, & Garver, 2010; Gudjonsson, Sigurdsson, Eyjolfssdottir, Smari, & Young, 2009); while, 2-8% of college students report clinically significant ADHD symptoms (DuPaul, Wyandt, O'Dell, & Varejao, 2009). Functional impairment has been reported across a variety of domains, including: impaired emotion control, higher rates of social problems, and lower life satisfaction (Gudjonsson et al., 2009); lower grade point average (Schwanz, Plam, & Brallier, 2007); and, greater friendship problems, poor social functioning and relationships (Young & Gudjonsson, 2008). This has led some researchers to recommend that we need to investigate subthreshold ADHD in young adults and college students who have impairing symptoms but do not present with the full diagnostic profile (Bussing et al., 2009; Faraone et al., 2006; DuPaul et al., 2009), especially given the nature of the challenges facing this age group (McGarragle, 2013). Thus, this study will examine the relationship between ADHD symptomology in young adults, regardless of diagnosis, and difficulties in emotional self-regulation in relationship to functional impairment in romantic relationship satisfaction.

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Importance of Emotion Regulation on Interpersonal Relationships

Thus far, this literature review has highlighted the development of emotional self-regulation skills and its relationship to executive functioning, as well as how deficits in these skills can be manifested in psychological disorders including ADHD (Barkley, 2012).

Furthermore, young adults with ADHD symptomology, with or without a formal diagnosis, also exhibit numerous functional impairments (Faraone et al., 2006), including deficits in emotional self-regulation skills that impact their social relationships (Gudjonsson et al., 2009 Young & Gudjonsson, 2008). These initial findings showing that relationship difficulties are related to symptoms of ADHD and poor emotional regulation are relevant to the present study, and will be explored in more depth particularly as they may affect romantic relationship satisfaction in young adults.

Previous research has focused primarily on how difficulties regulating one's emotions have a detrimental impact on children's interpersonal relationships, and will be briefly reviewed to provide a framework for understanding the development of later relationships. Thompson (1994) found that social interactions and the development of social relationships are both influenced by emotional self-regulation skills. He hypothesized that children who lack emotion regulation skills are less efficient at recognizing social cues, interpreting them affectively, and searching for and evaluating alternative responses in emotionally threatening social situations. Based on these findings, it seems reasonable to hypothesize that similar difficulties are likely to impact interpersonal relationships, both social and romantic, in adolescents and young adults.

Deficits in emotional dysregulation is a common symptom found in a number of disorders including generalized anxiety disorders, depression, borderline personality disorder, alcohol dependence, and ADHD (Bardeen, Ferugus, & Orcutt, 2012; Mitchell et al., 2012). The

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negative effects of ADHD on social functioning are “pervasive and chronic” (Ramsay, 2010).

Studies have shown that children with ADHD tend to receive lower peer ratings on social preference scales, are less well liked, are rejected more often, and are less likely to have friends than non-ADHD children (de Boo & Prins, 2007; Henker & Whalen, 1999; Hoza et al., 2005 as cited in Ramsay, 2010). Ramsay (2010) reported that adults with ADHD often continue to have similar social relational and interaction difficulties that they first experienced in childhood.

In a study of college students with a previous diagnosis of ADHD inattentive type, Canu and Carlson (2003) found that they received higher ratings of passivity and social inexperience according to non-ADHD female confederates. In a later study, Canu and Carlson (2007) found that even though they reported lower levels of self-esteem, college students with ADHD did not report an increased sensitivity to rejection when compared to a control group. Friedman et al. (2003) found that adults with ADHD report being aware of their difficulties when interacting with others, but they are less equipped to recognize and interpret emotional information that is available in the social context compared to non-ADHD control participants. Although adults with ADHD in the study tried to avoid making mistakes, they ended up breaching social norms because of their poor self-regulation (Friedman et al., 2003). In an earlier study, Novotni and Peterson (1999) found that adults with ADHD make “errors of omission” when interacting with others, which are manifested in the following behaviors: missing important information, not hearing something that was said, not picking up on nonverbal cues, or forgetting to follow social “niceties” such as saying “thank-you” or “good-bye.” Adults with ADHD who participated in the study also made “errors of commission,” as evidenced by saying the wrong thing at the wrong time, interrupting others during conversations due to impulsivity, forgetting to follow through on promises, or appearing rude because of impatience and restlessness (Novotni &

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Peterson, 1999). Some of these errors of omission and commission appear similar to the symptoms Barkley and Murphy (2006) found to be strong predictors of adult ADHD, and are consistent with those subsumed under the broad category of deficits in executive function. Although research shows that emotional dysregulation is characteristic of ADHD and that it may help explain difficulties often seen in social relationships during childhood, adolescence and adulthood, less is known about how it impacts romantic relationships.

Emotional Regulation and Romantic Relationships

Although it appears from the research presented earlier in this paper that emotion regulation processes are crucial for developing and sustaining healthy interpersonal social and romantic relationships, the topic has not been well studied in adolescents and young adults. The limited research investigating the effects of emotional dysregulation and romantic relationships has focused on marital satisfaction in adults with ADHD. In one study conducted by Murphy and Barkley (1996), 172 clinic-referred adults with ADHD were compared to 30 non-ADHD adults. Murphy and Barkley (1996) found that adults with ADHD had higher rates of divorce and remarriage and less marital satisfaction in new marriages when compared to the adults in the control group. Similar results were reported by Biederman et al. (1993) where separation and/or divorce rates among adults with ADHD were approximately twice as high as those found in a control group. In other studies, adults with ADHD report more difficulties maintaining romantic relationships (Biederman et al., 2006), and report more dissatisfaction in their current relationships (Canu & Carlson, 2007; Eakin et al., 2004). Symptoms of ADHD tend to be expressed as talking with thinking, forgetting conversations, and difficulty regulating negative emotions which all have been found to negatively impact romantic relationships (Robin & Payson, 2002; review in Barkley, 2006).

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In summary, emotional dysregulation impacts one's ability to adequately prepare for and manage rapidly fluctuating emotions, especially in interpersonal relationships. It is not known whether young adults who report high levels of emotional dysregulation, inattention, impulsivity and hyperactivity but do not have a clinical diagnosis of ADHD, demonstrate similar relationship challenges.

Factors that Affect Romantic Relationship Satisfaction

The focus on deficits in emotional regulation as a symptom of ADHD in the context of romantic relationship satisfaction warrants a brief discussion on what constitutes relationship satisfaction among couples with adequate emotional self-regulation skills. Relationship satisfaction is defined as an interpersonal evaluation of the positivity of feelings for one's partner and attraction to the relationship (Rusbult & Buunk, 1993). Research has focused on numerous characteristics of relationship satisfaction, including: level of communication, emotional self-disclosure, conflict resolution, affection, perceived equity within the relationship, and relationship expectation versus reality.

The quality of communication is important in determining the outcome of the relationship. Poor communication and conflicts, although most commonly perceived as negative, are a normal part of many close relationships. However, it is how the couple handles the conflict that is important. Gottman's (1979, 1994) research shows that satisfied couples are more likely to discuss issues of disagreement, whereas dissatisfied couples are likely to minimize or avoid conflict. The way partners manage conflict is a better predictor of relationship satisfaction, than the experience of the conflict itself (Guerrero, Anderson & Afifi, 2011).

Relationship satisfaction can also be measured by the emotional self-disclosure within a relationship. Self-disclosure is the process of telling another about one's intimate feelings,

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attitudes, and experience (Sprecher & Hendrick, 2004). Communicating personal information about one's self is important in relationship satisfaction, but it is also important for an individual to communicate their feelings about their partner through affectionate communication.

Affectionate communication is behavior that portrays feelings of fondness and positive regard for another (Floyd, 2006). Affection is a basic human need and it is met through interpersonal interaction and in forming mutually supportive relationships (Guerrero et al., 2011).

Equity theory focuses on the distribution of resources to both partners when investigating relationship satisfaction. Equity is measured by comparing the ratio of contributions (e.g., investing the same amount of time and effort) and benefits (e.g., receiving the same amount of love and care) for each person (Guerrero et al., 2011). Individuals who perceived their relationships to be equitable reported that they were happier and more content than those who perceived their dating relationships to be inequitable (Walster, Walster & Traupmann, 1978). Couples who experienced equity also reported more commitment, more self-disclosure, and more assurances (Guerrero et al., 2011).

Expectations are formulated across each of the components above, and have been shown to be particularly important in predicting romantic relationship satisfaction. It has been found that the expectations one holds, whether of the relationship or of one's partner, can often differ in terms of bias and accuracy. Kenny and Acitelli (2001) reported that accurate expectations help partners to correctly evaluate their partners' needs and anticipate their behaviors, which helps to foster a sense of control, predictability, and security and ultimately leading to more harmonious interactions and higher levels of relationship satisfaction. Miller and Tedder (2011) found that the larger the discrepancy a partner has between reality and expectation of his or her relationship, the lower he or she will rate satisfaction in the relationship.

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As illustrated in this brief review, relationship satisfaction is a multifaceted construct that is influenced by numerous factors. Research discussed earlier by Barkley (2012) would argue that each of these factors are efficient executive functioning skills that help both partners guide, or regulate their behaviors in order to achieve a positive outcome: relationship satisfaction. In essence, both partners are able to effectively inhibit strong emotions, and employ self-soothing, moderating emotional reactions and redirect attention so that more positive, acceptable mood states can be accessed. When relational partners endure negative emotional states in the relationship and are still able to effectively communicate, resolve conflicts, show affection, and appropriately evaluate the relationship, both partners are demonstrating appropriate emotional self-regulatory skills, by controlling their personal emotional responses for the purpose of maintaining their relationship satisfaction. However, as discussed earlier, it is when people who display deficient emotional self-regulation skills and are faced with negative emotional states, that relationship satisfaction is negatively impacted.

Negative Emotional States

Due to the limited access to partner dyads in romantic relationship, this study was designed to induce a negative emotional state, specifically frustration, in the participating individual and to measure its subsequent effects on relational satisfaction. Research on inducing negative emotional states has shown effective, using a variety of tasks. Frustration is defined as “the state that emerges when circumstances interfere with a goal response” (Dollard, Doob, Miller, Mower, & Sears, 1939, p7). Experimental tasks designed to elicit frustration are often manipulated or altered, in such a way that they are difficult or impossible to successfully complete. Researchers have used a variety of frustration-inducing procedures (FIP), including: delaying reinforcement of a conditioned response or requiring participants to make ten accurate

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card-sorting responses in order to receive an award when the tenth response is always recorded as inaccurate regardless of the answer (Henna, Zilberman, Gentil, & Gorenstein, 2008); and/or, imposing time limits on participants to complete unsolvable puzzles (Habhab, Sheldon, & Loeb, 2008). Another method for inducing frustration is to expose participants to emotion-eliciting films and/or images and then measure their reactions (Gross & Levenson, 1995; Philippot, P., 1993; McHugo, Smith, & Lanzetta, 1982).

For the purpose of this study, a modified version of the classic Stroop Task (Stroop, 1935) was used to induce frustration. The task was modified by displaying stimuli for a shorter time period requiring rapid responding. It has been reported that performance on the Stroop task is accompanied by behavioral signs of tension and frustration (Klein, 1964), and other research has shown that working on a task at a faster pace leads to more stress and increased frustration (Mark, Gudith, & Klocke, 2008). In an interesting study conducted by Thackray and Jones (1971), heart rate and respiration were measured during Stroop performance and no evidence of increased autonomic arousal was found to be associated with the color-word interference effect. However, when the experimenters increased the stimulus presentation rate there was an increase in arousal, which they hypothesized to be due to the task pacing required by the task. Although the Stroop has generally been used to assess for selective attention, cognitive flexibility, and processing speed, the purpose of its use in this study is not the impact of interference on these above factors, but simply to induce frustration. The research discussed here provides some evidence that this is an adequate task to induce frustration.

Conclusion and Present Study

This brief literature review provided a description of the key components of emotion regulation, showed how these skills develop over time, and discussed how self-regulation is

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shaped by environmental experiences especially early social interactions. Emotion regulation is crucial for important aspects of goal attainment, including forming and maintaining positive interpersonal relationships. Historically, research has focused on how deficits in executive functioning, including self-regulation of emotions, impact the academic, social, and interpersonal success of children with ADHD. However due to the chronic nature and the apparent overlap between emotional dysregulation and EF deficits, there is a growing interest in investigating how these factors impact social relationships in adults with ADHD symptomology.

Research shows that adults with ADHD and emotional dysregulation have poor social and romantic relationships, due to a variety of problems such as: not following social norms, missing nonverbal cues, interrupting conversations, not following through with promises, appearing impatient or rude, and not thinking before speaking. A small number of studies are beginning to focus on how difficulties regulating emotion, coping with negative emotions, managing rapidly fluctuating emotions, and over-reacting to situations impact social relationships. However, the extent to which difficulties regulating negative emotions (i.e., frustration) impact perceptions of relational satisfaction has not been adequately studied in college students who report high levels of ADHD symptomology.

The purpose of this study was to examine whether individuals with self-reported deficits in emotional self-regulation, executive functions and ADHD symptoms also reported dissatisfaction in their current romantic relationships. Additionally, this study investigated whether individuals with self-reported deficits in emotional self-regulation, executive functions and ADHD symptoms are able to manage their emotions after exposure to an experimental task that is designed to elicit frustration, and whether this induced emotional state affects their ratings of relationship satisfaction.

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In an effort to expand the literature that has focused on the affects of emotional-deregulation on marital satisfaction in adults with ADHD, this study explored this dynamic interaction in romantic relationships in a group of college students who self-reported high symptoms of ADHD.

The college population was used because young adults are likely to have experienced a committed romantic relationship, and they may be experiencing more independence for the first time, so that more self-initiated emotional-regulation is required. College students also appear to have relatively high rates of subclinical or subthreshold ADHD, ranging from 2 to 8%, which may adversely impact their interpersonal interactions and their satisfaction in romantic relationships.

Hypotheses and Proposed Data Analyses

Hypothesis 1. It was hypothesized that high levels of inattention, hyperactivity and impulsivity as measured by the Barkley Adult ADHD Rating Scale-IV (BAARS-IV) and deficits in executive functions as measured by the Barkley Deficits in Executive Functioning Scale Long Form: Self-Report for Adults (BDEFS-IV) would independently predict difficulties with emotional self-regulation as measured by the Difficulties in Emotion Regulation Scale (DERS). Gender was not expected to affect these interactions.

Hypothesis 1 was tested using a multiple regression analysis to determine which factors (i.e., inattention, hyperactivity, impulsivity, and/or deficits in executive functions) were most strongly related impaired regulation of emotion. Gender was dummy coded (0 = male, 1 = female) and entered into the regression. It was predicted that subscales from the DERS, specifically the IMPULSE (i.e., items assessing poor impulse control) and STRATEGIES (i.e., items measuring the flexible use of appropriate emotion regulation strategies) subscales would

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show strong positive correlations with symptoms of inattention, hyperactivity, and impulsivity (BAARS-IV) as well as impaired executive functions (BDEFS-IV) particularly the Self-Restraint and Self-Regulation of Emotions subscales.

Hypothesis 2. It was hypothesized that difficulties with emotional self-regulation (DERS), executive functions (BDEFS-IV) and high levels of symptoms of inattention, hyperactivity and impulsivity (BAARS-IV) would independently predict low levels of romantic relationship satisfaction as measured by the Relational Assessment Scale (RAS-1) prior to experimentally induced frustration. Gender was not expected to alter these interactions. To further explore the relationship among study variables, it was hypothesized that high scores on the BDEFS subscales (Self Restraint and Self-Regulation) and the DERS subscales (IMPULSE and STRATEGIES), would be associated with low levels of relationship satisfaction (high scores on RAS-1), while controlling for gender.

Hypothesis 2 was tested using a multiple regression analysis to determine which factors (i.e., impaired self-regulation of emotion, inattention, hyperactivity, impulsivity, and/or deficits in executive functions) were most strongly related to reports of romantic relationship satisfaction (RAS-1). Items from the RAS were embedded in an extraneous relationship questionnaire (Couples Satisfaction Index, CSI), and were extracted prior to the multiple regression analysis. These extracted items represented the participants' pre-frustration ratings of relationship satisfaction (RAS-1). Gender was dummy coded (0= male, 1= female) and was entered into the regression. It was predicted that poor emotional self-regulation (high scores on the DERS), deficits in executive functions (high scores on the BDEFS-IV) and high levels of inattention, hyperactivity and impulsivity (BAARS-IV) would independently add to the prediction of relational satisfaction (RAS-1). It was predicted that high scores on the IMPULSE and

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STRATEGIES subscales of the DERS, high scores on the Self-Restraint and Self-Regulation of Emotions subscales of the BDEFS-IV, and high levels of inattention, hyperactivity and impulsivity (BAARS-IV) would be related to low levels of relational satisfaction (RAS).

Hypothesis 3. It was hypothesized that participants with poor emotional self-regulation (high scores on DERS) would report higher Current Levels of Frustration (CLF, designed for this study) on a Likert scale after completing an experimental task (modified Stroop Task) designed to induce negative emotions. Additionally, it was hypothesized that individuals with poor emotional self-regulation (DERS) would report higher rates of negative emotion intolerance (high scores on the Emotion Intolerance subscale from the Frustration Discomfort Scale, FDS, Harrington, 2005a) following the Stroop Task. It was also predicted that high levels of induced frustration (CLF) and high rates of negative emotion intolerance (subtest of the FDS) would independently predict low levels of romantic relationship satisfaction as measured by the Relational Assessment Scale (RAS-2) after completing the Stroop Task. Gender was not expected to significantly impact these interactions.

A bivariate correlation analysis was utilized to determine the extent that individuals with poor emotional regulation (DERS) had high levels of experimentally induced frustration and high rates of negative emotion intolerance. Gender was dummy coded (0= male, 1= female) and was entered into the analysis. It was predicted that low levels of emotional regulation (high scores on DERS) would be correlated with high levels frustration (CLF) and high rates of negative emotion intolerance (high scores on subscale of FDS) following completion of the modified Stroop Task. Men and women were expected to show similar responses.

A multiple regression analysis was also utilized to determine the extent to which individuals with high levels of frustration (CLF) and high rates of negative Emotion Intolerance

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(high scores on subscale from FDS) would also report low relationship satisfaction (RAS-2) following completion of the modified Stroop Task. It was predicted that low relationship satisfaction scores following the frustration task (RAS-2) would be related to high current levels of frustration (CLF) and high rates of Emotion Intolerance (subscale of the FDS). Men and women were expected to show similar responses.

Hypothesis 4. It was predicted that impaired self-regulation of emotions (DERS) would have a direct effect on relationship satisfaction (RAS-2), following an experimentally induced frustration task (modified Stroop Task), which would be mediated by ADHD symptomology (BAARS-IV), deficits in executive functioning (BDEFS-IV), pre-frustration relationship satisfaction (RAS-1), and levels of emotion intolerance (FDS).

For Hypothesis 4, a serial mediational model with multiple mediators was used to explore the relationship between the DERS (independent variable X_1) and the RAS-2 (dependent variable Y_1). Procedures described in Hayes (2012) were utilized in an effort to determine the influence of impaired self-regulation of emotion (DERS), symptoms of ADHD (BAARS-IV), impaired executive functioning (BDEFS-IV), pre-frustration relationship satisfaction (RAS-1) and poor emotion intolerance (subtest of the FDS) on a measure of relationship satisfaction (RAS-2) after participants engaged in an experimental task designed to induce frustration. Items from the RAS (RAS-1) that were embedded in the CSI were extracted prior to the mediational analysis and represented participants' pre-frustration ratings of relationship satisfaction. Additionally, RAS-1 scores were used as a control. See Figure 1 for a model of a serial mediation model.

Method

Participants

One hundred and thirty-nine students were recruited to participate in the present study. Participants were undergraduate college students enrolled in a Psychology 101 course, were between the ages of 18 and 29, and were currently in a romantic relationship. Romantic relationships were defined using Sternberg's triangular theory of love (1986), and were described as: feelings of intimacy (feeling understood and validated by the other), feelings of passion (romance, physical and sexual attraction, as in strong emotions), and/or feelings of commitment (deciding about and maintaining love). Participants were recruited through a computer-based experiment sign-up program, and received partial course credit for their participation.

Participants in the study ranged in ages from 18 to 29, and the sample was not gender balanced, as 117 of the participants (84%) were female. Of the total sample, 23 of the participants (17%) endorsed having a previous psychological diagnosis and 22 (16%) endorsed a diagnosis of ADHD. The average length of current romantic relationships was 18.5 months; with, 33 of the participants (24%) reporting this to be their first romantic relationship and 82 of the participants (59%) reporting this to be their longest romantic relationship. Other demographic information on ethnicity and class year is reported in Table 1.

Procedure

Students were tested in groups of five (5) in a medium-sized room filled with tables and individual computer stations to reduce distractions. Upon arrival, participants were greeted by the experimenter and were given the informed consent document (see Appendix A). The experimenter fully explained the informed consent document, and answered any questions that

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the participant had regarding the study. Participants were informed that they were free to leave at any point during the study without penalty.

If the students agreed to participate, the study was conducted in three stages. First, participants completed a demographics questionnaire (see Part A, Appendix B) and a set of rating scales. Packet 1 scales contained the following randomly ordered measures: Barkley Deficits in Executive Functioning Scale Long Form: Self-Report for adults-IV (BDEFS-IV; Barkley, 2011a; see Appendix C), Barkley Adult ADHD Rating Scale-IV (BAARS-IV; Barkley 2011b; see Appendix D), Difficulties in Emotion Regulation Scale (DERS; Gratz & Roemer, 2004; see Appendix E), and, the Couples Satisfaction Index (CSI; Funk & Rogge, 2007, see Appendix F). Items from the Relationship Assessment Scale (RAS; Hendrick, Dicke & Hendrick, 1998; see Appendix G) were randomly inserted into the CSI to get an anchor for how induced frustration affected their relationship satisfaction after frustration was induced. In an effort to avoid rater bias on specific items, the titles were removed from the BDEFS, BAARS, DERS, CSI and RAS.

After completing rating scales in Packet 1, the participants were given a computerized Stroop Task that had been modified to elicit frustration (see Appendix H). Immediately following the Stroop Task, participants were then asked to rate current levels of frustration using a 7-point Likert scale (see Appendix I) and the Emotion Intolerance subscale (7 items of the Frustration Discomfort Scale (FDS, Harrington, 2005a, see Appendix J)). After completing the induced frustration task and reporting post-frustration and emotion intolerance, students completed two additional questionnaires. Packet 2 included the following items which were administered in the following order: the original items of Relationship Assessment Scale (RAS; Hendrick, Dicke & Hendrick, 1998); and, Part B of the Demographics Questionnaire. Questions

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about previous diagnoses and medications were asked at the end of the study to avoid rater bias when reporting levels of ADHD symptomology. Finally, after all tasks were completed, participants were debriefed regarding the purpose of the experiment (see Appendix K), and were given an opportunity to ask any questions before leaving the lab. They were also provided with campus and community resource information if any part of the experiment evoked emotions requiring mental health services (see Appendix L). The entire experiment was estimated to require 1.5 hours to complete, though many participants completed the study in approximately sixty to seventy minutes. Scores on all of the questionnaires were analyzed using SPSS.

Measures

Demographics Questionnaire. A specific, research-goal oriented questionnaire was developed by the author to ascertain demographic information about the participants. Part A contained general questions about the participant (i.e., age, gender, and race). In Part B of the demographics questionnaire, students were asked to indicate if they have a current or previous diagnosis of ADHD, and whether they are currently being treated for ADHD or have received treatment in the past. The ADHD specific (Part B) questions were given at the end of the study to avoid potential rater bias. See Appendix B for a copy of Parts A and B of the questionnaire.

Barkley Deficits in Executive Functioning Scale Long Form: Self-Report for Adults - IV (BDEFS-IV; Barkley, 2011a). The BDEFS-IV was administered for the purpose of measuring participants' levels of self-reported executive functioning in daily life. The full measure consists of 89 items. Each item consists of a statement that describes a behavior (e.g., Make decisions impulsively). The respondent is asked to rate on a likert scale (1 = never, 2 = sometimes, 3 = often, 4 = very often) how frequently he/she experiences that problem. The BDEFS-IV is comprised of five EF factors as defined by Barkley: Factor (1) Self-Management

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to Time, Factor (2) Self-Organization, Factor (3) Self-Restraint, Factor (4) Self-Motivation, and Factor (5) Self-Regulation of Emotion. For the purposes of this study, the total score of five EF factors was used in the analyses. The BDEFS-IV was normed on a large sample ($N > 1,200$) that was representative of the United States population. Participants in the current study completed the extended version of the BDEFS-IV (15-20 minutes) so that administration is consistent with that of the normative sample. The BDEFS-IV manual reports that the scale has high internal consistency (Cronbach's alpha ranging from .91 to .95 scores across the five scales); good inter-observer agreement (.66 to .79 across scales); and acceptable test-retest reliability over a 2–3 week interval (ranging from .62 to .90 across scales and .84 for the Total EF Summary Score). Factor analysis supports the five-factor structure of the BDEFS-IV and the test is correlated with other measures of EF (see Barkley, 2011a). Further, initial correlation, regression, and group comparison studies show that the BDEFS-IV has strong discriminant validity for various disorders; and, shows concurrent validity with functional impairment in other major life activities, including: associated risk for ADHD; history of educational challenges of underachievement; poor occupational functioning; impaired social relationships, including marital problems, divorce and separation; driving infractions and automobile accidents; financial mismanagement; criminal behaviors and drug use; parenting stress; and, offspring psychopathology (see Barkley, 2011a). See Appendix C for a copy of this measure.

Barkley Adult ADHD Rating Scale-IV (BAARS-IV; Barkley, 2011b). The BAARS-IV (Barkley, 2011b) assesses current ADHD symptoms based directly on the DSM-IV diagnostic criteria. The scale was utilized in this study to investigate how these problems impact adult romantic relationships. This scale measures hyperactivity, inattention, impulsivity and sluggish cognitive tempo (i.e., boredom, poor concentration, etc.). The long version of the scale takes

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approximately 5 to 7 minutes to complete. The scale has high internal consistency ($\alpha = .92$) and high test-retest reliability ($r = .75$) for current ADHD symptoms and childhood symptoms scores, respectively (Barkley, 2011b). The BAARS-IV has Inattention, Hyperactivity, and Impulsivity indices, and the raw scores combine to produce a Total ADHD symptom index. Aside from these raw scores which provide an overall picture of symptom endorsement, the BAARS-IV also gauges symptom severity with a “Symptom Count” variable which measures the number of items to which an individual responds with either a “3” or a “4,” with “4” being the most often or most severe. Symptom counts are calculated for each of the aforementioned variables, with the Hyperactivity and Impulsivity indices combined to produce a single symptom count (Barkley, 2011b). For the purposes of this study, the Total ADHD symptom index was used. See Appendix D for a copy of this measure.

Difficulties in Emotion Regulation Scale (DERS; Gratz & Roemer, 2004). The DERS is a 36-item self-report measure developed to assess clinically relevant difficulties in emotion regulation. Participants were asked to indicate how often the items applied to themselves, with responses ranging from 1 to 5, where 1 is *almost never* (0–10%), 2 is *sometimes* (11–35%), 3 is *about half the time* (36–65%), 4 is *most of the time* (66–90%), and 5 is *almost always* (91–100%). Higher scores indicated greater difficulties in emotion regulation (i.e., greater emotion dysregulation). The DERS items reflect difficulties within the following dimensions of emotion regulation: (a) awareness (Lack of Emotional Awareness) and understanding of emotions (Lack of Emotional Clarity); (b) acceptance of emotions (Nonacceptance of Emotional Responses); (c) the ability to engage in goal-directed behavior (Difficulties Engaging in Goal Directed Behavior), and refraining from impulsive behavior (Impulse Control Difficulties), when experiencing negative emotions; and (d) access to emotion regulation strategies perceived as effective

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(Limited Access to Emotion Regulation Strategies). The final dimension reflects an attempt to measure the flexible use of appropriate strategies to modulate emotional responses. Gratz and Roemer (2004) indicated that the DERS has high internal consistency ($\alpha = .93$) and high test-retest reliability (.88) and adequate construct validity (.69). This measure was used in the present study to assess participants' dispositional difficulties in emotion regulation. See Appendix E for a copy of this measure.

Couples Satisfaction Index (CSI; Funk & Rogge, 2007). The CSI is a 32-item measure of relationship satisfaction. The CSI is comprised of a pool of items selected from a variety of measures, including: the Dyadic Adjustment Scale (DAS), Locke-Wallace Marital Adjustment Test (LWMAT), Kansas Marital Satisfaction Scale (KMS), Quality of Marriage Index (QMI), Relationship Assessment Scale (RAS), and Semantic Differential Measure (SMD). The CSI shows strong construct validity with the other measures of relationship satisfaction as well as strong convergent validity with the anchor scales from the baseline set surrounding satisfaction. It has also been found to discriminate between distressed and non-distressed relationships (Funk & Rogge, 2007). For the purposes of this study, it is important to note that the CSI shows a very strong positive correlation with the RAS (.96). See Appendix F for a copy of this measure.

Relationship Assessment Scale (RAS; Hendrick, Dicke, & Hendrick, 1998). The RAS is a brief scale designed to assess levels of romantic relationship satisfaction. The RAS is unique in that it is worded to measure satisfaction in all types of romantic relationships and not just marital satisfaction. The RAS is a 7-item questionnaire, which uses a 5-point rating scale with descriptors such as "poorly" to "extremely well" or "unsatisfied" to "extremely satisfied" depending on the question. For example, respondents are asked to rate "How much do you love your partner?" using "not much" to "very much." The reliability of RAS was moderate with an

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average of .87 across a number of studies (Graham, Diebels & Barnow, 2011). Research shows a mean inter-item correlation of .49 and an alpha coefficient of .86 for the scale (Hendrick, 1988). The RAS is also effective at predicting which couples will stay together versus those who will separate, with a 91% hit rate for those who stay together and an 86% rate for those who separate (Vaughn & Baier, 1999). Scores on the RAS tend to be negatively skewed, with higher scores indicative of greater romantic relationship satisfaction. (Dinkel & Balck, 2005). See Appendix G for a copy of this measure.

Stroop Task (Stroop, 1935). For this study, the Stroop task (Stroop, 1935) was modified in an effort to induce frustration, and contained four sets of stimuli that were presented with pseudo-random fixation times (between 950 ms and 1500 ms). The fixation times were significantly reduced to make it difficult to process the stimuli before the next item. This task was presented on a computer using E-prime 2 software (Psychological Software Tools, Inc.), and took approximately 10 minutes to complete. Each set of Stroop stimuli included a set of neutral slides containing color words printed in black ink, slides of color words (i.e., red, blue, yellow, green) printed in the same color ink for congruent stimuli (i.e., word red printed in “red” ink), and slides of color words in different colored ink for incongruent stimuli (i.e., word red printed in “green” ink), and slides with an intermix of congruent and incongruent stimuli. During the intermixed slides, some of the words had a box around them and some did not. When there was a box around the word, the participant was instructed to select the color of the written word in the box and not the ink the color word was printed in. When the word that flashed on the screen was not wrapped in a box, the participant was instructed to select the color of the ink that the word was printed in. In an effort to induce frustration, the fixation times were shortened to make

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it difficult to complete each item accurately. Performance on this task was not measured and irrelevant for the purpose of this study. See Appendix H for a sample of the Stroop stimuli.

Current Level of Frustration (CLF) Rating. Participants were asked to complete a self-report of current level of frustration (CLF) after taking the STOOOP. The scale was an 8-point Likert scale, in which participants were given the following options: 0 = No Feeling of Frustration Experienced, 1-2 = Mild Feelings of Frustration Experienced, 3-5 = Moderate Feelings of Frustration Experienced, 6-7 Severe Feelings of Frustration Experienced. This scale was developed for this study as a post-measure of frustration (see Appendix I). Additionally, following the induced frustration task participants were asked to rate their level of distress and discomfort using the Frustration Discomfort Scale (Harrington, 2005a).

Frustration Discomfort Scale (FDS; Harrington, 2005a). The FDS is a 28-item scale designed to measure levels of frustration discomfort. The self-report scale is comprised of four subscales: Emotional Intolerance, Entitlement, Discomfort Intolerance, and Achievement Frustration. The measure has strong internal consistency across scales ($\alpha = .84$ to $.88$). Seven items from the Emotional Intolerance scale were used as they are most similar to those of interest to this study. The items are rated on a 5-point scale: (1) absent, (2) mild, (3) moderate, (4) strong, and (5) very strong. Scores on the FDS are associated with avoidance strategies, maladaptive coping, and poor self-control (Harrington, 2005b; McHugh & Otto, 2012). See Appendix J for a copy of this measure.

Results

Descriptive Information

Table 2 provides a summary of descriptive statistics for the study variables. In an effort to reduce the spurious effects of extreme outliers on the statistical analyses, data on the BAARS,

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BDEFS and DERS were trimmed to fit within three standard deviations of the sample mean.

The transformed scores produced the following ranges: the transformed BAARS-IV scores ranged between 18 and 51.46, with an average of 29.45 (higher scores represent higher levels of ADHD symptoms); the transformed BDEFS data ranged between 96 and 266.78 with an average of 151.88 (higher levels of BDEFS represent more impaired executive functions); and, the transformed DERS data ranged between 36 and 143.37, with an average of 77.64 (higher scores represent higher levels of emotional dysregulation). There were no significant outliers on the other study variables including the RAS (Pre and post- induced frustration) and the Emotional Intolerance Scale (subscale of the Frustration Discomfort Scale, FDS).

The average relationship satisfaction scores on the RAS prior to the modified Stroop task (RAS-1), was 28.06 (range 15-35, where higher levels represent greater romantic relationship satisfaction); and, was virtually identical to RAS-2 scores following the Stroop (average = 28.26, range 14 - 35). The induced frustration task did not have a measureable effect on how participants rated their romantic relationships as a group. Further, few participants expressed high levels of frustration on the 7-point Likert scale immediately following the modified Stroop Task (9.3% reported severe frustration at levels of 6-7; 60% reported moderate frustration at levels between 3-5; and 36.7% reported little to no frustration levels between 0-2). Another measure of emotion intolerance (the Emotion Intolerance Subscale of the Frustration Discomfort Scale) showed some individual variability and scores ranged from 7 to 35 with an average of 19.48 (higher scores represent higher levels of difficulty tolerating negative emotions).

In order to increase the ability to interpret scores across the study variables, raw scores were converted to z-scores. Table 3 provides a correlation matrix showing moderate to high levels of correlation among study variables. High levels of correlation among the study variables

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prompted investigation of multicollinearity effects on the hierarchical multiple regressions performed in the study hypotheses. Although variance inflation factor (VIF) for each regression variable in each regression was between values of 1 and 2, the average VIF was not greater than 1, which indicates that the model should not be biased by multicollinearity (Bowerman & O-Connell, 1990).

Hypothesis Testing

Hypothesis 1 stated that high scores on the BAARS-IV and the BDEFS-IV would be associated with high scores on the DERS, suggesting that high levels of inattention, impulsivity, and hyperactivity as well as high levels of executive function deficits would be positively correlated with emotional dysregulation. In order to determine differences in men and women, gender was coded as a dummy variable and was entered into the hierarchical multiple linear regression analysis. The order that the variables were entered into the analysis was based on literature supporting the development of ADHD symptomology in childhood prior to executive functions (DSM-5; APA, 2013; Anderson 2002). Gender was entered into the regression analysis first to rule out gender affects. In Stage 1, gender did not contribute significantly to the regression analysis ($F(1, 137) = .22, p = .64$) and explained less than 1% of the total variance in the model (.002). In Stage 2, ADHD symptoms (BAARS) contributed significantly to the regression analysis ($F(2, 136) = 18.39, p < .001$). See Figure 2 for a scatter plot depicting BAARS and DERS scores. The introduction of the ADHD symptoms explained an additional 21.1% variance in emotional dysregulation (DERS), after controlling for gender (R^2 Change = .21; $F(1, 136) = 36.49, p < .001$). At Stage 3, the introduction of deficits in executive functions (BDEFS) explained an additional 33.7% variance in emotional dysregulation (DERS), after controlling for gender and ADHD symptoms (R^2 Change = .34; $F(1, 135) = 100.87, p$

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< .001). See Figure 3 for a scatter plot depicting BDEFS and DERS scores. The total variance explained by the model was 54.9% ($F(3, 135) = 54.88, p < .001$). In the final model, deficits in executive functions (BDEFS) ($\beta = .02, p < .001$) was the only one out of three predictor variables that was statistically significant. See Table 4 for regression results.

Hypothesis 1 also stated that high scores on specific subscales from the BDEFS (Self-Restraint and Self-Regulation) and high scores on the BAARS would be associated with higher scores on two subscales on the DERS (IMPULSE and STRATEGIES), while controlling for gender. A second hierarchical multiple linear regression analysis was completed. When all four variables were included in the regression model, the only significant predictor of the subscales from the DERS was the Self-Regulation of Emotion subscale from the BDEFS ($\beta = 4.86, p < .001$), which uniquely explained 33.4% of the variation in the two emotional dysregulation subscales (IMPULSE and STRATEGIES). This additional analysis showed that the total scores for both the measures (BDEFS and DERS) explain more variance than the use of the subscales.

Hypothesis 2 stated that high levels of ADHD symptoms (BAARS), poor executive functions (BDEFS), and high levels of emotional dysregulation (DERS) would be negatively correlated with relationship satisfaction prior to an induced frustration task (RAS-1). The order that the variables were entered into the analysis was consistent with order of entry for Hypothesis 1 and consistent with literature following the development of ADHD symptomology in childhood, executive functions in late childhood and adolescence, and emotional self-regulation as specific executive function construct (DSM-5; APA, 2013; Anderson 2002). Gender was entered into the regression analysis first to rule out gender affects. Gender did not significantly contribute to the regression model ($F(1, 137) = .004, p = .95$). After scores on the BAARS were entered at Stage 2, the total variance explained by the model was 9.1% ($F(2, 136) = 6.80, p$

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= .002); where ADHD symptoms explained an additional 9.1% of the variance (R^2 Change = .09; $F(1, 136) = 13.61, p < .001$) in relationship satisfaction (RAS-1), after controlling for gender. See Figure 4 for a scatter plot depicting BAARS and RAS-1 scores. Scores on the executive functioning scale were entered in Step three, and explained an additional 6.0% of the variance in relationship satisfaction (RAS-1), after controlling for gender and ADHD symptoms (R^2 Change = .060; $F(1, 135) = 9.60, p = .002$). The total variance explained by the model at Step 3 was 15.1% ($F(3, 135) = 8.02, p < .001$). See Figure 5 for a scatter plot depicting BDEFS and RAS-1 scores. Finally, after entering scores on emotional dysregulation (DERS) at Step 4, the total variance explained by the model was 22.9% ($F(3, 135) = 9.92, p < .001$). The introduction of emotional dysregulation (DERS) explained an additional 7.7% variance in relationship satisfaction (RAS-1), after controlling for gender, ADHD symptoms, and deficits in executive functioning (R^2 Change = .08; $F(1, 134) = 13.42, p < .001$). See Figure 6 for a scatter plot depicting DERS and RAS-1 scores. In the final model, of the four predictor variables only emotional dysregulation (DERS) was statistically significant ($\beta = -.41, p < .001$). See Table 5 for regression results.

In an attempt to further explore the relationship among study variables, Hypothesis 2 also stated that high scores on the BAARS, BDEFS subscales (Self-Restraint and Self-Regulation) and the DERS subscales (IMPULSE and STRATEGIES), would be associated with low levels of relationship satisfaction (high scores on RAS-1), while controlling for gender. When all five variables were included in the regression model, the IMPULSE subscale from the DERS (DERS-IM) was the only significant predictor of relationship satisfaction ($\beta = -.25, p = .05$), and uniquely explained 2.3% of the variation in relationship satisfaction (RAS-1). This additional analysis indicated that total scores from both the BDEFS and DERS scales explained more

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variance than their respective individual subscales.

Hypothesis 3 was tested with two separate analyses. Hypothesis 3a stated that participants with poor emotional dysregulation (DERS) would be correlated with high levels of frustration (CLF) and high rates of emotion intolerance (Emotion) following an induced frustration task. To test this hypothesis, a bivariate correlation coefficient was conducted to assess the relationship between participant scores on the DERS, CLF, and emotion intolerance scales. The results of the correlation showed a weak positive correlation between scores on the DERS and scores on the CLF scale ($r = .19, p < .05$) and moderate positive correlation between scores on the DERS and scores on the emotion intolerance scale ($r = .48, p < .001$). Figure 7 and 8 are scatter plots of DERS and CLF scores and DERS and emotion intolerance scores, respectively. Results also indicated a moderate positive correlation between scores on the CLF scale and scores on the emotion intolerance scale ($r = .40, p < .001$). Figure 9 is a scatter plot of CLF and emotion intolerance scores. Gender was not statistically significantly correlated with any of the variables. To view the correlation matrix in a table format, see Table 6.

Hypothesis 3b stated that high levels of induced frustration (CLF) and high rates of negative emotion intolerance (subtest of the FDS) would independently predict low levels of romantic relationship satisfaction as measured by the Relational Assessment Scale (RAS-2) after completing the STROOP task. Scores from RAS-2 were gathered from answers after completion of the frustration task on the same seven items given to participants before the frustration task. Gender did not significantly add to the model (0.00% variance), ($F(1, 137) = .004, p = .95$). After entry of current level of frustration (CLF) at Stage two, the total variance explained by the model was 3.0% ($F(2, 136) = 2.10, p = .13$). The introduction of current level of frustration (CLF) explained an additional 3.0% of the variance in relationship satisfaction (RAS-2), after

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controlling for gender (R^2 Change = .03; $F(1, 136) = 4.20, p = .04$). Figure 10 is scatter plot of CLF and RAS-2 scores. After entry of emotion intolerance at Stage three, the total variance explained by the model was 10.2% ($F(3, 135) = 5.09, p = .002$). The introduction of emotion intolerance explained an additional 7.2% variance in relationship satisfaction, after controlling for gender and current level of frustration (R^2 Change = .07; $F(1, 135) = 10.76, p < .001$). Figure 11 is scatter plot of emotional intolerance and RAS-2 scores. In the final stage of the model, emotion intolerance (Emotion) ($\beta = -.29, p < .001$) was the only significant predictor variable. Table 7 contains summary data for the multiple regression results.

Hypothesis 4 stated that impaired self-regulation of emotions (DERS) would have a direct effect on relationship satisfaction (RAS-2), following an experimental tasks to induce frustration (STROOP), which would be mediated by ADHD symptomology (BAARS-IV), deficits in executive functioning (BDEFS-IV), pre-frustration relationship satisfaction (RAS-1), and levels of emotion intolerance (FDS). This hypothesis was tested through a serial mediational model. These predicted mediators were investigated to judge their effect on romantic relationship satisfaction post-frustration. Serial mediation assumes “a causal chain linking the mediators, with a specified direction of causal flow” (Hayes, 2012, p. 14). This model was chosen over a parallel mediation, in which all variables are assumed to mediate the relationship in a comparable manner based on research highlighting the development of both, self-regulation, specifically of one’s emotions, and the course of ADHD symptomology throughout childhood and into young adulthood. As highlighted by this literature review, self-regulation, first structured by caregivers in early childhood, is later internalized and used in social and familial interactions. Diagnostically, core childhood symptoms of ADHD, including inattention, hyperactivity, and impulsivity must be present before 12 years of age (DSM-5; APA, 2013). This

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literature review has also highlighted the concept of emotional self-regulation as an executive function. Research has found that children do not begin to develop executive functioning skills until approximately 7 years of age and continue to develop these skills through young adulthood (Anderson, 2002). Therefore, a causal relationship was postulated, beginning with childhood ADHD symptomology to deficits in executive functions in late childhood and adolescents, with a specific effect on emotional dysregulation. Taken together, these three variables were hypothesized to negatively affect romantic relationship satisfaction and levels of emotion intolerance. This research provided the rationale for the order in which each mediating variable was entered into the analysis.

Mediation analyses were tested using the bootstrapping method with bias-corrected confidence estimates (Preacher & Hayes, 2004). In the present study, the 95% confidence interval of the indirect effects was obtained with 5000 bootstrap resamples (Preacher & Hayes, 2008). Results of the mediation analysis confirmed a total mediational effect in the relation between emotional dysregulation and romantic relationship satisfaction post-frustration ($B = -.48$, $t(137) = -6.33$, $p < .001$, $CI = -.63$ to $-.33$). In addition, results indicated that the direct effect of emotional dysregulation on romantic relationship satisfaction post-frustration was not significant ($B = .02$, $t(137) = .21$, $p = .83$) when controlling for all four mediators.

Further analysis revealed three of the four mediators demonstrated significant indirect effects, as evidenced by bootstrap confidence intervals that do not contain zero. The first shows the effect of emotional dysregulation on romantic relationship satisfaction post-frustration through ADHD symptomology (BAARS) and deficits in executive functions (BDEFS). This indirect effect is the product of $a_1 = .45$, $d_{21} = .49$, and $b_2 = -.17$ or $-.04$ with a 95% bootstrap confidence interval of $-.09$ to $-.00$. The next indirect effect flows from the emotional

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dysregulation on romantic relationship satisfaction post-frustration through deficits in executive functions (BDEFS) alone. This indirect effect is the product of $a_2 = .50$ and $b_2 = -.17$ or, $-.08$ with a 95% bootstrap confidence interval of $-.16$ to $-.01$. The final indirect effect carries the effect of emotional dysregulation on romantic relationship satisfaction post-frustration through romantic relationship satisfaction pre-frustration (RAS-1). This indirect effect is the product of $a_3 = -.41$ and $b_3 = .86$ or, $-.36$ with a 95% bootstrap confidence interval of $-.55$ to $-.18$. The mediation model also demonstrated a significant total indirect effect of $-.50$ with a confidence interval of $-.67$ to $-.35$. See Figure 12 for a graphical representation of the mediational model showing significant indirect effects of ADHD symptomology, deficits in executive functions, and romantic satisfaction pre-frustration (RAS-1) on emotional dysregulation and romantic satisfaction pre-frustration (RAS-1).

Discussion

In the past, researchers have investigated the processes that contribute to appropriate regulation of emotions, factors that lead to the dysregulation of emotions and the effects of poor self-regulation on social interactions and relationship satisfaction (see Biedermen et al., 2006; Canu & Carlson, 2007; Friedman et al., 2003; Murphy & Barkley, 1996; Ramsay, 2010; Thompson, 1994). Research has shown that adults with ADHD exhibit problems that interfere with maintaining romantic relationships especially when managing negative emotions (Robin & Payson, 2002; review in Barkley, 2006). It is not known whether young adults with high levels of emotional dysregulation, inattention, impulsivity and hyperactivity also report similar relationship challenges. Recent studies of college students suggest that anywhere from 2-8% report clinically significant levels of ADHD symptoms and that these students experience relationship difficulties (DuPaul et al., 2009).

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The current study was specifically designed to more fully investigate the relationships between emotional self-regulation, executive functions, ADHD symptomatology, and romantic relationship satisfaction using multiple regression analyses. Additionally, the study sought to explore the direct and indirect pathways by which poor emotional self-regulation affect romantic relationships either directly or whether symptoms of ADHD, executive functions and negative emotion intolerance mediate this relationship. In an effort to study these interactions, participants were exposed to an experimental task designed to elicit frustration to see if and how an induced negative emotional state would affect their ratings of romantic relationship satisfaction.

Hypothesis 1 predicted that participants with high rates of self-reported ADHD symptoms and deficits in executive functions would also report poor emotional self-regulation. Results of multiple regression analyses indicated that Hypothesis 1 was supported by the data which showed that: gender was not a significant predictor; and, current levels of self-reported ADHD symptoms and deficits in executive functions significantly predicted emotional dysregulation (DERS). When examining the total effects of these variables on emotional dysregulation, deficits in executive functions was the only significant predictor, indicating that scores on the BDEFS-IV added unique variance when predicting emotional dysregulation that was not explained by either gender or ADHD symptoms.

Although contemporary research has highlighted the differentiation between constructs of executive functioning, including emotional self-regulation; current methods of measuring these different constructs may be assessing more of their overlap rather than their fundamental differences. It is important to note the strong positive correlations among symptoms of ADHD, executive functions, and difficulties in emotion regulation (see Table 3). High levels of

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multicollinearity increase the probability that a good predictor (BAARS-IV) of the outcome will be found non-significant and rejected from the model. For example, the BAARS was significant at Step 1 of the model, but was no longer significant at Stage 2 of the model with the addition of the BDEFS. In essence, the BAARS-IV was significant in predicting high levels of emotional dysregulation; however, when the BDEFS was added to the model, the unique variance that the BAARS-IV contributed to the model was not only subsumed by the unique variance provided by the BDEFS-IV but it added more unique variance to the model. Thus, the overlapping symptoms and deficits measured by both the BAARS-IV and BDEFS-IV makes it difficult to assess the individual importance of the BAARS –IV as a predictor variable in the final stage of regression model.

The present results are consistent with contemporary research suggesting that there is an association between emotional self-regulation and executive functions (Barkley, 2012). Furthermore, study findings support Barkley and Murphy's (2007) contention that emotional regulation occurs when individuals possess developmentally appropriate skills in executive functioning in order to inhibit strong emotions which allows them to moderate negative mood states. Contemporary research has focused on ADHD as an executive function disorder, affecting multiple aspects of daily life, including emotional self-regulation in social and romantic relationships. The significant overlap in measurement of ADHD symptomology, executive functions, and dysregulation of emotions found in Hypothesis 1 provides support and future and future investigation of ADHD as an executive function disorder.

Hypothesis 2 predicted that high rates of self-reported ADHD symptoms, deficits in executive functions, and emotional dysregulation would independently predict lower levels of romantic relationship satisfaction (RAS-1, prior to induced frustration); and, that gender would

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not impact these interactions. Multiple regression analyses provided partial support for Hypothesis 2 and yielded the following results: (1) gender did not significantly impact these relationships; (2) when entered separately the study variables appeared to explain a small but significant amount of variance in the prediction model; and, (3) emotional dysregulation was the only significant predictor of romantic relationship satisfaction, when the study variables were examined simultaneously. The other study variables did not independently explain relationship satisfaction and were subsumed at each subsequent Stage of the regression model. For example, although ADHD symptomology added to the prediction model when entered with gender, it did not add significantly to our understanding of romantic relationship satisfaction in later stages of the regression analysis. The same could be said of deficits in executive functions (measured by the BDEFS-IV), which appear to partially explain relationship satisfaction but these deficits do not add anything unique to the model when emotional regulation entered the regression model. Again, it is important to note the high collinearity between the ADHD symptomology, executive function deficits, and emotional dysregulation scales, which increases the probability that although each of these factors are significant individual predictors of the outcome variable, they do not contribute enough unique variance to the final model to remain significant.

The last part of Hypothesis 2 tested the strength of individual subtests of the BDEFS-IV (Self Restraint and Self-Regulation) and the DERS (IMPULSE and STRATEGIES) to determine which subtests were more predictive of relationship satisfaction. Although the DERS Impulse subscale was the only significant predictor in the regression analyses, subtest variables were less robust than the total scores from either measure (BDEFS-IV and DERS).

These results are consistent with previous research showing that difficulties in emotional regulation have a negative impact on social relationships (Gudjonsson et al., 2009; Young &

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Gudjossan, 2008), and provide evidence that emotional self-regulation also affects romantic relationship satisfaction in young college students. Symptoms of ADHD in adulthood tend to be expressed as talking with thinking, forgetting conversations, and difficulty regulating negative emotions which all have been found to negatively impact romantic relationships (Robin & Payson, 2002; review in Barkley, 2006). These symptoms are less similar to childhood symptoms of ADHD but are instead a reflection of deficits in emotional self-regulation as an executive function, which lead to more difficulties maintaining romantic relationships (Biedermen et al., 2006; Canu & Carlson, 2007; Eakin et al., 2004).

The current study lends some support to previous research showing that aspects of social interactions are related to symptoms of ADHD (Biedermen et al., 2006; Canu & Carlson, 2007; Eakin et al., 2004; Robin & Payson, 2002; review in Barkley, 2006); and, deficits in executive functions (Barkley, 2012; Barkley & Fischer, 2010; Barkley, Murphy & Fischer, 2007). However, it is important to note that ADHD symptoms alone were not as powerful for predicting relationship satisfaction when compared to executive functions and emotional regulation. Scores on the DERS remained robust after parsing out the effects of ADHD symptoms and deficits in executive function, and appeared to be capturing something unique in this study. While simple correlations show that BAARS-IV (-.29), BDEFS (-.39), and DERS (-.47) are negatively related to relationship satisfaction (see Table 3), multivariate regression techniques are recommended for studying these complex interactions because they take into account how the independent variables are correlated. However, it is important to recognize potential effects of multicollinearity in each of the hierarchical regressions in this study. Finally, it is important to note that a significant portion of the variance in relationship satisfaction (78%) could not be explained by the variables under study. Future studies will need to explore additional

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independent variables to have a more complete understanding of romantic relationship satisfaction in college students. These could include maturity of the relationship; educational, family, or social stress; and comorbid mental health diagnoses for either partner.

Hypothesis 3 had two parts – Hypothesis 3(a) predicted that participants with poor self-regulation of emotions (DERS) would report high levels frustration (CLF) following the modified Stroop Task; and, would also have high rates of negative emotion intolerance (FDS). Bivariate correlation analysis results indicated that Hypothesis 3(a) was supported such that there was a moderate positive correlation between scores on the DERS and scores on the emotion intolerance scale, indicating that participants with higher levels of emotional dysregulation also reported more emotion intolerance following the modified Stroop Task. The analysis also indicated a moderate positive correlation between scores on the CLF scale and scores on the emotion intolerance scale, showing that following completion of the modified Stroop Task, participants with higher current levels of frustration also reported more emotion intolerance. Finally, the correlation analysis indicated a weak positive correlation between scores on the DERS and scores on the CLF scale, demonstrating that participants with higher levels of emotional dysregulation also reported higher current levels of frustration following completion of the modified Stroop Task. Gender was found not to be significantly correlated with any of these interactions.

The current findings are consistent with a number of previous studies. For example, Barkley (2009) reported that deficits in self-regulation were expressed as emotional impulsiveness and poor inhibition of inappropriate behaviors especially in the face of strong emotions, and were present in individuals with ADHD and executive function deficits. Difficulties managing and/or suppressing negative emotions were expressed as low frustration

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tolerance, impatience, quickness to anger, and greater emotional excitability and reactivity.

Mitchel et al. (2013) also found that adults with poor emotional self-regulation reported significantly high levels of emotion intolerance. In a treatment study of adults with ADHD, non-pharmacological mindfulness therapy improved executive functions including self-management, and produced significant gains in emotional regulation and stress tolerance in the face of aversive emotional situations. Two scales utilized to test Hypothesis 3(a) in the current study were employed under experimental conditions to assess pre and post treatment outcomes for adults with ADHD (Mitchel et al., 2013).

Hypothesis 3(b) predicted that participants with low relationship satisfaction scores following the frustration task (RAS-2) would report high current levels of frustration and high rates of emotion intolerance; and, that gender would not contribute to the prediction. Study results indicated that Hypothesis 3(b) was supported as participants with high current levels of frustration and high levels of emotion intolerance also reported low levels of romantic relationship satisfaction following the frustration task regardless of gender. When examining the effects of all three variables together, emotion intolerance was the only significant predictor of romantic relationship satisfaction scores (RAS-2) after completing the experimental task to induce frustration. High scores on the emotion intolerance subscale indicated that participants in the present study were not able to successfully manage induced negative emotions, including frustration.

The current findings appear to be consistent with several studies. Gottman (1979, 1994) demonstrated that satisfied couples were more likely to discuss issues of disagreement, whereas dissatisfied couples were likely to minimize or avoid conflict. When couples were unable to inhibit or tolerate negative emotions in order to effectively work through conflicts by

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communicating feelings, relationship satisfaction suffers. Other studies have reported that impaired emotional control was related to social problems and lower life satisfaction (Gudjonsson et al., 2009), and greater friendship problems, poor social functioning and greater friendship problems (Young & Gudjonsson, 2008).

Hypothesis 4 predicted that impaired self-regulation of emotions (DERS) would have a direct effect on relationship satisfaction (RAS-2), following an induced frustration task (STROOP), which would be mediated by ADHD symptomology (BAARS-IV), deficits in executive functioning (BDEFS-IV), pre-frustration relationship satisfaction (RAS-1), and levels of emotion intolerance. The mediational analyses revealed the mediation of emotional dysregulation on romantic relationship satisfaction post-frustration by ADHD symptomology, deficits in executive functions, negative emotion intolerance, and romantic relationship satisfaction pre-frustration. A significant total effect and absence of a significant direct effect indicates that emotional dysregulation affects romantic relationship satisfaction post-frustration by multiple mediators, ADHD symptomology (BAARS), deficits in executive functions (BDEFS), emotion intolerance, and romantic relationship satisfaction pre-frustration (RAS-1). Three specific indirect effects of study variables were significant and will be discussed in detail.

The first significant indirect effect was found between emotional dysregulation on romantic relationship satisfaction post-frustration through ADHD symptomology (BAARS) and deficits in executive functions (BDEFS). Individuals with higher deficits in emotional dysregulation (DERS) (.4486 units higher) reported higher levels of ADHD symptomology (BAARS) and more deficits in executive functions (BDEFS), which then was associated with lower romantic relationship satisfaction after the induced frustration (RAS-2). This indirect effect was independent of the influence of other study variables including emotion intolerance or

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pre-frustration romantic relationship satisfaction (RAS-1). These results indicate that emotional dysregulation influences romantic relationship satisfaction (RAS-2) only in the presence of high levels of ADHD symptomology and high deficits in executive functioning. These findings are consistent with previous research showing that, in addition to deficits in executive functions (Barkley, 2012; Barkley & Murphy, 2007) individuals with ADHD symptomology also demonstrate emotional dysregulation. Some argue that emotion dysregulation is an aspect of executive functions (EF), and is an “additional feature of ADHD that should be incorporated into theoretical conceptualizations and diagnostic criteria” (Mitchell et al., 2012, p. 511). These findings expand previous studies showing that emotional dysregulation is causally linked with romantic relationship dissatisfaction through ADHD symptoms and executive function deficits.

The second significant indirect effect was found between emotional dysregulation on romantic relationship satisfaction post-frustration (RAS-2) through deficits in executive functions (BDEFS) alone. Individuals with more deficits in emotional dysregulation (DERS) (.5030 units more), reported more deficits in executive functions (BDEFS) which then affected romantic relationship satisfaction post-frustration (RAS-2). This indirect effect was independent of ADHD symptomology (BAARS), emotion intolerance or pre-frustration romantic relationship satisfaction (RAS-1). The second significant indirect effect in the mediational model is consistent with studies showing the interaction between emotional regulation and social relationships (Gudjonsson et al., 2009; Young & Gudjonsson, 2008; Robins & Payson, 2012).

The third significant indirect effect was found between emotional dysregulation on romantic relationship satisfaction post-frustration through romantic relationship satisfaction pre-frustration (RAS-1). Participants with more deficits in emotional dysregulation (DERS) (.4128 units higher) reported lower romantic relationship satisfaction ratings pre-frustration (RAS-1)

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which then indirectly affected how they rated their romantic relationship satisfaction post-frustration (RAS-2). This last effect was independent of other study variables including ADHD symptomology (BAARS), deficits in executive functions (BDEFS), and emotion intolerance. This indirect effect is consistent with previous literature showing that emotional dysregulation is associated with poor romantic relationship satisfaction (Robin & Payson, 2002; review in Barkley, 2006; Biedermen et al., 2006; Canu & Carlson, 2007; Eakin et al., 2004). However, the current study extends these findings using an experimentally induced frustration task and further supports the strength of the interaction between poor emotional regulation and romantic relationship satisfaction.

Interestingly, the complete mediation of emotional dysregulation on romantic relationship satisfaction after completion of the modified Stroop Task as well as each of the three significant indirect affects appear to contradict Hypothesis 2, in which the DERS was the only significant predictor in the final stage of the regression model to predict relationship satisfaction. High levels of multicollinearity among the BAARS-IV, BDEFS-IV, and DERS increases the possibility that any of these three variables could be used as a mediator or as an independent variable. For example, Barkley (2009) hypothesized those deficits in executive functioning, specifically emotional dysregulation, may partially explain difficulties in social interactions, providing support for emotional dysregulation as the mediator.

Study Limitations

The current study had several limitations that should be addressed in future research. First the task designed to induce frustration did not appear to significantly impact ratings of romantic relationship satisfaction. Previous researchers indicate a relationship between the speed at which the stimuli are presented during the Stroop and increased arousal, tension, and frustration (Klein,

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1964; Thackray & Jones, 1971). Although the task appeared effective in producing moderate frustration levels for two-thirds of the participants, general levels of frustration did not produce significant changes in how participants' rated their romantic relationships. While completing the modified Stroop task, participants frequently showed behavioral and verbal signs of frustration, anger, and fatigue. However, when asked to rate their current level of frustration immediately following the Stroop, less than ten percent (9.3%) of the participants indicated severe frustration. It seems apparent that general levels of frustration, over a short period of time, do not appreciatively impact how one views their romantic relationships even for individuals with high rates of ADHD symptoms, EF deficits and poor emotional regulation. This can be contributed to differences in state feelings (i.e., present activity, temporary states of mind, and mood) versus trait feelings (i.e., consistent and stable modes of an individual's adjustment to his environment) (Allport & Odbert, 1936). Majority of participants in the study experienced state frustration following the completion of the modified Stroop Task but did not experience trait frustration. The task did not evoke a level of frustration indicative of the participants' adjustment to his or her romantic relationship. Furthermore, a task that specifically depicted angry or frustrating interactions, or happy and romantic interactions between couples might also have a more direct impact on ratings of romantic relationship satisfaction. These hypotheses could be addressed in future studies.

A second limitation of this study is related to researcher error that occurred prior to the induced frustration task, which may have influenced the effectiveness of the modified Stroop task. A baseline level of frustration before each participant completed the task was not collected. Unfortunately, this may limit how we interpret the effectiveness of the experimental task because pre-induced frustration levels were not controlled in the study. Although a significant number of

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participants expressed frustration, anger, and fatigue while completing the modified Stroop task, these anecdotal observations were not reflected in quantitative scores on the current level of frustration (CLF) scale. It is unknown whether participants experienced an increase in frustration from prior to completion of the modified Stroop Task. This lack of change in frustration level may explain the absence of significant change on how participants rated their romantic relationships prior to and following completion of the modified Stroop Task.

A third limitation of this study is related to the scale that was used to measure current frustration level. The CLF scale was created solely for the purposes of this study and there are no reliability or validity scales to support its effectiveness. Although the CLF was utilized in two separate analyses related to Hypothesis 3 (a) and (b), when factored into a hierarchical regression model it did not provide significant unique variance that was not explained by the negative emotion intolerance scale. It is possible that a more robust, validated measure of current level of frustration may have produced different models when testing for associations between frustration level, romantic relationship satisfaction, and emotional dysregulation.

A fourth limitation of this study is the context in which the participants completed the experiment. Although the lab was spacious and provided privacy with individual computer stations, participants completed the experiment in groups of five and were typically seated next to one another. This experimental environment may have led to a social desirability bias that affected how participants rated their level of frustration after completing the Stroop task. Participants may have reported lower levels of induced frustration in order to be viewed more favorably by their nearby peers and/or by the researcher.

A final limitation in the study is that romantic dyads were not available, and all results were based upon self-report measures. Although there was a wide range in reported levels of

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ADHD symptomology, deficits in executive functions, and emotion dysregulation, these scores could have been skewed by a number of factors including social desirability, characteristics of the romantic relationship (i.e., length, intimacy, stability, etc.), and/or the participant's baseline mood at time of participation in the study. It would have been useful to compare self-reports with a romantic partner's reports on these measures in order to better understand romantic relationship satisfaction in the context of ADHD symptomology and emotional dysregulation. Also, the current findings were based on a relatively homogeneous, non-clinical sample of young adults in college. It would be useful to examine ADHD symptomology, executive functions, emotion regulation, and romantic relationship satisfaction in a more developmentally diverse population or one with more varied backgrounds.

It is also important to note the effect of multicollinearity on each hierarchical multiple regression analyzed in this study. The BAARS-IV, BDEFS-IV, and DERS were highly correlated, indicating a significant overlap in the measurement tools to assess different but closely associated constructs. Therefore, reporting these variables as independent predictors of another should be done cautiously, as these three variables are more correlational in nature than causal.

General Conclusions and Future Directions

This present study employed psychological self-report measures, as well as an experimental task designed to induce frustration, to better understand the interaction(s) between ADHD symptomology, executive functions, emotional self-regulation and romantic relationship satisfaction. Results indicated that ADHD symptomology and deficits in executive functions are related to greater emotional dysregulation. In addition, these three variables are related to lower levels of romantic relationship satisfaction. There are significant clinical implications for

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understanding these relationships. Primarily, one's ability or lack thereof, to regulate emotions should be considered when examining executive functioning, specifically in the context of ADHD and its impact on romantic relationship satisfaction.

Participants in this study did not receive an evaluation to determine a clinical diagnosis of ADHD. Additionally, because participants were only asked about a current or previous ADHD diagnosis at the end of the study, diagnostic label was irrelevant when examining the significant relationship found between ADHD symptomology and deficits in executive functions. These findings are more consistent with a dimensional approach of ADHD, which adds support to current trends in the clinical field. This may be important when studying young college students, who may not continue to present the traditional childhood symptoms of hyperactivity, impulsivity, and inattention. Instead, this population may experience greater difficulty in executive functioning, including difficulties regulating emotions, coping with negative emotions, managing rapidly fluctuating emotions, and over-reacting to situations, which have been shown to negatively impact social and romantic relationships.

The modified Stroop task used to induce frustration did not significantly change perceptions of romantic relationship satisfaction. Future research using films, video clips or short vignettes depicting emotionally charged relational interactions may evoke stronger reactions that help us better understand how deficits in emotional regulation impact reports of romantic satisfaction. Research investigating potential protective factors that may result from having a supportive romantic relationship is virtually non-existent. The extent to which individuals with high rates of ADHD symptoms and EF deficits may learn to regulate negative emotions through supportive relationships appears to be worthy of careful investigation.

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More research utilizing romantic dyads is needed to fully understand how these variables directly affect romantic relationship satisfaction. Ideally, future research should examine these variables for both partners of the romantic relationship. Researchers could also create experimental conditions where dyads are directly observed while interacting, solving a conflict and handling negative emotions. This would be useful in understanding how couples, in which one or both partners, experience significant ADHD symptomology and deficits in executive functions are able to self-regulate their emotions when facing real-life scenarios and how this affects their overall satisfaction with their partners. In contrast to handling negative emotions or conflicts, it would be interesting to show dyads a video clip or a confederate couple during a happy, positive interaction to compare how this could affect any potential conflicts or negative emotions the dyad is asked manage.

Although the ideal future study would involve both partners of the relationship, it would also be longitudinal. By following individuals from childhood into adulthood, researchers could more systematically investigate how levels of ADHD symptomology and deficits in executive functioning interact over time, the risk and protective factors that might increase or mitigate poor emotional regulation, and treatment strategies that may improve functional outcomes. Studies of this nature are expensive and difficult to manage especially when following individuals over a large time span – this is especially true for individuals with ADHD who experience numerous adverse life events. A possible alternative to the longitudinal design would be a cross sectional design where participants across various ranges could be studied. It might also be helpful to collect retrospective data from family members, teachers, friends and romantic partners. These data could also provide a validity check of self-report measures and would be a viable method

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for studying the accuracy of ratings for individuals who may lack self-awareness, particularly in the context of social interactions involving negative or volatile emotions.

Finally, the current study used young adults currently enrolled in a four-year university with fairly homogeneous demographics. Future studies should include young adults with more diverse backgrounds, socioeconomic status, and educational opportunities and abilities in order to collect data that could generalize to a wider community. Given the high rates of school drop-out and the limited number of individuals who pursue advanced degrees, it would also be important to include a non-college, community cohort of individuals with ADHD.

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Table 1

Participant Demographics

Variable	<i>n</i>	Percent of Sample
Ethnicity		
Caucasian	75	54%
African American	50	36%
Hispanic	5	4%
Asian	3	2%
Other	6	4%
Gender		
Male	22	16%
Female	117	84%
Class Year		
Freshman	102	73%
Sophomore	21	15%
Junior	13	9%
Senior	3	2%
Previous Diagnoses		
None	121	87%
ADD/ADHD	22	16%
Major Depression	6	4%
Anxiety	1	0.7%
Adjustment Disorder	1	0.7%
Current Medication for ADHD		
No	125	90%
Yes	14	10%

Note. Total sample size $N = 139$.

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Table 2

Psychometric Properties of the Major Study Variables

Variable	Range		α	Potential	Actual
	<i>M</i>	<i>SD</i>			
BAARS	29.45	7.34	.92	18-72	18-51.46
BDEFS	151.88	36.82	.93	89-356	94-266.78
DERS	77.64	21.16	.93	36-144	36-143.37
RAS-1	28.06	4.82	.87	7-35	15-35
CLF	3.19	1.84	-	0-7	0-7
Emotion Intolerance	19.48	5.94	.86	7-35	7-35
RAS-2	28.26	4.90	.87	7-35	14-35

Note. BAARS=Barkley Adult ADHD Rating Scale current symptoms; BDEFS=Barkley Deficits of Executive Function total score; CSI= Couples Satisfaction Index; RAS-1= Relationship Assessment Scale pre-frustration task; DERS= Difficulties in Emotion Regulation Scale; CLF= current level of frustration; Emotion Intolerance=subscale from Frustration Discomfort Scale, RAS-2= Relationship Assessment Scale post-frustration task.

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Table 3

Intercorrelation Matrix

Measure	1	2	3	4	5	6	7	8	9	10	11
1 BAARS	-	.72**	.65**	.41**	.45**	.33**	.31**	-.30**	.17*	.23**	-.33**
2 BDEFS		-	.79**	.70**	.73**	.57**	.58**	-.39**	.15	.39**	-.45**
3 BDEFS SR			-	.61**	.60**	.54**	.48**	-.37**	.08	.36**	-.43**
4 BDEFS SRE				-	.74**	.67**	.77**	-.38**	.15	.44**	-.38**
5 DERS					-	.75**	.86**	-.47**	.19*	.48**	-.48**
6 DERS IM						-	.67**	-.41**	.05	.35**	-.41**
7 DERS ST							-	-.40	.18*	.51**	-.41**
8 RAS-1								-	-.18*	-.33**	.90**
9 CLF									-	.40**	-.17*
10 Emotion Intolerance										-	-.31**
11 RAS-2											-

Note. All raw scores were converted to z-scores; BAARS=Barkley Adult ADHD Rating Scale current symptoms; BDEFS=Barkley Deficits of Executive Function scale total score; BDEFS Self-Restraint subscale; BDEFS Self-Regulation of Emotion = subscale; DERS= Difficulties in Emotion Regulation Scale, DERS Impulse = subscale; DERS Strategies = subscale; RAS-1= Relationship Assessment Scale pre-frustration task; CLF= current level of frustration; Emotion Intolerance=subscale from Frustration Discomfort Scale; RAS-2= Relationship Assessment Scale post-frustration task.

* $p < .05$. ** $p < .001$.

Table 4

Summary of Hierarchical Linear Regression Analyses for Variables Predicting Difficulties in Emotional Dysregulation

Variable	Model 1			Model 2			Model 3		
	<i>B</i>	<i>SE B</i>	β	<i>B</i>	<i>SE B</i>	β	<i>B</i>	<i>SE B</i>	β
Gender	.11	.23	.04	.30	.21	.11	.31	.16	.11
BAARS	-	-	-	.47	.08	.47**	-.14	.08	-.14
BDEFS	-	-	-	-	-	-	.02	.00	.84**
R ²	.00			.21			.55		
<i>F</i>	.22			18.39			54.88		

Note. Raw scores were converted to z-scores for regression analysis. BAARS= Barkley Adult ADHD Rating Scale current symptoms; BDEFS=Barkley Deficits of Executive Function scale total score; DERS= Difficulties in Emotion Regulation Scale.

* $p < .05$. ** $p < .001$.

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Table 5

Summary of Hierarchical Linear Regression Analyses for Variables Predicting Difficulties in Romantic Relationship Satisfaction Prior to Induced Frustration Task (RAS-1)

Variable	Model 1			Model 2			Model 3			Model 4		
	<i>B</i>	<i>SE B</i>	β									
Gender	.01	.23	.01	-.11	.23	-.04	-.11	.22	-.04	.01	.21	.01
BAARS	-	-	-	-.31	.08	-.31**	-.05	.12	-.05	-.11	.11	-.11
BDEFS	-	-	-	-	-	-	-.35	.11	-.35*	-.01	.15	-.01
DERS	-	-	-	-	-	-	-	-	-	-.41	.11	-.41**
R ²	.00			.09			.06			.08		
<i>F</i>	.00			6.80			8.02			9.92		

Note. Raw scores were converted to z-scores for regression analysis. BAARS= Barkley Adult ADHD Rating Scale current symptoms; BDEFS=Barkley Deficits of Executive Function scale total score; RAS-1= Relationship Assessment Scale (prior to induced frustration); DERS= Difficulties in Emotion Regulation Scale

* $p < .05$. ** $p < .001$.

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Table 6

Bivariate Correlation Matrix

Measure	Male	Female	DERS	CLF	Emotion
Male	-	-1.00**	-.04	-.02	-.08
Female		-	.04	.02	.08
DERS			-	.19*	.48**
CLF				-	.40**
Emotion					-

Note. Raw scores were converted to z-scores for regression analysis. DERS= Difficulties in Emotion Regulation Scale is Independent Variable; CLF= current level of frustration; Emotion Intolerance=subscale scores from Frustration Discomfort Scale; DERS= Difficulties in Emotion Regulation Scale

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

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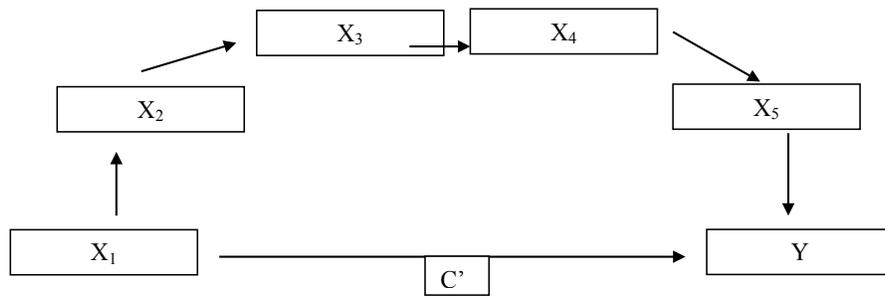
Table 7

Summary of Hierarchical Linear Regression Analyses for Variables Predicting Relationship Satisfaction After Completion of Frustration Task (RAS-2)

Variable	Model 1			Model 2			Model 3		
	<i>B</i>	SE <i>B</i>	β	<i>B</i>	SE <i>B</i>	β	<i>B</i>	SE <i>B</i>	β
Gender	-.01	.23	-.01	-.00	.23	-.00	.05	.22	.02
CLF	-	-	-	-.17	.08	-.17*	-.06	.09	-.06
Emotion	-	-	-	-	-	-	-.29	.09	-.29**
R ²		.00			.03			.10	
<i>F</i>		.00			2.10			5.09	

Note. Raw scores were converted to z-scores for regression analysis. CLF= current level of frustration; Emotion Intolerance=subscale from Frustration Discomfort Scale; RAS-2= Relationship Assessment Scale after induced frustration task.

* $p < .05$. ** $p < .001$



Serial mediation example. X_1 = DERS

Figure 1. Model of Serial Mediation Model: (IV); X_2 = BAARS (M_1); X_3 = BDEFS (M_2); X_4 = RAS-1 (M_3); X_5 = Emotion Intolerance (M_4); Y = RAS-2(DV). This figure was described in Hayes (2012).

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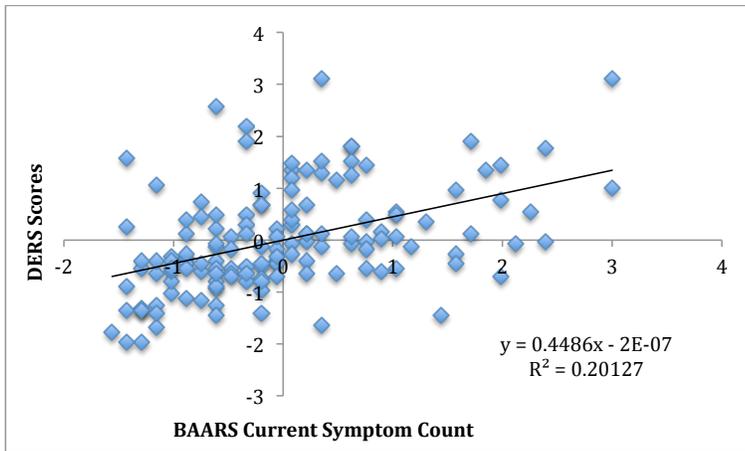


Figure 2. A scatter-plot style graph showing the relationship between BAARS-IV current symptom counts z-scores (x-axis) and DERS z-scores (y-axis).

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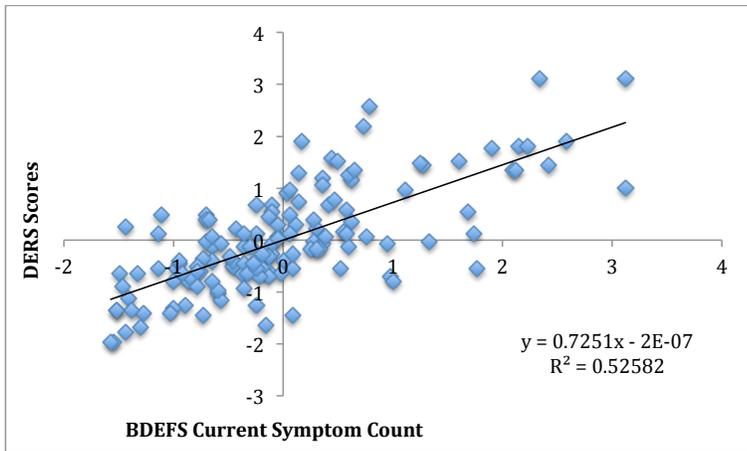


Figure 3. A scatter-plot style graph showing the relationship between BDEFS-IV current symptom count z-scores (x-axis) and DERS z-scores (y-axis).

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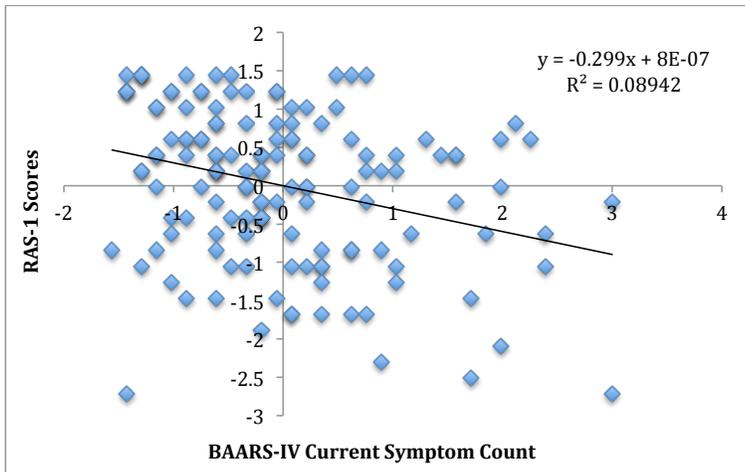


Figure 4. A scatter-plot style graph showing the relationship between BAARSS-IV current symptom count z-scores (x-axis) and RAS-1 z-scores (y-axis).

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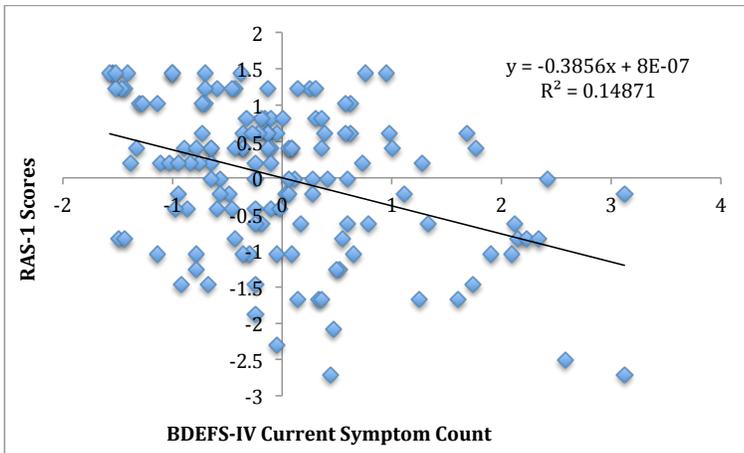


Figure 5. A scatter-plot style graph showing the relationship between BDEFS-IV current symptom count z-scores (x-axis) and RAS-1 z-scores (y-axis).

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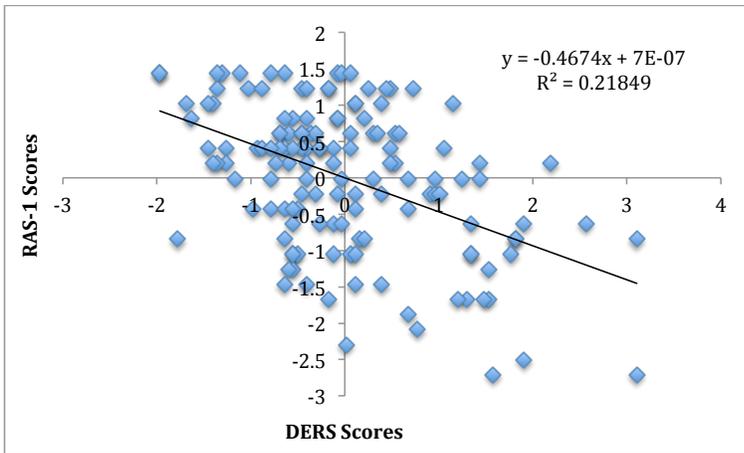


Figure 6. A scatter-plot style graph showing the relationship between DERS z-scores (x-axis) and RAS-1 z-scores (y-axis).

EMOTIONAL SELF-REGULATION

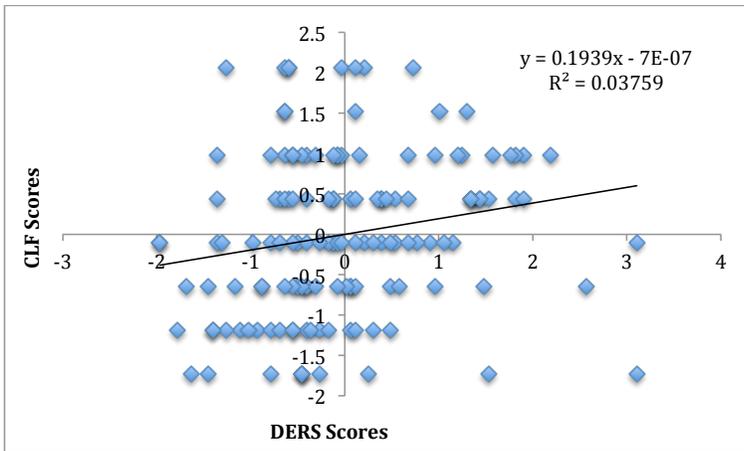


Figure 7. A scatter-plot style graph showing the relationship between DERS z-scores (x-axis) and CLF z-scores (y-axis).

EMOTIONAL SELF-REGULATION

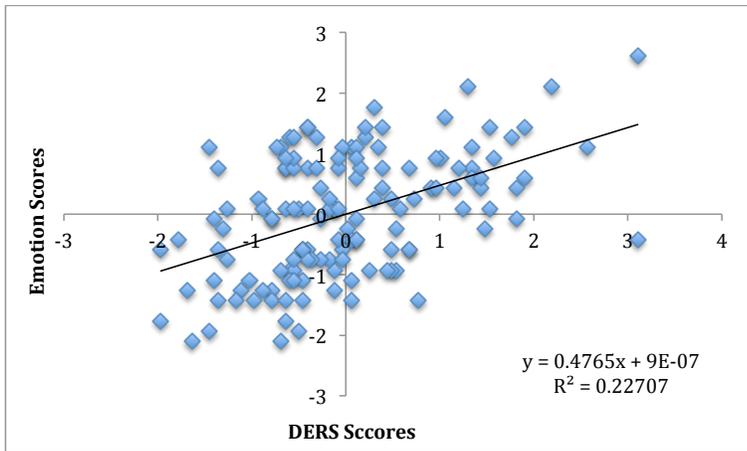


Figure 8. A scatter-plot style graph showing the relationship between DERS z-scores (x-axis) and Emotion Intolerance z-scores (y-axis).

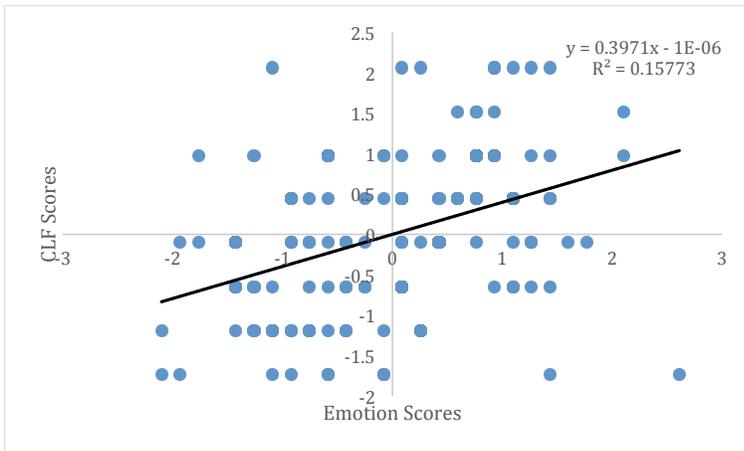


Figure 9. A scatter-plot style graph showing the relationship between Emotion Intolerance z-scores (x-axis) and Current Level of Frustration z-scores (y-axis).

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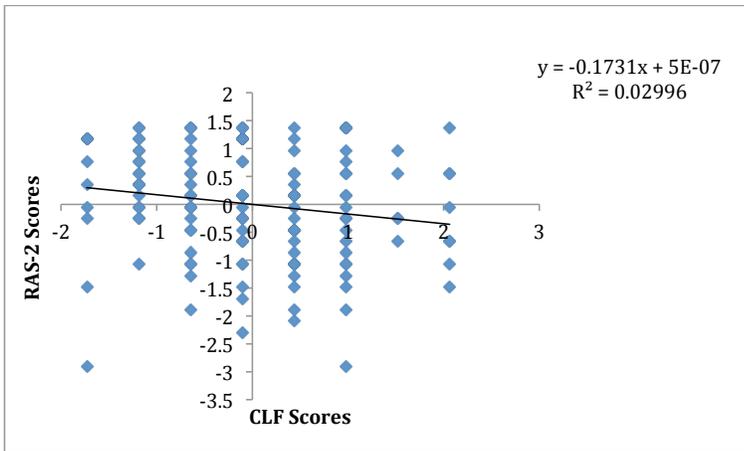


Figure 10. A scatter-plot style graph showing the relationship between CLF z-scores (x-axis) and RAS-2 z-scores (y-axis).

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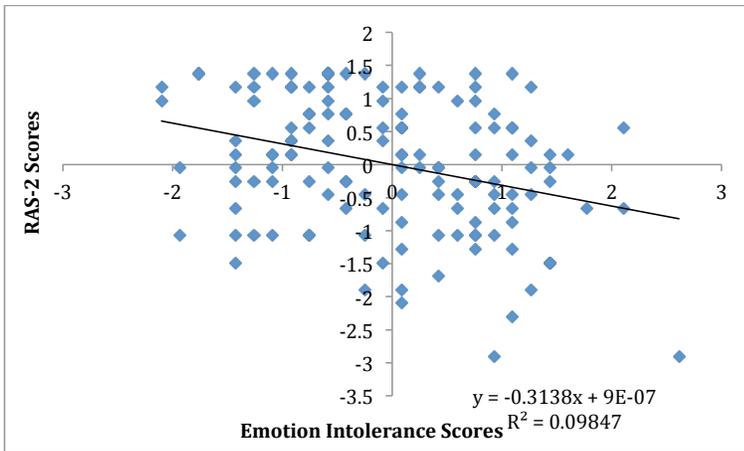


Figure 11. A scatter-plot style graph showing the relationship between Emotion Intolerance z-scores (x-axis) and RAS-2 z-scores (y-axis).

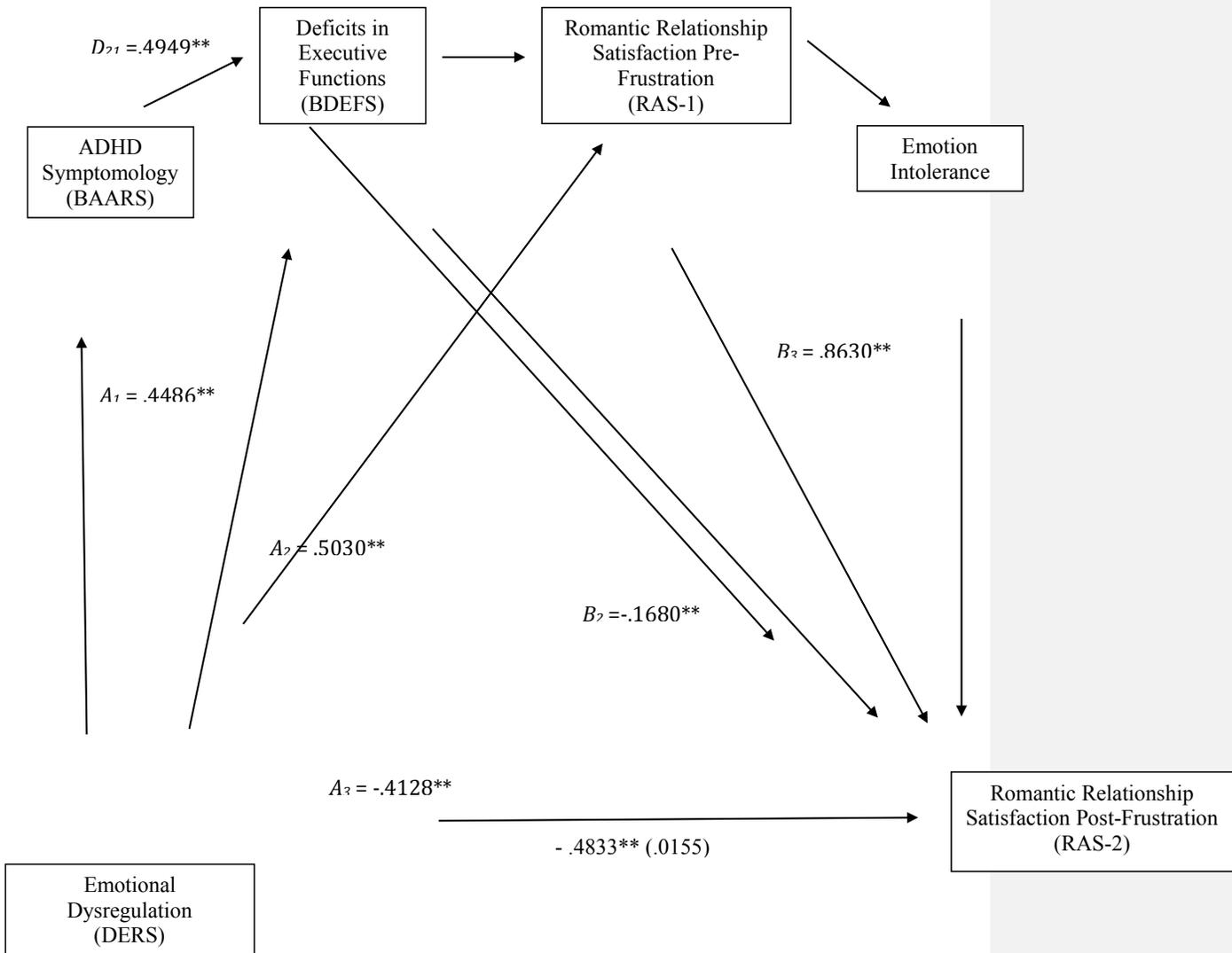


Table 12. Mediational Model of the Direct and Significant Indirect Effects Related to RAS2

Note. Significant Indirect Effects are as follows:

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$$A_1 * D_{21} * B_2 = -.0373$$

$$A_2 * B_2 = -.0845$$

$$A_3 * B_3 = -.3563$$

** $p < .001$.

Appendix A

Informed consent document

**Consent Form****The Effects of Emotional Self-Regulation on Relationship Satisfaction****in Young Adults**

Murphy Harrell, B.S.

Introduction

You are invited to participate in a research study conducted by Murphy Harrell. I am a graduate student in the Psychology Department of University of South Carolina Aiken. I am conducting a research study as part of the requirements for my Master of Science degree in Applied Clinical Psychology, and I would like to invite you to participate. The purpose of the study is to explore the relationship between difficulties in controlling emotions and romantic relationship satisfaction. This form explains what you will be asked to do if you decide to participate in this study. Please read it carefully and feel free to ask any questions you like before you make a decision about participating.

Eligibility to Participate

Approximately 130 young adults will participate in the current study. You must meet the following criteria: 1) fluent in English; 2) be able to provide informed written or verbal consent; 3) be between the ages of 18 and 29; and 4) currently be in a romantic relationship defined as having feelings of intimacy (feeling understood and validated by the other), feelings of passion (romance, physical and sexual attraction, as in strong emotions), and/or feelings of commitment (deciding about and maintaining love) with another person.

Description of Study Procedures

If you qualify and agree to participate, you will take part in 1 session with a time length of approximately an hour and a half. At the beginning of the session you will be asked to review the

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informed consent and sign your name indicating completion of this review. Once the informed consent is signed, you will be given a series of questionnaires to complete. Examples of questions you will be asked on the questionnaires include: “I am clear about my feelings,” “I procrastinate or put off things until the last minute,” and “In general, how satisfied are you with your relationship?”

Following the completion of the questionnaires you will be asked to complete a task on the computer for approximately ten minutes. Once you have completed the computer task, a second packet of questionnaires will be presented to you on the computer screen for you to complete. After the second packet of questionnaires has been completed, you will be given a brief summary of the study and contact information about where you can learn the results of the study. If any of the questions asked of you during this study make you feel uncomfortable, you have the option to not respond.

Statement of Risks

The primary risk of participating in this study is loss of confidentiality. However, your information will only be identifiable by a participation number during the data collection period. Your name and associated participant number will be kept on paper in a locked drawer separate from the data collected. At the completion point of data collection this paper will be destroyed. Your name on this signed consent form will be kept locked and separate from all other data and will be destroyed after the completion of the study upon approval of successful completion of thesis research and after required period of time as stated by institutional, federal, and state guidelines regarding human subject research. Access to this information will be limited to Primary Investigator, Murphy Harrell and Research Supervisor, Dr. Anne Ellison.

Benefits of Participation

Taking part in this study is not likely to benefit you personally. However, this research may help us understand the role of emotional dysregulation in romantic relationship satisfaction.

Research Credit

Participants will receive 1.5 hours research participation credit if participants are using study participation to fulfill course related research learning points. You will be provided a signed proof of participation for your records and your professors/instructors.

Data Confidentiality and Participant Identification

Your name will not be used in any publication that may result from this study. The USC Office of Research Compliance may request access to this form to ensure procedures designed to protect research participants are being properly followed. In order to maintain privacy and confidentiality, all data will be numerically coded rather than filed by name or other identifying information. As the results of this study may be published and shared, every reasonable effort will be made to remove identifiers from the data that would indicate any connection to you (e.g. the removal of your name, address, etc.). Any information that is obtained in connection with this study that could identify you will remain confidential and will not be released or disclosed without your written consent, except as specifically required by law.

Participation will be confidential. A number will be assigned to each participant at the beginning of the project. This number will be used on project records rather than your name, and no one

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other than the researchers will be able to link your information with your name. Study data will be stored in locked filing cabinets and protected computer files at the University of South Carolina Aiken. There is always a slight risk confidentiality can be broken but we will do everything to ensure this does not occur.

Voluntary Withdrawal

Participation in this study is voluntary. You are free to withdraw your consent and discontinue participation in the study at any time throughout the study without negative consequences to your relationship with the University of South Carolina. In the event that you do withdraw from this study, the information you have already provided will be kept in a confidential manner.

Contact Persons

Faculty and researchers of the University of South Carolina Aiken are conducting this research. For more information concerning this research, you may contact:

Dr. Anne Ellison
 Department of Psychology
 Phone Number (Office): 803-641-3219
 Email Address: AnneE@usca.edu

Murphy Harrell
 Department of Psychology
 Phone Number (Cell) 336-681-4947
 Email Address: harrelmn@email.usca.edu

If you have any questions about your rights as a research subject contact, Lisa Marie Johnson, IRB Manager, Office of Research Compliance, University of South Carolina, 901 Sumter Street, Byrnes 515, Columbia, SC 29208, Phone: (803) 777-7095 or LisaJ@mailbox.sc.edu. The Office of Research Compliance is an administrative office that supports the USC Institutional Review Board. The Institutional Review Board (IRB) consists of representatives from a variety of scientific disciplines, non-scientists, and community members for the primary purpose of protecting the rights and welfare of human subjects enrolled in research studies.

Participant Signatures

I have read this informed consent form and have been given a chance to ask questions about this research study. These questions have been answered to my satisfaction. I agree to participate in this study. I have received (or will receive) a copy of this form for my own records.

Participant _____ Date ____/____/____

Investigator _____ Date ____/____/____

Appendix B

Demographics Questionnaire Part A: Please answer the following questions about *yourself*.

1. What is your age? _____

2. Class Standing (circle one): Freshman Sophomore Junior Senior

3. What is your gender? Male _____ Female _____

4. Which of the following best describes your racial background?

African-American _____ Caucasian _____ Asian _____

Native American _____ Hispanic _____ Other _____, describe: _____

5. Are you currently in a romantic relationship? _____ YES _____ NO

How long have you been in your current relationship? _____ Months _____ Years

Have you been in other romantic relationships in the past? _____ YES _____ NO

How long did your longest relationship last? _____

6. Do you currently have or have had a history of seizures or epilepsy? _____ YES _____ NO

If yes, at what age did you have your first seizure? _____

How many seizures have you had in total? _____

Do you currently take medication for seizures or epilepsy? _____ YES _____ NO

7. Do you currently take any prescription medication? _____ YES _____ NO

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If yes, please list the medications you take and what you take them for, including dosage.

8. Have you been diagnosed with any mental or physical health condition/disorder?

_____ YES _____ NO

If so, what? _____

9. Do you wear prescription corrective lenses or contacts? _____ YES _____ NO

If yes, are you wearing them today? _____ YES _____ NO

10. Do you have any visual or hearing deficits that would prevent you from participating today?

_____ YES _____ NO

If yes, please describe: _____

Demographics Questionnaire Part B: ADHD Specific Information

Have you ever been diagnosed with Attention Deficit Hyperactivity Disorder?

_____ YES _____ NO

If yes, at what age were you diagnosed? _____

Are you currently taking any medication for ADHD? _____ YES _____ NO

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If yes, please list the ADHD medication and the dosage:

Did you take ADHD medication today? _____ YES _____ NO

If so, what time did you take the medication today? _____

Have you taken ADHD medication in the past? _____ YES _____ NO

If yes, at what age did you start taking the ADHD medication? _____

Appendix C

How often do you experience each of these problems? Please circle the number next to each item that best describes your behavior **DURING THE PAST 6 MONTHS**. Please ignore the sections marked "Office Use Only."

Section 1 Items	Never or Rarely	Sometimes	Often	Very Often
1. Procrastinate or put off things until the last minute	1	2	3	4
2. Poor sense of time	1	2	3	4
3. Waste or mismanage my time	1	2	3	4
4. Not prepared on time for work or assigned tasks	1	2	3	4
5. Fail to meet deadlines for assignments	1	2	3	4
6. Have trouble planning ahead or preparing for upcoming events	1	2	3	4
7. Forget to do things I am supposed to do	1	2	3	4
8. Can't seem to accomplish the goals I set for myself	1	2	3	4
9. Late for work or scheduled appointments	1	2	3	4
10. Can't seem to hold in mind things I need to remember to do	1	2	3	4
11. Can't seem to get things done unless there is an immediate deadline	1	2	3	4
12. Have difficulty judging how much time it will take to do something or get somewhere.	1	2	3	4
13. Have trouble motivating myself to start work.	1	2	3	4
14. Have difficulty motivating myself to stick with my work and get it done	1	2	3	4
15. Not motivated to prepare in advance for things I know I am supposed to do.	1	2	3	4
16. Have trouble completing one activity before starting into a new one	1	2	3	4
17. Have trouble doing what I tell myself to do	1	2	3	4

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18. Difficulties following through on promises or commitments I may make to others.	1	2	3	4
19. Lack self-discipline	1	2	3	4
20. Have difficulty arranging or doing my work by its priority or importance; can't "prioritize well"	1	2	3	4
21. Find it hard to get started or get going on things I need to get done.	1	2	3	4
Office Use Only – Section 1 Total Score _____				
Section 2 Items	Never or Rarely	Sometimes	Often	Very Often
22. I do not seem to anticipate the future as much or as well as others	1	2	3	4
23. Can't seem to remember what I previously heard or read about	1	2	3	4
24. I have trouble organizing my thoughts	1	2	3	4
25. When I am shown something complicated to do, I cannot keep the information in mind so as to imitate or do it correctly	1	2	3	4
26. I have trouble considering various options for doing things and weighing their consequences	1	2	3	4
27. Have difficulties saying what I want to say	1	2	3	4
28. Unable to come up with or invent as many solutions to problems as others seem to do	1	2	3	4
29. Find myself at a loss for words when I want to explain something to others	1	2	3	4
30. Have trouble putting my thoughts down in writing as well or as quickly as others	1	2	3	4
31. Feel I am not as creative or inventive as others of my level of intelligence	1	2	3	4
32. In trying to accomplish goals or assignments, I find I am not able to think of as many way of doing things as others	1	2	3	4
33. Have trouble learning new or complex activities as well as others	1	2	3	4
34. Have difficulty explaining things in their proper order or sequence	1	2	3	4
35. Can't seem to get to the point of my explanations as quickly as others	1	2	3	4
36. Have trouble doing thinks in their proper order or sequence	1	2	3	4
37. Unable to "think on my feet" or respond as effectively as others to unexpected events	1	2	3	4
38. I am slower than others at solving problems I encounter in my daily life	1	2	3	4

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39. Easily distracted by irrelevant events or thoughts when I must concentrate on something	1	2	3	4
40. Not able to comprehend what I read as well as I should be able to do; have to reread material to get its meaning	1	2	3	4
41. Cannot focus my attention on tasks or work as well as others	1	2	3	4
42. Easily confused	1	2	3	4
43. Can't seem to sustain my concentration on reading, paperwork, lectures, or work	1	2	3	4
44. Find it hard to focus on what is important from what is not important when I do things	1	2	3	4
45. I don't seem to process information as quickly or as accurately as others	1	2	3	4
Office Use Only – Section 2 Total Score _____				
Section 3 Items	Never or Rarely	Sometimes	Often	Very Often
46. Find it difficult to tolerate waiting; impatient	1	2	3	4
47. Make decisions impulsively	1	2	3	4
48. Unable to inhibit my reactions or responses to events or others	1	2	3	4
49. Have difficulty stopping my activities or behavior when I should do so	1	2	3	4
50. Have difficulty changing my behavior when I am given feedback about my mistakes	1	2	3	4
51. Make impulsive comments to others	1	2	3	4
52. Likely to do things without considering the consequences for doing them	1	2	3	4
53. Change my plans at the last minute on a whim or last minute impulse	1	2	3	4
54. Fail to consider past relevant events or past personal experiences before responding to situations (I act without thinking)	1	2	3	4
55. Not aware of things I do or say	1	2	3	4
56. Have difficulty being objective about things that affect me	1	2	3	4
57. Find it hard to take other people's perspectives about a problem or situation	1	2	3	4
58. Don't think about or talk things over with myself being doing something	1	2	3	4
59. Trouble following the rules in a situation	1	2	3	4
60. More likely to drive a motor vehicle much faster than others (Excessive speeding)	1	2	3	4
61. Have a low tolerance for frustrating situations	1	2	3	4

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62. Cannot inhibit my emotions as well as others	1	2	3	4
63. I don't look ahead and think about what the future outcomes will be before I do something (I don't use my foresight)	1	2	3	4
64. I engage in risk taking activities more than others are likely to do	1	2	3	4
Office Use Only – Section 3 Total Score _____				
Section 4 Items	Never or Rarely	Sometimes	Often	Very Often
65. Likely to take short cuts in my work and not do all that I am supposed to do	1	2	3	4
66. Likely to skip out on work early if my work is boring to do	1	2	3	4
67. Do not put as much effort into my work as I should or than others are able to do	1	2	3	4
68. Others tell me I am lazy or unmotivated	1	2	3	4
69. Have to depend on others to help me get my work done	1	2	3	4
70. Things must have an immediate payoff for me or I do not seem to get them done	1	2	3	4
71. Have difficulty resisting the urge to do something fun or more interesting when I am supposed to be working	1	2	3	4
72. Inconsistent in the quality or quantity of my work performance	1	2	3	4
73. Unable to work as well as others without supervision or frequent instruction	1	2	3	4
74. I do not have the willpower or determination that others seem to have	1	2	3	4
75. I am not able to work toward longer term or delayed rewards as well as others	1	2	3	4
76. I cannot resist doing things that produce immediate rewards even if they are not good for me in the long run	1	2	3	4
Office Use Only – Section 4 Total Score _____				
Section 5 Items	Never or Rarely	Sometimes	Often	Very Often
77. Quick to get angry or become upset	1	2	3	4
78. Overreact emotionally	1	2	3	4
79. Easily excitable	1	2	3	4
80. Unable to inhibit showing strong negative or positive emotions	1	2	3	4
81. Have trouble calming myself down once I am emotionally upset	1	2	3	4

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82. Cannot seem to regain emotional control and become more reasonable once I am emotional	1	2	3	4
83. Cannot seem to distract myself away from whatever is upsetting me emotionally to help me calm down. I can't refocus my mind to a more positive framework.	1	2	3	4
84. Unable to manage my emotions in order to accomplish my goals successfully or get along well with others	1	2	3	4
85. I remain emotional or upset longer than others	1	2	3	4
86. I find it difficult to walk away from emotionally upsetting encounters with others or leave situations in which I have become very emotional	1	2	3	4
87. I cannot rechannel or redirect my emotions into more positive ways or outlets when I get upset	1	2	3	4
88. I am not able to evaluate an emotionally upsetting event more objectively	1	2	3	4
89. I cannot redefine negative events into more positive viewpoints when I feel strong emotions	1	2	3	4
Office Use Only – Section 5 Total Score _____				
Office Use Only Total of Sections 1-5: Total Summary Score _____				
Office Use Only Count number of items answered 3 or 4 Symptom Count _____				
Office Use Only Add items 1, 6, 16, 24, 49, 50, 55, 60, 65, and 69 Index Score _____				

Appendix D

For the first 27 items, please circle the number next to each item below that best describes your behavior **DURING THE PAST 6 MONTHS**. Then answer the remaining three questions.

Please ignore the sections marked “Office Use Only.”

Section 1	Never or Rarely	Sometimes	Often	Very Often
1. Fails to give close attention to details or make mistakes in my work or other activities.	1	2	3	4
2. Difficulty sustaining my attention in tasks or fun activities.	1	2	3	4
3. Don't listen when spoken to directly.	1	2	3	4
4. Don't follow through on instructions and fail to finish work or chores.	1	2	3	4
5. Have difficulty organizing tasks and activities	1	2	3	4
6. Avoid, dislike, or am reluctant to engage in tasks that require sustained mental effort.	1	2	3	4
7. Lose things necessary for tasks or activities.	1	2	3	4
8. Easily distracted by extraneous stimuli or irrelevant thoughts.	1	2	3	4
9. Forgetful in daily activities.	1	2	3	4
Office Use Only (Section 1)				
Total Score: _____ Symptom Count: _____				
Section 2	Never or Rarely	Sometimes	Often	Very Often
10. Fidget with hands or feet or squirm in seat	1	2	3	4
11. Leave my seat in classrooms or in other situations in which remaining seated is expected	1	2	3	4
12. Shift around excessively or feel restless or hemmed in	1	2	3	4
13. Have difficulty engaging in leisure activities quietly (feel uncomfortable, or am loud or noisy)	1	2	3	4
14. I am “on the go” or act as if “driven by a motor” (or feel like I have to be busy or always doing something)	1	2	3	4

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Office Use Only (Section 2)				
Total Score: _____ Symptom Count: _____				
Section 3	Never or Rarely	Sometimes	Often	Very Often
15. Talk excessively (in social situations)	1	2	3	4
16. Blurt out answers before questions have been completed, complete others' sentences, or jump the gun	1	2	3	4
17. Have difficulty awaiting my turn	1	2	3	4
18. Interrupt or intrude on others (butt into conversations or activities without permission or take over what others are doing)	1	2	3	4
Office Use Only (Section 3)				
Total Score: _____ Symptom Count: _____				
Total Scores for Entire Scale:				
Sum of Sections Raw Scores 1-3-Total Score _____				
Section 1 Symptom Count _____				
Sum of Sections 2 and 3 Symptom Counts _____				
Total Symptom Count _____ (Sum of 1-3)				

Section 5
28. Did you experience any of these 18 symptoms at least "Often" or more frequently (Did you circle a 3 or a 4 above)? No Yes (Circle one)
29. If so, how old were you when those symptoms began (Fill in the blank)
I was _____ years old.
30. If so, in which of these settings did those symptoms impair your functioning? Place a check mark (✓) next to all of the areas that apply to you.
_____ School
_____ Home

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- _____ 8) I care about what I am feeling.
- _____ 9) I am confused about how I feel.
- _____ 10) When I'm upset, I acknowledge my emotions.
- _____ 11) When I'm upset, I become angry with myself for feeling that way.
- _____ 12) When I'm upset, I become embarrassed for feeling that way.
- _____ 13) When I'm upset, I have difficulty getting work done.
- _____ 14) When I'm upset, I become out of control.
- _____ 15) When I'm upset, I believe that I will remain that way for a long time.
- _____ 16) When I'm upset, I believe that I'll end up feeling very depressed.
- _____ 17) When I'm upset, I believe that my feelings are valid and important.
- _____ 18) When I'm upset, I have difficulty focusing on other things.
- _____ 19) When I'm upset, I feel out of control.
- _____ 20) When I'm upset, I can still get things done.
- _____ 21) When I'm upset, I feel ashamed with myself for feeling that way.
- _____ 22) When I'm upset, I know that I can find a way to eventually feel better.
- _____ 23) When I'm upset, I feel like I am weak.
- _____ 24) When I'm upset, I feel like I can remain in control of my behaviors.
- _____ 25) When I'm upset, I feel guilty for feeling that way.
- _____ 26) When I'm upset, I have difficulty concentrating.
- _____ 27) When I'm upset, I have difficulty controlling my behaviors.
- _____ 28) When I'm upset, I believe that there is nothing I can do to make myself feel better.
- _____ 29) When I'm upset, I become irritated with myself for feeling that way.
- _____ 30) When I'm upset, I start to feel very bad about myself.
- _____ 31) When I'm upset, I believe that wallowing in it is all I can do.
- _____ 32) When I'm upset, I lose control over my behaviors.
- _____ 33) When I'm upset, I have difficulty thinking about anything else.
- _____ 34) When I'm upset, I take time to figure out what I'm really feeling.
- _____ 35) When I'm upset, it takes me a long time to feel better.
- _____ 36) When I'm upset, my emotions feel overwhelming.

Appendix F

Scale:

1. Please indicate the degree of happiness, all things considered, of your relationship.

0	1	2	3	4	5	6
Extremely Unhappy	Fairly Unhappy	A Little Unhappy	Happy	Very Happy	Extremely Happy	Perfect

2. How much do you love your partner?

1	2	3	4	5
Not much		Average		Very much

Most people have disagreements in their relationships. Please indicate below the approximate extent of agreement or disagreement between you and your partner for each item on the following list.

	Always Agree	Almost Always Agree	Occasionally Disagree	Frequently Disagree	Almost Always Disagree	Always Disagree
--	-----------------	---------------------------	--------------------------	------------------------	------------------------------	--------------------

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3. Amount of time spent together	5	4	3	2	1	0
4. Making major decisions	5	4	3	2	1	0
5. Demonstration of affection	5	4	3	2	1	0

	All the Time	Most of the Time	More often than Not	Occasionally	Rarely	Never
6. In general, how often do you think that things between you and your partner are going well?	5	4	3	2	1	0

	Never		Average		Very Often
7. How often do you wish you hadn't gotten into this relationship?	1	2	3	4	5

	Not at all True	A Little True	Somewhat True	Mostly True	Almost Completely True	Completely True
8. I still feel a strong connection with my partner	0	1	2	3	4	5
9. If I had my life to live over, I would marry (or live with/date) the same person	0	1	2	3	4	5
10. Our relationship is strong	0	1	2	3	4	5
11. I sometimes wonder if there is someone else out there for me	5	4	3	2	1	0

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12. My relationship with my partner makes me happy	0	1	2	3	4	5
13. I have a warm and comfortable relationship with my partner	0	1	2	3	4	5
14. I can't imagine ending my relationship with my partner	0	1	2	3	4	5
15. I feel that I can confide in my partner about virtually anything	0	1	2	3	4	5
16. I have had second thoughts about this relationship recently	5	4	3	2	1	0
17. For me, my partner is the perfect romantic partner	0	1	2	3	4	5
18. I really feel like part of a team with my partner	0	1	2	3	4	5
19. I cannot imagine another person making me as happy as my partner does	0	1	2	3	4	5

	Not at All	A Little	Somewhat	Mostly	Almost Completely	Completely
20. How rewarding is your relationship with your	0	1	2	3	4	5

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partner?						
----------	--	--	--	--	--	--

	Poorly		Average		Extremely Well
21. How well does your partner meet your needs?	1	2	3	4	5

	Unsatisfied		Average		Extremely Satisfied
22. In general, how satisfied are you with your relationship?	1	2	3	4	5

	Poor		Average		Excellent
23. How good is your relationship compared to most?	1	2	3	4	5

	Hardly At All		Average		Completely
24. To what extent has your relationship met your original expectations?	1	2	3	4	5

	Very Few		Average		Very Many
25. How many problems are there in your relationship?	1	2	3	4	5

	Never	Less than	Once or	Once or twice	Once a day	More often
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EMOTIONAL SELF-REGULATION

		once a month	twice a month	a week		
26. Do you enjoy your partner's company?	0	1	2	3	4	5
27. How often do you and your partner have fun together?	0	1	2	3	4	5

For each of the following items, select the answer that best describes *how you feel about your relationship*. Base your responses on your first impressions and immediate feelings about the

28.	Interesting	5	4	3	2	1	0	Boring
29.	Bad	0	1	2	3	4	5	Good
30.	Full	5	4	3	2	1	0	Empty
31.	Lonely	0	1	2	3	4	5	Friendly
32.	Sturdy	5	4	3	2	1	0	Fragile
33.	Discouraging	0	1	2	3	4	5	Hopeful
34.	Enjoyable	5	4	3	2	1	0	Miserable

Appendix G

Please mark on the answer sheet the letter for each item that best answers that item for you.

How well does your partner meet your needs?

A	B	C	D	E
Poorly		Average		Extremely well

In general, how satisfied are you with your relationship?

A	B	C	D	E
Unsatisfied		Average		Extremely satisfied

How good is your relationship compared to most?

A	B	C	D	E
Poor		Average		Excellent

How often do you wish you hadn't gotten in this relationship?

EMOTIONAL SELF-REGULATION

A	B	C	D	E
Never		Average		Very often

To what extent has your relationship met your original expectations:

A	B	C	D	E
Hardly at all		Average		Completely

How much do you love your partner?

A	B	C	D	E
Not much		Average		Very much

How many problems are there in your relationship?

A	B	C	D	E
Very few		Average		Very many

Appendix H
Modified Stroop Task Stimulus

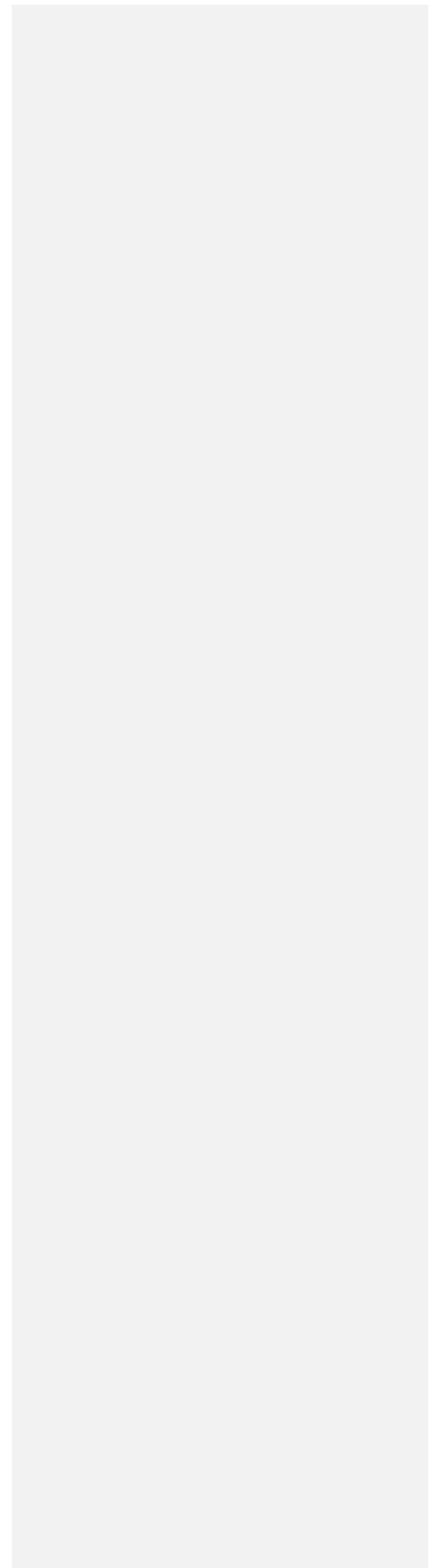
Congruent:



Incongruent:



Appendix I
Current Level of Frustration (CLF)



EMOTIONAL SELF-REGULATION

Please rate your current level of frustration by selecting one of the corresponding numbers on the keyboard:

0	1 2	3 4	5 6	7
No Feelings of Frustration Experienced	Mild Feelings of Frustration Experienced (Slightly Disturbing/Not Really Disabling)	Moderate Feelings of Frustration Experienced (Definitely Disturbing or Disabling)	Severe Feelings of Frustration Experienced (Markedly Disturbing or Disabling)	Very Severe Feelings of Frustration Experienced (Very Disturbing or Disabling)

EMOTIONAL SELF-REGULATION

Please answer the questions using the likert scale below. For each item, please press the corresponding number on the keyboard.

- 1) Absent
- 2) Mild
- 3) Moderate
- 4) Strong
- 5) Very strong

1. I must be free of disturbing feelings as quickly as possible
2. I can't bear if they continue
3. I can't stand situations where I might feel upset.
4. I can't bear disturbing feelings
5. I can't bear to have certain thoughts
6. I can't stand to lose control of my feelings
7. I can't bear to feel that that I am losing my mind



Debriefing Form
The Effects of Emotional Self-Regulation on Relationship Satisfaction
in Young Adults

Murphy Harrell, B.S.

Purpose of the Study

The purpose of this study was to explore the relationship between your ability to control your emotions and your romantic relationship satisfaction. However, what was not fully explained in the informed consent that the computer task given was purposefully designed to elicit frustration. This was not fully explained at the start of the study so that each participant would know in advance what to expect and attempt to control their emotions before they arise. By doing this, the investigator could examine emotions that occur in the moment and how those emotions affect romantic relationship satisfaction.

Final Report

If you would like to receive a report of this study (or a summary of the findings) when it is completed, contact the primary investigator listed below.

Concerns

If you have any questions about the study, or about the deception involved, please feel free to ask the principal investigator now, or at a later time. If you have concerns about this study or your rights as a participant in this study, you may contact the Office of Research Compliance at: (803) 777-7095.

Please keep a copy of this form for your future reference. Once again, thank you for participating in this study.

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Email Address: AnneE@usca.edu

Appendix L

EMOTIONAL SELF-REGULATION

Campus and Community Resource Information Sheet*On Campus Resources:*

USCA Counseling Center

803-641-3609

Open Monday-Friday 8:30am-5:00pm

B&E Building Suite 126

USCA Psychology Clinic

803-641-3775

By appointment only

Penland Suite 204

Community Resources:

Aiken-Barnwell Mental Health Center

803-641-7700

1135 Gregg Highway Aiken, SC 29801

Aurora Pavilion Behavioral Health Services

803-641-5900

655 Medical Park Drive Aiken, SC 29801

MCG Psychiatry and Health

706-721-6597

1515 Pope Avenue Augusta, GA 30904