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Relationships Between Life Satisfaction, Symptoms Of Adhd, And Associated Outcomes In Middle School Students

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Relationships between Life Satisfaction, Symptoms of ADHD, and Associated Outcomes in Middle School Students

by

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Abstract

Given increased evidence related to the importance of fostering life satisfaction in the overall population (Diener & Diener, 1996), as well as recent suggestions regarding the importance of increasing positive academic and social outcomes for youth with ADHD (DuPaul, 2007), it is important to gain a clearer understanding of how life satisfaction may be related to ADHD symptoms. Although research has examined the relationship between life satisfaction and externalizing behavior (Suldo & Huebner, 2004a), research on the relationship between life satisfaction and ADHD is currently limited. This study examined if levels of ADHD symptoms predicted reports of life satisfaction in a middle school population (n = 172). Hyperactive/impulsive and inattentive symptoms explained 2.5% of the variance in the dependent variable, life satisfaction, which is not a statistically significant amount, $F(2, 169) = 2.2$, $p = .12$. Results of this study also demonstrated that perceived interparental conflict did not moderate the relationship between ADHD symptoms and life satisfaction. Additionally, results of this study demonstrated that life satisfaction did not moderate the relationship between inattentive symptoms and academic achievement in reading, academic achievement in mathematics, and depressive symptoms. Implications of these findings and suggestions for future research are discussed.

CHAPTER I: Introduction

Statement of the Problem

Psychological researchers have shifted their focus in recent decades from not only identifying and reducing symptomology but also emphasizing and promoting overall well-being (Pavot & Diener, 1993). Researchers have defined well-being in several ways, including by considering life satisfaction as an indicator. Life satisfaction has been defined as a "cognitive judgmental process in which individuals assess the quality of their lives on the basis of their own unique set of criteria" (Pavot & Diener, 1993, p. 164). It is one of three components of subjective well-being, a term which refers to one's cognitive and affective assessment of his or her life (Diener, Oishi, & Lucas, 2009). Life satisfaction is considered to be more stable than the other two components of subjective well-being (e.g., positive affect and negative affect; Diener, Suh, Lucas, & Smith, 1999).

High levels of life satisfaction are associated with increased positive outcomes in various domains. In the academic domain, high levels of life satisfaction are associated with increased academic self-efficacy (Suldo & Huebner, 2006), higher grade-point averages (GPAs), and better attitudes towards school (Gilman & Huebner, 2006). In the social domain, high levels of life satisfaction are associated with better relationships with one's parents (Gilman & Huebner, 2006), increased emotional and social self-efficacy (Suldo & Huebner, 2006), and increased sociability (Diener & Diener, 1996). In terms of psychological functioning, high levels of life satisfaction are associated with higher self-esteem and levels of hope (Gilman & Huebner, 2006), better coping skills and increased

sociability (Diener & Diener, 1996), fewer internalizing and externalizing behavior problems (Suldo & Huebner, 2006), and a reduced risk for developing psychopathological symptoms (Diener & Diener, 1996; Lewinsohn, Redner, & Seeley, 1991) and suicidal ideation or behavior (Valois, Zullig, Huebner, & Drane, 2004).

Recent research has examined several variables that may predict levels of life satisfaction among adolescents, including demographic factors, internal characteristics, life events, and family experiences. Researchers have found only modest support for a relationship between demographic factors and life satisfaction (Gilman & Huebner, 2003; Huebner, Drane, & Valois, 2000). On the other hand, research has found stronger correlations between life satisfaction and personality variables (Fogle, Huebner, & Laughlin, 2002) and internal characteristics (Huebner, 1991; Myers & Diener, 1995). Specifically, researchers have demonstrated that life satisfaction is positively related to self-esteem, self-efficacy, an internal locus of control, and social competence (Huebner, 1991; Myers & Diener, 1995) and negatively related to neuroticism (Fogle, Huebner, & Laughlin, 2002). Overall, researchers have found more empirical support for a relationship between internal characteristics and life satisfaction than for a relationship between demographic factors and life satisfaction.

Life events and experiences have also been found to be related to life satisfaction (Gilman, 2001; McCullough, Huebner, & Laughlin, 2000). Interestingly, positive daily experiences have been found to be among the most important of all of the contributors in predicting positive global life satisfaction in adolescents (McCullough, Huebner, & Laughlin, 2000). Positive family experiences have also been found to be related to life satisfaction in children and adolescents (Burke & Weir; Demo & Acock, 1996; Dew &

Huebner, 1994; Suldo & Huebner, 2004b; Young, Miller, Norton, & Hill, 1995). For example, the relationship between positive family experiences and life satisfaction has been found to be stronger than both the relationship between positive peer experiences and life satisfaction and the relationship between positive academic experiences and life satisfaction (Dew & Huebner, 1994). Therefore, it is particularly important to consider family experiences when examining life satisfaction.

Life satisfaction has also been found to be inversely associated with levels of psychopathology, specifically mood disorders. Research has demonstrated that depression is strongly associated with low levels of life satisfaction and that low life satisfaction most often precedes the onset of depression; thus life satisfaction is believed to be an important factor to consider when studying the etiology of depression and identifying individuals who are at risk of developing depression (Lewinsohn, Redner, & Seeley, 1991). Low levels of life satisfaction are also associated with increased rates of anxiety (Diener & Diener, 1996).

Regarding externalizing behavior, Suldo and Huebner (2004a) found in a longitudinal study conducted with adolescents that life satisfaction was predictive of later externalizing behavior, even when controlling for the presence of initial externalizing behavior. Moreover, when adolescents were faced with stressful life events, increased life satisfaction served as a protector factor against the development of externalizing behaviors (Suldo & Huebner, 2004a).

In summary, higher levels of life satisfaction among adolescents have been linked with numerous desirable academic, social, and psychological outcomes. Additionally, several variables, including demographic factors, internal characteristics, life events and

experiences, and psychopathology have been examined as predictors of life satisfaction for adolescents.

Life Satisfaction and ADHD

Although research has examined the relationship between life satisfaction and externalizing behavior (Suldo & Huebner, 2004a; Zullig, Valois, Huebner, Oeltmann, & Drane, 2001), research on the relationship between life satisfaction and Attention-deficit/Hyperactivity Disorder (ADHD) is currently limited. ADHD is characterized by chronic inattentive and/or hyperactive-impulsive symptoms that occur more often and are more disruptive than the behavior of peers without ADHD (American Psychiatric Association [APA], 2000). There are three subtypes of ADHD, including ADHD-Predominantly Inattentive Type (ADHD-PI), ADHD-Predominantly Hyperactive-Impulsive Type (ADHD-HI), and ADHD-Combined Type (ADHD-C).

There are numerous reasons as to why it is important to examine levels of life satisfaction in children and adolescents with ADHD. First, ADHD is one of the most commonly diagnosed disorders affecting school-age children, with approximately 3-7% of school age children diagnosed (APA, 2000). Despite the prevalence of ADHD, only one study, conducted with an adult population, has examined the relationship between ADHD and life satisfaction (Gudjonsson, Sigurdsson, Eyjolfsdottir, Smari, & Young, 2009). Results of this study demonstrated that even mild symptoms of ADHD were associated with lower levels of life satisfaction (Gudjonsson et al., 2009). Second, children and adolescents with ADHD are at an increased risk for negative outcomes in various domains, including academic (Loe & Feldman, 2007), social (Gaub & Carlson, 1997), and familial (Danforth, Barkley, & Stokes, 1991), as well as at increased risk for

psychopathology (Jensen, Burke, & Garfinkel, 1988; Kadesjö & Gillberg, 2001; Miranda, Soriano, Fernández, & Meliá, 2008; Szatmari, Offord, and Boyle, 1989). Given that these outcomes are also associated with lower levels of life satisfaction, it seems plausible that children and adolescents with ADHD could be more vulnerable to lower levels of life satisfaction. This is important because higher levels of life satisfaction could provide a buffer against the development of these negative associated outcomes. Moreover, increased levels of life satisfaction among students with ADHD may contribute to more positive outcomes in the academic and social domains, given research indicating that higher levels of life satisfaction are associated with increased competence in the academic and social domains (Gilman & Huebner, 2006; Suldo & Huebner, 2006).

DuPaul (2007) highlighted the importance of increasing positive academic and social outcomes for children with ADHD, as opposed to focusing solely on problem behaviors, which has traditionally been the focus of treatment. Although DuPaul (2007) did not address the life satisfaction in this population, these perspectives are complimentary as there is a clear focus on increasing positive outcomes versus an emphasis on reducing symptoms or problems.

Despite the prevalence of ADHD and recent literature demonstrating the importance of increasing positive outcomes for children with ADHD, research on life satisfaction and ADHD is currently limited. Researchers who have examined quality of life, which is different from life satisfaction because it includes not only subjective beliefs about the quality of one's life but also objective indicators of physical, psychological, and social functioning, in individuals with ADHD have found mixed results. A recent review of the literature examining quality of life in children with

ADHD (Danckaerts, Sonuga-Barke, Banaschewski, Buitelaar, Döpfner, Hollis et al., 2010) indicates that parents of children with ADHD report significantly lower levels of quality of life for their children than do parents of children without ADHD (Escobar, Soutullo, Hervas, Gastaminza, Polavieja, & Gilaberte, 2005; Graetz, Sawyer, Hazell, Arney, & Baghurst; Klassen, Miller, & Fine, 2004; Sawyer, Whaites, Rey, Hazell, Graetz, & Baghurst, 2002), but children with ADHD often rate their own quality of life less negatively than their parents do (Klassen, Miller, & Fine, 2006) or report levels of quality of life similar to that of peers without ADHD (Klassen, Miller, & Fine, 2006; Landgraf & Abetz, 1997). However, other studies reviewed by Danckaerts et al. (2010) found that children and adolescents with ADHD report lower levels of quality of life than their peers without ADHD (Bussing, Mason, Bell, Porter, & Garvan, 2010; Hampel & Desman, 2006). Thus, current research on reports of quality of life among children and adolescents with ADHD is mixed, particularly regarding the self-reports of children with ADHD.

In the one study to date that has examined the relationship between ADHD and life satisfaction, researchers examined links between life satisfaction, ADHD symptoms, and other social and emotional concerns among university students (Gudjonsson et al., 2009). Even though the levels of ADHD symptoms in this study were mild, they were still found to be significantly related to lower levels of life satisfaction. Therefore, this study provides preliminary support for a relationship between life satisfaction and ADHD. However, there is currently no research examining this relationship in children and adolescents. Given that research has demonstrated that ADHD persists throughout the course of life and that difficulties in the academic and social domains, as well as other

comorbidities, can compound over time, it is especially important to consider the relationship between life satisfaction and ADHD in childhood and adolescence in order to determine which children and adolescents with ADHD might be at greater risk for experiencing difficulties in the academic and social domains, as well as comorbid psychopathology.

Purpose of the Current Study

The purpose of the current study was to gain insight into the association between levels of ADHD symptoms and reports of global life satisfaction within a middle school population. This study had four aims. First, it examined if the degree of ADHD symptoms present predicted levels of life satisfaction in middle school students. Second, it examined if interparental conflict, a variable that is related to both life satisfaction and ADHD, moderated the relationship between ADHD symptoms and levels of life satisfaction. Third, it examined if life satisfaction moderated the relationship between ADHD symptoms and academic achievement in reading and mathematics. Fourth, it examined if life satisfaction moderated the relationship between ADHD symptoms and depressive symptoms.

The current study adds to the literature in that there are no existing studies examining life satisfaction in children or adolescents with ADHD. Although researchers have examined the relationship between a related construct, quality of life, and ADHD in adolescents and children, there is currently no research on the relationship between life satisfaction specifically and ADHD in these age groups. Only one published study to date has examined the relationship between life satisfaction and ADHD, and it was conducted with adults (Gudjonsson et al., 2009). This study demonstrated that even mild symptoms

of ADHD were related to lower levels of life satisfaction, and given that this relationship has been found to exist in adults, it is important to examine it in adolescence as well.

An additional purpose of the current study was to examine if a related construct, perceived interparental conflict, served as a moderator in the relationship between ADHD symptoms and life satisfaction. This variable was chosen as a possible moderator given that children with ADHD often experience greater familial conflict than children without ADHD (Danforth, Barkley, & Stokes, 1991), and family experiences have been found to be related to levels of life satisfaction for children and adolescents (Burke & Weir; Demo & Acock, 1996; Dew & Huebner, 1994; Suldo & Huebner, 2004b; Young, Miller, Norton, & Hill, 1995).

The current study also examined if levels of life satisfaction moderated the relationship between ADHD symptoms and related outcomes, including academic achievement in reading and mathematics. It is important to consider this relationship given that children and adolescents with ADHD often experience significant academic impairments (Loe & Feldman, 2007). This study examined if life satisfaction could serve as a buffer against the development of academic problems for adolescents with ADHD given that high levels of life satisfaction have been determined to be related to increased academic competence (Gilman & Huebner, 2006; Suldo & Huebner, 2006).

Lastly, the current study also examined if levels of life satisfaction moderated the relationship between ADHD symptoms and depressive symptoms. This relationship is important to consider given that adolescents with ADHD are at higher risk of developing comorbid depression than peers without ADHD, and the ADHD diagnosis often precedes the diagnosis of depression (Jensen, Burke, & Garfinkel, 1988). It is important to

consider if life satisfaction moderates this relationship given that lower levels of life satisfaction have also been found to precede the development of depression (Lewinsohn, Redner, & Seeley, 1991). Life satisfaction was examined as a moderator, rather than a mediator, in the relationship between ADHD and depressive symptoms in order to determine if higher levels of life satisfaction may serve as a protective factor against the development of depressive symptoms for middle school students with symptoms of ADHD.

Definition of Key Terms

Subjective Well-Being. Subjective well-being refers to one's cognitive and affective assessment of his or her life (Diener, Oishi, & Lucas, 2009). It is comprised of three components: positive affect, negative affect, and life satisfaction (Diener, Suh, Lucas, & Smith, 1999).

Life Satisfaction. Life satisfaction is one of the three major indicators of subjective well-being and is considered to be the most stable component (Diener, Suh, Lucas, & Smith, 1999). It has been defined as a "cognitive judgmental process in which individuals assess the quality of their lives on the basis of their own unique set of criteria" (Pavot & Diener, 1993, p. 164).

Quality of Life. The term quality of life refers to one's overall well-being and includes both objective and subjective indicators of wellness (Felce & Perry, 1995). It is different from life satisfaction in that life satisfaction is a completely subjective construct, whereas quality of life also includes more concrete, observable aspects of one's life, such as wealth, employment, physical and mental health, and social standing.

Attention-Deficit/Hyperactivity Disorder (ADHD). ADHD is one of the most commonly diagnosed disorders affecting school-age children, with approximately 3-7% of school age children diagnosed (American Psychiatric Association, 2000). ADHD is defined by the core symptoms of inattention and/or hyperactivity/impulsivity. A clinical diagnosis of ADHD requires that a child, adolescent, or adult exhibits six or more symptoms in either the area of inattention or hyperactivity-impulsivity (American Psychiatric Association [APA], 2000), that these symptoms were present before age 7, that the symptoms are maladaptive and inconsistent with the behavior of others at a child's respective developmental level, that the symptoms have been present for at least six months, and that some degree of impairment is present in two or more settings (e.g., at home and at school).

Middle School Students. This term will be used to refer to students in sixth through eighth grade.

Moderator. A moderator is a qualitative or quantitative variable that affects the strength and/or the direction of the relationship between an independent variable and a dependent variable (Baron & Kenny, 1986).

Research Questions

To investigate the association between life satisfaction and severity of ADHD symptoms, the following research questions were developed and examined:

1. To what extent, if any, do ADHD symptoms predict life satisfaction in middle school students?
    a. When considering the degree of inattentive symptoms?
    b. When considering the degree of hyperactive/impulsive symptoms?

2. Do levels of perceived interparental conflict moderate the relationship between severity of ADHD symptoms and life satisfaction?
    a. When considering the degree of inattentive symptoms?
    b. When considering the degree of hyperactive/impulsive symptoms?
3. Does life satisfaction moderate the relationship between severity of ADHD symptoms and academic achievement in reading?
    a. When considering the degree of inattentive symptoms?
    b. When considering the degree of hyperactive/impulsive symptoms?
4. Does life satisfaction moderate the relationship between severity of ADHD symptoms and academic achievement in mathematics?
    a. When considering the degree of inattentive symptoms?
    b. When considering the degree of hyperactive/impulsive symptoms?
5. Does life satisfaction moderate the relationship between severity of ADHD symptoms and severity of depressive symptoms?
    a. When considering the degree of inattentive symptoms?
    b. When considering the degree of hyperactive/impulsive symptoms?

Importance of the Current Study to School Psychology

In recent decades, psychological researchers have shifted their focus to emphasizing and promoting the importance of overall well-being (Pavot & Diener, 1993). Research has demonstrated that life satisfaction is predictive of later externalizing behavior, even when controlling for the presence of initial externalizing behavior (Suldo & Huebner, 2004a). Although research has been conducted on life satisfaction and externalizing behavior, research on life satisfaction and ADHD symptoms specifically is very limited. Adolescents with symptoms of ADHD are already at increased risk for

negative outcomes, and therefore it is particularly important to examine life satisfaction within this population in order to inform steps towards prevention of negative outcomes and early intervention. Given the high prevalence of ADHD, it is critical that school psychologists gain insight into the relationship between life satisfaction and symptoms of ADHD, as well as the factors that may moderate this relationship.

Contributions to the Literature

The current study enhances the current knowledge base related to the relationship between life satisfaction and degree of ADHD symptoms in middle-school aged students. This study examined whether there is a relationship between life satisfaction and ADHD symptoms, as well as examine whether perceived interparental conflict moderated this relationship. Moreover, the current study examined whether life satisfaction provided a buffer against decreased academic achievement or the development of comorbid depression for adolescents with ADHD. This study adds to the literature in that there is only one study that explicitly examines the relationship between ADHD symptoms and life satisfaction in adults (Gudjonsson et al., 2009); no published research has examined life satisfaction in relation to ADHD symptoms in adolescents. Given increased evidence related to the importance of fostering life satisfaction in the overall population (Diener & Diener, 1996), as well as recent suggestions regarding the importance of increasing positive academic and social outcomes for children with ADHD rather than focusing on problem behaviors (DuPaul, 2007), it is important to gain a clearer understanding of how life satisfaction may be related to the presence or degree of ADHD symptoms.

CHAPTER II: Review of the Literature

This chapter outlines the current knowledge base of life satisfaction in individuals with Attention-deficit/Hyperactivity Disorder (ADHD) through a discussion of the definition of life satisfaction, the factors that predict life satisfaction, the relationship between life satisfaction and psychopathology, an overview of ADHD, outcomes associated with ADHD, past research on quality of life in children and adolescents with ADHD, and past research on life satisfaction in adults with ADHD. Relevant literature related to each of these topics is reviewed to build support for the current study.

Life Satisfaction

In recent decades, researchers have shifted their focus from not only identifying and reducing symptomology but also to emphasizing and promoting the importance of overall well-being (Pavot & Diener, 1993). According to Keyes (2007), mental health can be thought of as existing on a continuum, such that the absence of psychological symptoms does not necessarily indicate full mental health. Thus, in order to determine one's overall mental health, it is important not just to examine symptoms, but also to examine subjective well-being, or one's cognitive and affective assessment of his or her life (Diener, Oishi, & Lucas, 2009). For example, research has demonstrated that children may report low subjective well-being despite also reporting low levels of psychopathology (Greenspoon & Saklofske, 2001). In a psychological model in which mental health was solely determined by symptomology, these children would be labeled as healthy, but by examining their levels of subjective well-being, the researchers

determined that their reports of well-being suggested a different level of functioning than what would be expected based solely on their levels of psychopathology.

Subjective well-being has been proposed to be comprised of three separate components: global life satisfaction, positive affect, and negative affect (Diener, Suh, Lucas, & Smith, 1999). An individual's affect, whether positive or negative, refers to one's moods and emotions surrounding life events (Diener, Suh, Lucas, & Smith, 1999). Specifically, positive affect is "the frequency of positive emotions, such as joy or affection, in an individual," and negative affect is "reflected in how frequently an individual has negative emotions, such as sadness or anxiety" (McKnight, Huebner, & Suldo, 2002, p. 677). Life satisfaction, on the other hand, is considered to be the most stable component of subjective well-being because the positive and negative affective domains are often unstable and change rapidly (Diener, Suh, Lucas, & Smith, 1999). Life satisfaction has been defined as a "cognitive judgmental process in which individuals assess the quality of their lives on the basis of their own unique set of criteria" (Pavot & Diener, 1993, p. 164). Life satisfaction has been found to be a stable characteristic in both adolescents (Suldo & Huebner, 2004a) and adults (Diener et al., 1999). For example, Suldo and Huebner (2004a) examined life satisfaction in adolescents and found a strong association between life satisfaction as measured initially and one year later.

Research has determined that high levels of life satisfaction are associated with increased benefits in multiple domains. For example, Diener and Diener (1996) reported in a review of cross-national data that adults with more positive subjective well-being have increased coping skills, curiosity, exploratory behavior, and sociability.

Additionally, individuals who report higher levels of life satisfaction are at a reduced risk of developing psychopathological symptoms (Diener & Diener, 1996; Lewinsohn, Redner, & Seeley, 1991) and at a reduced risk of suicidal ideation and behavior (Valois, Zullig, Huebner, & Drane, 2004). Moreover, high school students with high levels of life satisfaction have been found to demonstrate increased academic, emotional, and social self-efficacy in comparison to peers with low or moderate life satisfaction (Suldo & Huebner, 2006). Additionally, adolescents with higher levels of life satisfaction also have higher GPAs, self-esteem, and levels of hope, report better relationships with their parents, and are less likely to experience depression, anxiety, and negative school attitudes (Gilman & Huebner, 2006).

Variables that Predict Life Satisfaction in the Adolescent Population

In order to facilitate the development of high levels of life satisfaction, it is important to first understand the factors that predict levels of life satisfaction. Recent research has examined several variables that may predict levels of life satisfaction among adolescents, including demographic factors, internal characteristics, and positive daily experiences, including family experiences.

Demographic factors. Researchers have found only modest support for the relationship between demographic factors and specific domains of life satisfaction (Huebner, Drane, & Valois, 2000). In particular, girls report higher levels of satisfaction with school and peer relationships than boys (Huebner et al., 2000). Additionally, Caucasian students report higher satisfaction with peer relationships and living environment than students from other racial backgrounds (Huebner et al., 2000). However, in this study, global life satisfaction was not associated with adolescents'

gender, race, or school grade (Huebner et al., 2000). This is consistent with findings from a review of literature concerning life satisfaction and the adolescent population, which demonstrated that life satisfaction has been found to be at best modestly correlated with demographic variables for both children and adolescents (Gilman & Huebner, 2003). For instance, Huebner (1994) conducted a study with African American and Caucasian children in grades 3-6 and found that reports of life satisfaction were not significantly different for African American versus Caucasian students. Thus, demographic characteristics have not been found to be consistent predictors of life satisfaction.

Internal characteristics. Although research has demonstrated only modest correlations between demographic variables and life satisfaction, research has found stronger correlations between life satisfaction and personality or internal, cognitive variables. In a review of literature examining the factors that contribute to happiness, Myers and Diener (1995) concluded that those who are happy and express positive levels of life satisfaction possess four traits: high self esteem, a sense of personal control, optimism, and extraversion. Similarly, research demonstrates that middle school students who demonstrate high self-esteem and an internal locus of control also report higher levels of global life satisfaction than middle school students who report lower self-esteem and perceive their lives to be controlled by external events (Huebner, 1991). Researchers have also examined the relationship between temperament, social self-efficacy, social competence (e.g., social skills and adaptive behaviors), and life satisfaction in early adolescence (Fogle, Huebner, & Laughlin, 2002). Interestingly, the researchers found that teacher-reported social competence was not significantly related to life satisfaction.

The researchers hypothesized that this may be due to the fact that an individual's perceived social competence may actually be a stronger predictor of life satisfaction than actual social competence rated by an objective observer. The researchers found that social self-efficacy served as a mediator variable in the relationship between extraversion and life satisfaction, but it was not a mediator in the relationship between neuroticism and life satisfaction. However, neuroticism was determined to be the variable most strongly associated with life satisfaction of all of the variables studied, with a moderate, negative association. In other words, higher levels of neuroticism were associated with lower levels of life satisfaction. The association between extraversion and life satisfaction was low to moderate, but the relationship was positive, which was consistent with previous research. Thus, there is more empirical support for a relationship between temperamental and cognitive factors and life satisfaction than a relationship between demographic factors and life satisfaction, and the temperamental constructs and cognitive features that have been consistently determined to be related to life satisfaction include self-esteem, an internal locus of control, self-efficacy, neuroticism, and extraversion.

Positive daily experiences. Daily life experiences have also been found to be related to life satisfaction. In a study examining the interrelationships among global self-concept, life events, positive affect, negative affect, and life satisfaction with 92 high school students, results demonstrated that positive daily experiences were the most important of all of the contributors in predicting positive global life satisfaction in adolescents (McCullough, Huebner, & Laughlin, 2000). Additionally, the cumulative effects of the daily life experiences were more significantly related to life satisfaction than major positive or negative life events. Similarly, one type of specific positive daily

experiences, participation in structured extracurricular activities that are physically and/or mentally stimulating, has been found to be linked to increased life satisfaction for high school students (Gilman, 2001).

Positive family experiences have also been found to be related to life satisfaction in children and adolescents. In a study examining factors related to life satisfaction across three levels of adolescence (grades 8, 10, and 12), results demonstrated that the relationship between positive family experiences and life satisfaction was stronger than both the relationship between positive peer experiences and life satisfaction and the relationship between positive academic experiences and life satisfaction at each grade level (Dew & Huebner, 1994). Demo and Acock (1996) examined specific family structures and their relationships to life satisfaction and found that children from married or continuously single-parent families reported higher levels of well-being than children living in divorced or stepfamilies. The strongest predictor of overall reports of well-being was mother-adolescent disagreement (Demo & Acock, 1996). In a study examining the relationship between parental supportive behaviors and adolescents' life satisfaction, results demonstrated that mothers' and fathers' intrinsic support, which referred to encouragement, appreciation, being pleased with the child, trust, and love, was the strongest predictor of life satisfaction when compared with two other types of parental support (e.g., extrinsic support and closeness; Young, Miller, Norton, & Hill, 1995). Similarly, an additional study demonstrated that children are more likely to report lower levels of life satisfaction if they have parents who are critical and unsupportive when they experience problems (Burke & Weir, 1979). On the other hand, children who report higher levels of life satisfaction have parents who are more likely to provide

concrete advice and support. These findings were consistent in adolescence as well. Specifically, adolescents with more supportive, helpful parents also report higher levels of life satisfaction (Burke & Weir, 1979).

More recently, Suldo and Huebner (2004b) conducted a study with 1,201 students ages 11-19 to determine the association between authoritative parenting and adolescents' reports of well-being. The researchers found a strong association between life satisfaction and three specific dimensions of authoritative parenting, including strictness-supervision, social support/acceptance-involvement, and psychological autonomy granting. Adolescents who reported higher levels of life satisfaction viewed their parents as supportive, involved in monitoring their activities, and encouraging of their development of independence and individuality.

In summary, research supports only modest correlations between demographic factors and levels of life satisfaction. On the other hand, there is consistent empirical support for a relationship between life satisfaction and internal characteristics, such as self-esteem, locus of control, self-efficacy, and personality features (e.g., neuroticism, extraversion). Positive daily experiences, including family experiences, have also been found to be consistently related to levels of life satisfaction, with positive daily experiences and positive family experiences corresponding with higher levels of life satisfaction. In addition, parenting style has also been found to be related to life satisfaction, with adolescents of authoritative parents reporting higher levels of life satisfaction.

Life Satisfaction and Psychopathology

Researchers have examined not only the factors that predict life satisfaction but also the relationship between life satisfaction and psychopathology. Research has determined that adults with lower levels of life satisfaction are more likely to develop psychopathology symptoms, with a particular risk of developing internalizing problems such as depression and anxiety (Diener & Diener, 1996; Lewinsohn, Redner, & Seeley, 1991). Among youth, initial levels of life satisfaction have also been found to be related to later externalizing behavior (Suldo & Huebner, 2004a), and levels of life satisfaction have also been found to be related to risk taking behavior (Zullig, Valois, Huebner, Oeltmann, & Drane, 2001). This section will outline findings related to the relationship between life satisfaction and internalizing and externalizing behaviors.

Life satisfaction and internalizing behavior. Life satisfaction appears to be inversely associated with levels of psychopathology, specifically mood disorders. Lewinsohn, Redner, and Seeley (1991) examined life satisfaction in adults and found that depression was associated with lower levels of life satisfaction. Specifically, low life satisfaction most often preceded the onset of depression, suggesting that life satisfaction is an important factor to consider when studying the etiology of depression and identifying individuals who are at risk of developing depression. Low levels of life satisfaction are also associated with increased rates of anxiety among college age students (Diener & Diener, 1996). Life satisfaction has also been determined to partially mediate the relationship between stressful life events and internalizing behavior for adolescents, thus suggesting that low levels of life satisfaction could serve as a pathway to the

development of internalizing psychopathology for adolescents exposed to negative life events (McKnight, Suldo, & Huebner, 2002).

Life satisfaction and externalizing behavior. Researchers have also examined the relationship between life satisfaction and externalizing behaviors. Suldo and Huebner (2004a) examined 816 middle and high school students and found that initial life satisfaction was predictive of later externalizing behavior, even when controlling for the presence of initial externalizing behavior. Thus, the researchers concluded that reduced life satisfaction alone could precede the development of externalizing behavior problems, and adolescents who have higher levels of life satisfaction may be less likely to develop aversive externalizing behaviors. The same results were not found for negative internalizing behaviors, perhaps because levels of life satisfaction are more concurrently related to internalizing disorders, whereas they have a greater longitudinal influence on the development of externalizing behavior. Nevertheless, the results of the study conducted by Suldo and Huebner with specific regard to externalizing behavior demonstrate that life satisfaction is not solely a result of life experiences; it can also affect the development of behavior and impact future outcomes.

Life satisfaction has also been found to be inversely related to several risky behaviors that are often conceptualized as specific forms of externalizing behavior. For example, lower levels of life satisfaction have been found to be significantly associated with cigarette smoking, regular alcohol use, binge drinking, and using tobacco, marijuana, cocaine, injection drugs, or steroids (Zullig, Valois, Huebner, Oeltmann, & Drane, 2001). Furthermore, lower global life satisfaction has also been found to be associated with higher rates of weapon carrying, driving while under the influence of

alcohol, being threatened or injured by a weapon, and physical fighting (Valois, Zullig, Huebner, & Drane, 2001).

In summary, research has demonstrated that individuals with lower levels of life satisfaction are more likely to manifest and develop psychopathology symptoms, especially internalizing disorders such as depression and anxiety (Diener & Diener, 1996; Lewinsohn, Redner, & Seeley, 1991). Research has also demonstrated that youth life satisfaction predicts later externalizing behavior (Suldo & Huebner, 2004a) and co-occurs with risk taking behavior (Zullig, Valois, Huebner, Oeltmann, & Drane 2001).

Attention-Deficit/Hyperactivity Disorder and Associated Problems

Although researchers have looked at links between the broad construct of externalizing behavior and life satisfaction (Suldo & Huebner, 2004a), research on the relationship between life satisfaction and Attention-deficit/Hyperactivity Disorder (ADHD) is currently limited. ADHD is one of the most commonly diagnosed disorders affecting children, with approximately 3-7% of school age children meeting diagnostic criteria for ADHD (American Psychiatric Association [APA], 2000). Only one study, which was conducted with an adult population and will be discussed further later in this chapter, has examined the relationship between ADHD and life satisfaction (Gudjonsson, Sigurdsson, Eyjolfsdottir, Smari, & Young, 2009). The researchers determined that even mild symptoms of ADHD were associated with lower levels of life satisfaction (Gudjonsson et al., 2009).

Youth with ADHD are at an increased risk for negative outcomes in the academic (Loe & Feldman, 2007), social (Gaub & Carlson, 1997), and familial domains (Danforth, Barkley, & Stokes, 1991), as well as at increased risk for comorbid psychopathology

(Jensen, Burke, & Garfinkel, 1988; Kadesjö, & Gillberg, 2001; Miranda, Soriano, Fernández, & Meliá, 2008; Szatmari, Offord, and Boyle, 1989). Given that these outcomes are also associated with lower levels of life satisfaction, it seems plausible that children and adolescents with ADHD could be more vulnerable to lower levels of life satisfaction. This is important because increasing life satisfaction could provide a buffer against the development of negative outcomes associated with symptoms of ADHD. Moreover, promoting life satisfaction among students with ADHD may contribute to more positive outcomes in the academic and social domains, given research indicating that higher levels of life satisfaction are associated with increased competence in the academic and social domains (Gilman & Huebner, 2006; Suldo & Huebner, 2006).

Considering the fact that ADHD affects such a significant portion of the population (APA, 2000), coupled with the recent shift in focus to promoting positive life satisfaction in addition to attempting to decrease the presence of psychopathology (Pavot & Diener, 1993), it is important to examine reports of life satisfaction in children and adolescents with ADHD in order to best be able to serve this population. DuPaul (2007) highlighted the importance of increasing positive academic and social outcomes for children with ADHD, as opposed to focusing solely on problem behaviors. Although DuPaul (2007) was not specifically referring to life satisfaction, this focus on increasing positive outcomes is consistent with the positive psychology approach, as previous research has suggested that higher levels of life satisfaction are associated with increased coping skills and sociability (Diener & Diener, 1996), a reduced risk for developing psychopathological symptoms symptoms (Diener & Diener, 1996; Lewinsohn, Redner, &

Seeley, 1991) and suicidal ideation or behavior (Valois, Zullig, Huebner, & Drane, 2004), and increased academic, emotional, and social self-efficacy (Suldo & Huebner, 2006).

One of the key reasons why it is important to consider life satisfaction in children with ADHD is the relatively high rate of this disorder. Specifically, ADHD is one of the most commonly diagnosed disorders affecting children, with approximately 3-7% of school age children meeting diagnostic criteria for an ADHD diagnosis (APA, 2000). According to the *Diagnostic and Statistical Manual of Mental Health Disorders-4th Edition Text Revision* (DSM-IV-TR; APA, 2000), ADHD is characterized by chronic inattentive and/or hyperactive-impulsive symptoms that occur more often and are more disruptive than the behavior of peers without ADHD. In order to reach the diagnostic threshold, symptoms must have been present before age seven, there must be clear indication of impairment related to symptoms of ADHD in at least two settings (e.g., at home and at school), and there must be clear evidence that the symptoms are causing clinically significant impairment in academic, social, or occupational functioning. There are three subtypes of ADHD, including ADHD-Predominantly Inattentive Type (ADHD-PI), ADHD-Predominantly Hyperactive-Impulsive Type (ADHD-HI), and ADHD-Combined Type (ADHD-C). In order for an individual to be diagnosed with ADHD-PI, the individual must display six or more symptoms of inattention for the past six months (such as being easily distracted or forgetful in daily activities). In order for an individual to be diagnosed with ADHD-HI, the criteria are the same except that the individual must demonstrate six or more symptoms of hyperactivity/impulsivity for the past six months (such as being fidgety or blurting out answers) rather than symptoms of inattention. In

order for an individual to be diagnosed with ADHD-C, the individual must meet criteria for both ADHD-PI and ADHD-HI.

In addition to the primary problems associated with ADHD, such as inattention, impulsivity, and hyperactivity, children with ADHD often also experience negative outcomes in the academic (Bussing, Mason, Bell, Porter, & Garvan, 2010; Frazier, Demaree, & Youngtrom, 2004; Gaub & Carlson, 1997; Loe & Feldman, 2007; Massetti, Lahey, Pelham, Loney, Ehrhardt, Lee, & Kipp, 2008) and social (peer and family) domains (Danforth, Barkley, & Stokes, 1991; Edwards, Barkley, Laneri, Fletcher, & Metevia, 2001; Gaub & Carlson, 1997; Hoza, 2007; Unnever & Cornell, 2003). They are often also at increased risk of experiencing comorbid psychological disorders (Jensen, Burke, & Garfinkel, 1988; Kadesjö, & Gillberg, 2001; Miranda, Soriano, Fernández, & Meliá, 2008; Szatmari, Offord, and Boyle, 1989). The specific deficits that children and adolescents with ADHD experience in the academic and social domains, information about the prevalence of and most common comorbid diagnoses for children and adolescents with ADHD, and the developmental course of ADHD and associated outcomes will be discussed below.

Academic domain. Children with ADHD often have lower grades, lower reading and math standardized test scores, and higher rates of grade retention, detention, and expulsion (Loe & Feldman, 2007). Furthermore, these academic difficulties eventually resulted in lower rates of high school graduation and postsecondary education among individuals with ADHD (Loe & Feldman, 2007). Additionally, intelligence, as indicated by full-scale IQ, of children with ADHD has been found to be lower than that of their siblings or other peers without ADHD (Frazier, Demaree, & Youngstrom, 2004).

Research has also demonstrated that adolescents with ADHD and even adolescents with subthreshold ADHD symptoms have increased academic difficulty compared to peers without ADHD in both reading and mathematics (Bussing, Mason, Bell, Porter, & Garvan, 2010). Moreover, adolescents with subthreshold symptoms were found to have even lower graduation rates than adolescents with ADHD, which the researchers suggest may result from a lack of additional educational supports for these students since they lack an ADHD diagnosis (Bussing et al., 2010). Longitudinal research confirmed that students with ADHD consistently underachieved in academics when compared with predicted levels of achievement based on intellectual ability (Massetti, Lahey, Pelham, Loney, Ehrhardt, Lee et al., 2008). Additionally, children who met modified criteria (children met symptom criteria but only displayed impairment in one setting) for ADHD-PI struggled more in the areas of reading, spelling, and mathematics over time than peers without ADHD as well as those who met modified criteria for ADHD-HI. This is consistent with past research indicating the children with the predominantly inattentive subtype of ADHD often experience greater academic impairments and are more likely to have a comorbid learning disability than students with other ADHD subtypes (Gaub & Carlson, 1997).

In summary, regardless of subtype, children and adolescents with ADHD experience difficulties in the academic domain. However, children who meet criteria for the predominantly inattentive subtype of ADHD tend to experience greater academic impairments than children with the hyperactive/impulsive subtypes of ADHD.

Social domain. Children and adolescents with ADHD often struggle with both familial and peer relationships. Children and adolescents with ADHD are more likely to

suffer from difficult familial interactions in general (Edwards, Barkley, Laneri, Fletcher, & Metevia, 2001), and they tend to have greater conflict with their parents than their peers without ADHD have with their parents (Danforth, Barkley, & Stokes, 1991). Children and adolescents with ADHD have also been found to be more likely to have difficult peer relationships than children and adolescents without ADHD (Gaub & Carlson, 1997). In a review of literature concerning peer rejection and ADHD, Hoza (2007) found that between 50% to 80% of children with ADHD are rejected by their peers. This is particularly important given that, regardless of ADHD diagnosis, peer rejection has been found to be associated with negative outcomes such as school dropout, academic underachievement, substance abuse, delinquency, and psychopathology (Bagwell, Schmidt, Newcomb, & Bukowski, 2001). Children with ADHD also have significantly poorer social skills than their peers without ADHD (Merrell & Wolfe, 1998). Specifically, in this study in which teachers rated children's social skills, children with ADHD were rated as particularly lacking social cooperation skills, which referred to their ability to follow rules, to handle structure, and to appropriately fulfill social expectations of their peers and adults in relation to peers without ADHD.

When considering subtype, children displaying predominantly inattentive symptoms tend to be more socially withdrawn (Hodgens, Cole, & Boldizar, 2000) and are often rated as being more sluggish and passive (McBurnett, Pfiffner, & Frick, 2001). On the other hand, children who meet the diagnostic criteria for the HI subtype often present more externalizing, inappropriate behaviors, such as interrupting and talking excessively, and therefore tend to experience more peer problems than those who meet criteria for the PI subtype (Gaub & Carlson, 1997).

Unnever and Cornell (2003) also found that children with ADHD are both more likely to engage in bullying, with 13% of middle school students with ADHD studied engaging in bullying versus 8% of middle school students without ADHD, and to be bullied, with 34% of middle school students with ADHD studied being victimized versus 22% of peers without ADHD. In the Unnever and Cornell study, whether or not a child had ADHD was more strongly associated with being the victim of bullying than a child's height, weight, age, or strength.

In summary, regardless of subtype, children and adolescents with ADHD experience difficulties in the social domain. However, children who demonstrate symptoms of hyperactivity and impulsivity tend to experience more difficulties with peer and familial interactions than children who demonstrate symptoms of inattention.

Comorbid psychopathology. Research has also indicated that ADHD is often associated with comorbid psychiatric disorders, with one study determining that as many as 44% of children with ADHD in a community sample had at least one additional psychiatric disorder, 32% had two other psychiatric disorders, and 11% had three or more comorbid disorders (Szatmari, Offord, & Boyle, 1989). Rates of comorbidity have been found to be even higher in a clinical sample, with 87% of children with ADHD demonstrating at least one comorbid disorder (Kadesjö & Gillberg, 2001). In a study conducted with 72 children with ADHD between the ages of six and 14, children with ADHD-C were found to have the highest rate of comorbid disorders (Miranda, Soriano, Fernández, & Meliá, 2008). Research has also determined that children with the ADHD-PI subtype are more likely to experience comorbid internalizing disorders, such as anxiety and depression (Carlson & Mann, 2000) and less likely to experience comorbid

externalizing disorders, such as Oppositional Defiant Disorder (ODD) and Conduct Disorder (CD) in comparison to the other ADHD subtypes (Crystal, Ostrander, Chen, & August, 2001). Children with the ADHD-HI subtype, on the other hand, have been found to be similar to control group peers in terms of both learning and internalizing problems (Gaub & Carlson, 1997).

Anxiety and mood disorders are some of the most common comorbid diagnoses associated with ADHD, with as many as 17% of girls and 21% of boys between the ages of 4 and 11 in a community sample meeting diagnostic criteria for both ADHD and an anxiety or mood disorder (Szatmari, Offord, & Boyle, 1989). Moreover, once children with ADHD reach adolescence, their chances of having an accompanying mood or anxiety disorder increase, with 24% of boys and 50% of girls meeting criteria during the adolescent years (Szatmari, Offord, & Boyle, 1989). Children with ADHD often have elevated symptoms of depression, and researchers have found that the diagnosis of ADHD often precedes the diagnosis of depression (Jensen, Burke, & Garfinkel, 1988). ADHD also frequently co-occurs with diagnoses of Conduct Disorder (CD) and Oppositional Defiant Disorder (ODD), with anywhere between 45% to 84% of children and adolescents who have been diagnosed with ADHD meeting the criteria for ODD or for both ODD and CD (Barkley, DuPaul, & McMurray, 1990).

It is particularly important to consider the comorbid diagnoses associated with ADHD given that researchers have determined that the clinical course of ADHD is typically worsened by the presence of comorbid disorders (Jensen, Martin, & Cantwell, 1997). Specifically, researchers found that children with ADHD and a comorbid diagnosis were at greater risk for difficult parent-child interactions, poor school

performance, and risk behaviors (Jensen, Martin, & Cantwell, 1997). Similarly, children who were rated as having more cognitive and inattention problems, emotional lability, and conduct problems also demonstrate more severe ADHD symptoms (Miranda, Soriano, Fernández, & Meliá, 2008). In this study, researchers suggested that the presence of these additional emotional and behavioral difficulties may have intensified the degree to which ADHD symptoms were displayed in these children.

In summary, children and adolescents with ADHD are at higher risk for experiencing psychopathology than their peers without an ADHD diagnosis. Children and adolescents who meet criteria for the ADHD-C subtype have been found to be at the highest risk for experiencing comorbid psychopathology. Additionally, children and adolescents who meet the criteria for an ADHD-PI diagnosis are more likely to experience comorbid internalizing symptoms, whereas children and adolescents who meet the criteria for an ADHD-HI diagnosis are more likely to experience comorbid externalizing symptoms.

Developmental course. Research has demonstrated that ADHD and the negative outcomes associated with the disorder often persist into adolescence. Most recently, Bussing et al. (2010) found that 44% of children with childhood ADHD still met criteria for an ADHD diagnosis at age 16. Similarly, researchers have determined through longitudinal research that 35 to 80% of cases of ADHD diagnosed in childhood will persist into adolescence (Barkley, Fischer, Edelbrock, & Smallish, 1990; Gittelman, Mannuzza, Shenker, & Bonagura, 1985). Lara, Fayyad, de Graaf, Kessler, Aguilar-Gaxiola, Angermeyer, and colleagues (2009) examined childhood history of ADHD and its persistence into adulthood in ten countries through World Health Organization World

Mental Health Surveys and found that approximately half of childhood ADHD cases persisted into adulthood and that persistence of ADHD is more likely in individuals with combined-type ADHD, greater general symptom severity, and presence of a comorbid disorder. Similarly, 66% of children with ADHD have been found to demonstrate full or at least partial persistence of ADHD into young adulthood (Weiss, Hechtman, Milroy, & Perlman, 1985). Biederman, Faraone, Milberger, and colleagues (1996) conducted a four-year follow-up study with 6- to 17-year-old children to examine the persistence of ADHD and the specific predictors associated with cases in which persistence occurred. They found that ADHD persisted in 85% of the children and adolescents participating in the study and that a familial history of ADHD, psychosocial adversity (i.e., parental psychopathology and parental conflict), and psychiatric comorbidity, specifically with disruptive behavior, mood, and anxiety disorders, may be accurate predictors of children at-risk for persistence of ADHD into adolescence.

Researchers have also found that it is not only the symptoms of ADHD that persist into adolescence and adulthood, but that the negative outcomes often associated with ADHD also persist. In the academic domain, hyperactive children continue to experience significant educational impairments when they reach young adulthood (Barkley, Fischer, Smallish, & Fletcher, 2006). Specifically, of the young adults included in this study, those diagnosed with hyperactivity in childhood were more likely to have been retained, suspended from high school, to have received special education services, to complete fewer years of formal education, and to have a lower GPA and class ranking than non-ADHD counterparts (Barkley, Fischer, Smallish, & Fletcher, 2006). In addition, 32% of young adults who had been diagnosed with hyperactivity in childhood

failed to complete high school. Similarly, Bussing et al. (2010) also found that adolescents with childhood ADHD and subthreshold ADHD were at an increased risk of failing to graduate than were their peers. Interestingly, subthreshold ADHD, rather than full ADHD, led to an increased risk of grade retention, which points to the importance of recognizing even subthreshold symptoms and intervening early to prevent the develop of future academic difficulties (Bussing et al., 2010).

In the social domain, parents of children with ADHD report that their children are more likely than their peers without ADHD to experience social impairments in adolescence, including peer rejection and having fewer close friendships (Bagwell, Molina, Pelham, & Hoza, 2001). Further, adolescents diagnosed with ADHD in childhood also report having friends who were engaged in fewer conventional activities, such as school and community activities, and more friends who engage in substance use than their peers without ADHD (Bagwell, Molina, Pelham, & Hoza, 2001). Similarly, difficult peer interactions and friendships experienced by children with ADHD have been found to persist into adolescence and adulthood (Weiss, Hechtman, Perlman, Hopkins, & Wener, 1979).

Regarding psychopathology, Bussing et al. (2010) found that adolescents with childhood ADHD were more likely to develop ODD, anxiety, and depression than their peers without ADHD. Moreover, the persistence of ADHD from childhood to adolescence was found to be associated with increased risk for being involved in the juvenile justice system (Bussing et al., 2010). Additionally, researchers have found that behavioral deficits in children with ADHD that go untreated can contribute to the

development of later conduct problems (Fleming, Harachi, Cortes, Abbot, & Catalano, 2004).

Thus, research consistently demonstrates that ADHD symptoms and related problems persist into adolescence and adulthood and can predict the development of additional associated problems. Children with persistent ADHD are likely to experience academic difficulties throughout their educations (Barkley, Fischer, Smallish, & Fletcher, 2006), peer rejection (Bagwell, Molina, Pelham, & Hoza, 2001), and comorbid diagnoses (Bussing et al., 2010; Fleming et al., 2004). Therefore, it is equally important to focus research and intervention efforts on adolescents with ADHD as it is to focus efforts on children with ADHD.

Research on Quality of Life in Adolescents with ADHD

Given the long-term negative outcomes typically associated with ADHD, additional research examining how life satisfaction could protect youth with ADHD from experiencing negative outcomes is warranted. Currently, research on life satisfaction in adolescents with ADHD is very limited, though researchers have examined reports of quality of life, particularly health-related quality of life, in children and adolescents. Quality of life is different than life satisfaction in that life satisfaction is a subjective construct, while quality of life typically refers to both objective and subjective indicators of wellness (Felce & Perry, 1995). Thus, quality of life measures general well-being and includes more concrete, observable aspects of one's life, such as wealth, employment, physical and mental health, and social standing, whereas life satisfaction refers specifically to one's cognitive appraisal of his or her life that is context-free. However, given that quality of life does include subjective appraisals of one's life, the two

constructs have enough overlap that a review of literature on quality of life in children and adolescents with ADHD is warranted.

Danckaerts, Sonuga-Barke, Banaschewski, Buitelaar, Döpfner, Hollis, et al. (2010) conducted a recent review of 36 studies examining quality of life in children with ADHD. Although they reported that it was difficult to compare studies due to researchers' differing definitions of quality of life and use of measures that address difference aspects of quality of life, the researchers concluded that parents were overall very negative in their reports of levels of quality of life in their children with ADHD, but children with ADHD often rated their own quality of life less negatively than their parents did.

Parent reports of quality of life for children with ADHD versus peers without ADHD. Research has indicated that parents of children with ADHD report significantly lower levels of quality of life for their children than do parents of children without ADHD (Escobar, Soutullo, Hervas, Gastaminza, Polavieja, & Gilaberte, 2005; Graetz, Sawyer, Hazell, Arney, & Baghurst, 2001; Klassen, Miller, & Fine, 2004; Sawyer, Whaites, Rey, Hazell, Graetz, & Baghurst, 2002). All four of these studies utilized parents' reports of their child's quality of life on the Child Health Questionnaire (CHQ). The CHQ is a measure commonly used for identifying levels of quality of life in children, and there are child and parent report forms that are comparable across eight domains and a single item, including physical health and functioning, limitations in physical or social activities due to physical health or emotional-behavior problems, bodily pain or discomfort, emotional-behavioral problems, mental health, self-esteem, perceptions of general health, family activities, and family cohesion.

Klassen et al. (2004) found that children with ADHD were rated by their parents as having significantly more deficits in psychosocial quality of life (i.e., impairments in the domains of behavior, mental health, and self-esteem) than their peers, although their physical health was rated as similar to their peers without ADHD. Additionally, children who had at least two diagnoses in addition to ADHD were rated as having a lower psychosocial quality of life than children with only ADHD or children with only one comorbid diagnosis in addition to ADHD (Klassen et al., 2004). Sawyer et al. (2002) also found that parents of children with ADHD rated their children as having a significantly lower quality of life in the domains of self-esteem, emotional-behavioral problems, pain/discomfort, general health, and limitations in other activities than children with no disorder. Graetz et al. (2001) found that parents' quality of life ratings for their children on the CHQ were the lowest for children diagnosed with ADHD-C. Escobar et al. (2005) also found that not only did parents of children with ADHD report lower levels of quality of life for their children than parents of healthy children, but parents of children with ADHD also reported lower levels of quality of life for their children than did parents of children with asthma on the CHQ. Unfortunately, in each of these studies, data on quality of life was only collected from the parent perspective, not from the child perspective, so it is unknown if the parent perspective was consistent with the child's perspective.

Parent versus child reports of quality of life associated with ADHD. Klassen, Miller, and Fine (2006) examined both parent and child reports of quality of life using the CHQ for 58 children and adolescents between the ages of 10-17. Children and adolescents with ADHD reported higher levels of health-related quality of life in the

behavior, self-esteem, mental health, and family cohesion domains in comparison to parent ratings of child functioning. However, children and adolescents with ADHD also reported lower levels of health-related quality of life in the physical function domain in comparison to parent reports. One additional study examined parent versus child reports of quality of life for children with ADHD and found conflicting results, as both parents and children in this study rated the quality of life of children with ADHD as lower than the quality of life of their peers (Pongwilairat, Louthrenoo, Charnsil, & Witoonchart, 2005). This highlights the importance of considering who the rater is when examining previous literature on quality of life in children diagnosed with ADHD.

Children's reports of quality of life associated with ADHD. Interestingly, Klassen, Miller, and Fine (2006) found that children and adolescents with ADHD reported overall levels of quality of life that were very similar to norms for children without ADHD. Thus, not only were their reports discrepant from their parents' report, but they also did not perceive themselves as functioning particularly worse than other children their age. This is consistent with research conducted by Landgraf and Abetz (1997) examining reports on the CHQ by children with ADHD, healthy controls (i.e., children without a physical or mental health diagnosis), and patients receiving hemodialysis treatment. In this study, children with ADHD rated similar levels of quality of life across all domains of the CHQ when compared to the healthy control group.

Interestingly, not all of the studies reviewed by Danckaerts et al. (2007) found that children and adolescents with ADHD rated their quality of life as similar to youth without ADHD. For example, Hampel and Desman (2006) examined coping and quality of life, as measured by the Kid-KINDL-R, in children ages 8-12. The Kid-KINDL-R is a

self-report measure of overall health-related quality of life for children and adolescents that includes six specific subscales (i.e., physical well-being, psychological well-being, self-esteem, family, friends, and functioning in school). All students with ADHD (n = 48) reported lower levels of quality of life across all domains than normative data for children their age. Topolski, Edwards, Patrick, Varley, Way, and Buesching (2004) found similar results in a study conducted with 55 adolescent males. The researchers examined levels of quality of life in adolescents with ADHD (n = 55), adolescents with impaired mobility (n = 52), and healthy controls (n = 107) using the YQOL-R, which measures global quality of life and specific domains pertaining to self (e.g., mental health, physical health, belief in self, being oneself, and spirituality), relationships (e.g., adult support, caring for others, family relationships, freedom, friendships), and environment (e.g., activities, education, resources, neighborhood). The researchers found that the adolescents with ADHD reported significantly lower levels of quality of life in the Sense of Self (e.g., belief in self, being oneself, mental health, physical health, and spirituality) and Social Relationships (e.g., adult support, caring for others, family relations, freedom, friendships, participation, and peer relations) domains than their peers in the healthy control group and that the levels of quality of life reported by adolescents with ADHD were similar to those reported by the adolescents with impaired mobility. Bussing et al. (2010) also examined the quality of life, as measured by the Child Health Questionnaire (CHQ), with a sample of 169 students meeting full or subthreshold DSM-IV criteria for ADHD, as well as functional impairments, as measured by the Columbia Impairment Scale (CIS). Bussing and colleagues found that parents of adolescents with ADHD and adolescents with ADHD reported higher levels of functional impairment and

lower quality of life than peers with subthreshold or no ADHD. In addition to reporting a decreased quality of life, adolescents with ADHD also reported higher levels of oppositional defiant disorder, anxiety, and depression and increased involvement in the juvenile justice system. Adolescents with full and subthreshold ADHD experience decreased academic outcomes (e.g., a higher likelihood of receiving services for learning disabilities, of being retained, and of failing to graduate) in comparison to peers without ADHD.

Thus, current research on reports of quality of life among children and adolescents with ADHD is mixed. Although research has consistently reported that parents of children with ADHD indicate worse perceptions in regard to their child's quality of life when compared to peers without ADHD, the self-reports of children with ADHD are more variable. However, these discrepancies could be due to inconsistencies in the definitions of the quality of life construct across studies (Danckaerts et al., 2010). Danckaerts et al. (2010) also suggest that these discrepancies could results from methodological limitations within the studies, such as the fact that the majority of the samples included in the studies were clinic-referred populations or the fact that the majority of the studies relied on parent reports of both symptoms and quality of life, thus allowing for shared-rater bias in that parents may inaccurately report both elevated symptoms and quality of life, thereby complicating the association between the two variables.

Research on Life Satisfaction in Adolescents with ADHD

Currently, there is a lack of research relating specifically to life satisfaction, as opposed to quality of life, in children or adolescents with ADHD. Given that it is likely

that the core symptoms of ADHD and the associated problems may predict lower levels of life satisfaction, more research is need to specifically examine the relationship between ADHD and life satisfaction. There has only been one study to date that has examined the relationship between life satisfaction and ADHD among any age group. Gudjonsson, Sigurdsson, Eyjolfsdottir, Smari, and Young (2009) examined the relationship between life satisfaction, ADHD symptoms, and other social and emotional concerns among university students. Participants in this study were 369 students, 107 males (29%; average age of 22.5 years) and 259 females (70%; average age of 23.7 years) from the University of Iceland. Participants completed the RATE-S self-report questionnaire, which consists of four subscales: ADHD Symptoms, Emotional Control, Antisocial Behavior, and Social Functioning (Young & Ross, 2007). In order to establish reliability of the RATE-S scale, participants were also given the DSM-IV Checklist of Symptoms, a self-report measure that directly links to ADHD symptoms as outlined in the DSM-IV. Life satisfaction was determined through the Satisfaction with Life Scale (SWLS; Diener, Emmons, Larsen, & Griffin, 1985), a self-report measure of global life satisfaction. In this study, ADHD symptoms were considered on a continuum, rather using categorical distinctions based on criteria for diagnosis. Gudjonsson et al. (2009) found that symptoms of attention and hyperactivity individually, as well as a total score of attention and hyperactivity combined, were negatively related to lower levels of global life satisfaction. Specifically, participants' scores on the SWLS were significantly negatively correlated with the RATE ADHD subscale (r = -.41 for females, r = -.34 for males). Similarly, students' scores on the SWLS were also significantly negatively correlated with DSM-IV criteria, with the strongest relationship demonstrated for attentional criteria

for females (r = -.40) and hyperactivity criteria for males (r = -.34). A summary of the correlation matrix from this study between ADHD measures and SWLS scores is provided in Table 1.

Table 1. *Correlations between ADHD symptoms and SWLS scores for males (above the diagonal) and females (below the diagonal) from Gudjonsson et al. (2009)*

	1	2	3	4	5	6	7	8	9
1. RATE total	--	.87***	.88***	.68***	.51***	.57***	.60***	.40***	-.46***
2. RATE ADHD	.85***	--	.71***	.58***	.21*	.64***	.71***	.41***	-.34***
3. RATE Emotional	.91***	.70***	--	.55***	.30***	.53***	.51***	.42***	-.40***
4. RATE Antisocial	.64***	.48***	.54***	--	.01	.33***	.26**	.31**	-.21*
5. RATE Social	.54***	.23***	.34***	.10	--	.13	.22*	.02	-.39***
6. DSM-IV Overall	.54***	.53***	.44***	.35***	.26***	--	.88***	.88***	-.19*
7. DSM-IV Attentional	.62***	.63***	.52***	.34***	.31***	.91***	--	.56***	-.26**
8. DSM-IV Hyperactivity	.35***	.33***	.29***	.29***	.16*	.91***	.65***	--	-.34***
9. SWLS	-.50***	-.41***	-.49***	-.27***	-.27***	-.34***	-.40**	-.22***	--

Note. *p < .05, **p <.01, ***p < .001.

Additionally, multiple regression analyses indicated that ADHD symptoms were less predictive of life satisfaction than social functioning (in males) and emotional control (in females; Gudjonsson et al., 2009). Unfortunately, the researchers did not examine if ADHD symptoms were still related to life satisfaction when controlling for the associated problems of depression, anxiety, and stress, so it is not clear if it is the ADHD symptoms or the associated factors (or both) that predict levels of life satisfaction. Even though the levels of ADHD symptoms in this study were mild, they were still found to be significantly related to lower levels of life satisfaction as indicated by significant bivariate correlations. Thus, the researchers hypothesized that individuals with more

severe symptoms might experience even greater deficits in life satisfaction. Given these findings and the fact that research has demonstrated that ADHD persists throughout the course of life, it is important to examine life satisfaction in a younger population of individuals with ADHD.

Variables Related to Life Satisfaction and ADHD

It is important to examine how factors related to life satisfaction and ADHD independently, as identified by prior research, may specifically relate to the relationship between life satisfaction and ADHD. In particular, it is important to consider how family functioning, academic achievement, and symptoms of depression may relate to life satisfaction in students with ADHD.

It is important to examine how family functioning may affect this relationship given that research has consistently demonstrated that positive family experiences are related to life satisfaction in children and adolescents (Burke & Weir, 1979; Demo & Acock, 1996; Dew & Huebner, 1994; Suldo & Huebner, 2004b; Young et al., 1995). Moreover, research has also consistently demonstrated that children and adolescents with ADHD are more likely to experience difficult familial interactions (Edwards et al., 2001) and conflict with their parents (Danforth et al., 1991). Given the research on family conflict and life satisfaction and family conflict and ADHD, it is important to consider if perceived levels of family conflict may influence the strength of the relationship between symptoms of ADHD and life satisfaction.

It is also important to examine if higher levels of life satisfaction could serve as a buffer against decreased academic achievement for adolescents with ADHD. Research has demonstrated that children and adolescents with higher levels of life satisfaction

experience increased academic self-efficacy (Suldo & Huebner, 2006) and higher GPAs and better attitudes towards school (Gilman & Huebner, 2006). Given that children and adolescents with ADHD often experience significant deficits in the academic domain (Bussing et al., 2010; Frazier et al., 2004; Gaub & Carlson, 1997; Loe & Feldman, 2007; Massetti et al., 2008), it is important to consider if higher levels of life satisfaction could serve as a protective factor against academic difficulties for adolescents with ADHD.

Similarly, it is also important to examine if higher levels of life satisfaction could serve as a buffer against the development of comorbid depressive symptoms for adolescents with ADHD. Research has demonstrated that low levels of life satisfaction often precede the development of depression (Lewinsohn et al., 1991). On the other hand, research has demonstrated that high levels of life satisfaction can serve as a buffer against the development of psychopathology for adolescents who experience stressful life events (Suldo & Huebner, 2004a). Research has also determined that anxiety and mood disorders are some of the most common comorbid diagnoses associated with ADHD (Szatmari et al., 1989) and that a diagnosis of ADHD often precedes a diagnosis of depression (Jensen et al., 1988). Given this relationship, it is important to consider if higher levels of life satisfaction could serve as a protective factor against the development of comorbid depressive symptoms for adolescents with ADHD.

Conclusions

Further research is needed to explore the relationship between life satisfaction and ADHD. Given the fact that that research has demonstrated that increased levels of life satisfaction are associated with positive outcomes in various domains of functioning and that individuals with ADHD experience impairments in the academic and social domains, as well as psychological functioning, it seems likely that children with ADHD may

experience decreased life satisfaction when compared to nondisabled peers. This hypothesis has tentative support, as the one study that examined this relationship (Gudjonsson et al., 2009) found a negative relationship between ADHD symptoms and life satisfaction, albeit among young adults. Additional research is needed with children and adolescents to gain a better understanding of the link between ADHD symptoms and life satisfaction.

Although research on life satisfaction and ADHD is limited, researchers have examined the relationship between ADHD and quality of life. However, findings from this literature are mixed (Danckaerts et al., 2010). Although studies have consistently determined that parents of children with ADHD tend to report lower levels of quality of life for their children than do parents of children without ADHD (Escobar, Soutullo, Hervas, Gastaminza, Polavieja, & Gilaberte, 2005; Graetz, Sawyer, Hazell, Arney, & Baghurst, 2001; Klassen, Miller, & Fine, 2004; Sawyer, Whaites, Rey, Hazell, Graetz, & Baghurst, 2002), research varies regarding children's and adolescents' own reports of their quality of life. For example, in two studies, children with ADHD reported their quality of life as similar to that of peers without ADHD (Klassen, Miller, & Fine, 2006; Landgraf & Abetz, 1997). On the other hand, several other studies have determined that children with ADHD report decreased quality of life in relation to their peers (Bussing et al., 2010; Hampel & Desman, 2006; Topolski et al., 2004). These discrepancies may be due to several factors, such as differences in the way quality of life is defined in each study, methodological limitations such as the use of clinic-referred populations, or reliance on reports of quality of life from children and parents that could be open to bias

(Danckaerts et al., 2010). Therefore, more research is needed to determine the relationship between ADHD and quality of life.

At this time, only one published study has been conducted that specifically examined life satisfaction and ADHD, and it was conducted with an adult population (Gudjonsson et al., 2009). However, the researchers did find a relationship between life satisfaction and even mild ADHD symptoms. It is important to examine if this relationship is demonstrated in childhood and adolescence as well. Gudjonsson et al. (2009) concluded that, "It is likely that ADHD and associated symptoms, even if mild as in the present study, interfere with the ability of the person to achieve satisfaction with life as a whole" (pp. 513).

Given that research has established a tentative connection between ADHD and life satisfaction in adulthood and research demonstrating that ADHD often persists from childhood and adolescence to adulthood (Bussing et al., 2010), it is important to examine the relationship between ADHD symptoms and life satisfaction in adolescence. It is also important to consider if interparental conflict, a factor that is related to both ADHD symptoms and life satisfaction, may moderate the relationship between symptoms of ADHD and levels of life satisfaction. Given that life satisfaction may also serve as a buffer against the development of negative outcomes (Lewinsohn et al., 1991; Suldo & Huebner, 2004a), it is also important to consider whether life satisfaction moderates the relationship between symptoms of ADHD and negative outcomes commonly associated with ADHD (e.g., decreased academic achievement and depressive symptoms).

CHAPTER III: Method

The overarching purpose of the current study was to gain insight regarding the relationship between life satisfaction and ADHD symptoms. The current study first examined if severity of ADHD symptoms predicted life satisfaction in middle school students. Additionally, this study examined if perceived interparental conflict moderated the strength of the relationship between ADHD symptoms and levels of life satisfaction. The current study also examined if life satisfaction served as a moderator between ADHD symptoms and academic achievement in reading and mathematics. Lastly, this study also examined if life satisfaction served as a moderator in the relationship between ADHD symptoms and depressive symptoms. The following chapter provides an in depth explanation of the methods for the current study, including a description of participant selection, participant characteristics, measures, and procedures. In addition, an overview of the analyses conducted to examine each research question is provided.

Participants

The current study utilized an archival dataset. Data were collected during the 2009-2010 school year. Participants in this study were students in grades six through eight who were recruited from two public middle schools in a large school district in the southeast. The two schools from which the data were collected were selected for this study based on their diverse socioeconomic and cultural populations. Both schools were public schools that offer a general middle school curriculum. However, School 1 was a certified Advanced Via Individual Determination (AVID) school. AVID programs aim

to reduce the achievement gap between students from different ethnic and socioeconomic backgrounds through teaching study skills. Although components of AVID are implemented at most schools in the district, school with an AVID certification place more emphasis on the AVID curriculum. Moreover, approximately 15% of the students at School 1 were enrolled in a magnet program at the school for mathematics, science, technology, and engineering. Students were eligible to participate in this program based on their test scores and prior academic achievement in school. Approximately 10% of the students at School 1 enrolled in this school due to School of Choice, which is a program in which students are permitted to select and apply to specific schools based on their personal preferences. School 1 had three self-contained classrooms for students with cognitive impairments. Approximately 80% of the students at School 1 received free and reduced lunch, and approximately 81% of the students at this school were from an ethnic minority background. School 1 received a grade of B for the first time for the year data were collected; previously, School 1 typically achieved a C grade.

School 2 was described by a school-level administrator as a typical school in that there are no self-contained classrooms and no magnet program, but there is a gifted program. Approximately 25% of the students at School 2 were enrolled as a result of School of Choice. Additionally, approximately 54% of the students at School 2 received free and reduced lunch, and approximately 59% of students at this school were from an ethnic minority background. School 2 typically receives an A grade and received an A during the year data were collected. Additional information on the demographics of these two schools can be found in Table 2, and demographics for the school district in which the two schools are located are provided in Table 3.

Table 2. *School Demographic Information*

	School 1 % (n)	School 2 % (n)	Total % (n)
Gender			
Male	52.8% (473)	47.9% (521)	50.1% (994)
Female	47.2% (422)	52.1% (567)	49.9% (989)
Grade Level			
Six	31.1% (278)	35.5% (386)	33.5% (664)
Seven	35.6% (319)	33.2% (361)	34.3% (680)
Eight	33.3% (298)	31.4% (342)	32.3% (640)
Race/Ethnicity			
American Indian or Alaskan Native	0.6% (5)	0.2% (2)	0.4% (7)
Asian or Pacific Islander	2.7% (24)	3.4% (37)	3.1% (61)
Black, Non-Hispanic	52.7% (472)	6.3% (69)	27.3% (541)
Hispanic	20.0% (179)	42.6% (463)	32.4% (642)
Multiracial	5.1% (46)	6.3% (69)	5.8% (115)
White, Non-Hispanic	18.9% (169)	41.2% (448)	31.1% (617)
Free & Reduced Price Lunch Status			
Yes	80.0% (716)	53.5% (582)	65.5% (1298)
No	20.0% (179)	46.5% (506)	34.5% (685)
Receiving ESL Services	12.5% (112)	14.6% (159)	13.7% (271)
Students Enrolled in ESE	20.3% (182)	15.3% (166)	17.6% (348)
Total Enrollment	45.1% (895)	54.9% (1,088)	100.0% (1,983)

Note. ESL=English as a Second Language; ESE=Exceptional Student Education.

Table 3. *District Demographic Information*

	District N = 207,285	
Variable	n	%
Gender		
Male	107061	51.6
Female	100224	48.4
Race/Ethnicity		
Black	44896	21.7
Asian/Pacific Islander	6816	3.3
White	83693	40.4
Hispanic	60938	29.4
Native American/ Alaska Native	617	0.3
Multiracial	10325	5.0
Free/Reduced Price Lunch		
Yes	90946	56.1
No	116339	43.9

Selection of Participants

Students. In order to be eligible to participate in this study, students were required to be enrolled full-time in the general or gifted education curriculum at one of the two middle schools. Students also had to return a consent form signed by a parent or

guardian prior to participation in the study. Immediately prior to administration of the survey, an assent form was reviewed with the students, and they were required to sign the form if they chose to participate. Students whose first language was not English and students educated exclusively in self-contained special education classrooms were not included in the present study. Total enrollment across both schools was 1983 (school 1 *n* = 895; school 2 *n* = 1088). Parental consent was obtained for a total of 198 students (10% return rate). One-hundred eighty-three students were present and gave assent to participate in the study (9% of students enrolled across both schools). However, the response rate may have been higher when considering only the students who were eligible to participate in the current study (i.e., students with English proficiency who were not served exclusively in self-contained special education classrooms). Although the exact number of students that meet these criteria excluded is unknown, 12.5% and 20.3% of School 1's student body receive English as a Second Language (ESL) or Exceptional Student Education (ESE) services, respectively. At School 2, 14.6% and 15.3% of the student body receive ESL or ESE services, respectively. Thus, the response rate is estimated to be 10% of the total enrollment across both schools (Total = 1,983; School 1 *n* = 895; School 2 *n* = 1088), 12% of the total enrollment across both schools with ESL students removed (Total = 1,652; School 1 *n* = 784; School 2 *n* = 868), and 12% of the total enrollment across both schools with ESE students removed (Total = 1,687; School 1 *n* = 765; School 2 *n* = 922). Although not all ESE students were excluded (only those students served in self-contained classrooms), these percentages provide a better understanding of who was eligible to participate in the study. Descriptive statistics of the demographics of all study participants will be provided in Table 4.

Table 4. *Characteristics of Participants (N=183)*

	School 1 Sample (n = 85)		School 2 Sample (n = 98)		Total Sample (n = 183)	
Variable	*n*	%	*n*	%	*n*	%
Gender	85	100	98	100	183	100
Male	26	30.6	40	40.8	66	36.1
Female	59	69.4	58	59.2	117	63.9
Grade	85	100	98	100	183	100
Six	55	64.7	30	30.6	85	46.4
Seven	14	16.5	33	33.7	47	25.7
Eight	16	18.8	35	35.7	51	28.0
Ethnicity	85	100	98	100	183	100
African-American	40	47.1	8	8.2	48	26.2
Asian/Pacific Islander	3	3.5	2	2.0	5	2.7
White	21	24.7	45	45.9	66	36.1
Hispanic	15	17.6	37	37.8	52	28.4
Native American/ Alaska Native	0	0	0	0	0	0
Other	6	7.1	6	6.1	12	6.6
Free/Reduced Price Lunch*	85	100	98	100	183	100
Yes	62	72.9	44	44.9	106	57.9
No	23	27.1	54	55.1	77	42.1

Note. *Free and reduced lunch status reported was obtained from student records

Teachers. Homeroom teachers of student participants were also asked to participate in the study. Specifically, teachers were asked to complete a measure for each student in their homeroom class who participated in the study. Homeroom teachers were selected for this study because the administrators at each school believed that they would

know the students in their homeroom class well due to the fact the students spent more time with their homeroom teachers than with their other teachers because they are with these teachers not only for homeroom, but also for one academic subject area. However, if a homeroom teacher did not agree to participate in the study, then the administrator at the school selected another teacher with whom the student had class throughout the school year. At School 1, 42% of teachers who completed the surveys were not homeroom teachers, whereas at School 2, only 6% of the teachers who completed the surveys were not homeroom teachers. A letter of informed consent was distributed to all of the teachers who had students in their homeroom who obtained consent to participate in the study. Teachers were informed that they would receive a $2 gift card for each measure they completed. Teacher data were obtained for all students, and 52 teachers completed measures for approximately 1-10 students each.

Measures and Achievement Indicators

This study is part of a larger study that included a 12 page packet consisting of multiple measures. As part of the larger study, students completed several measures that were analyzed in the current study. Additional data were collected from student records, including students' grade level, students' reading and math scores from the Florida Comprehensive Assessment (FCAT), students' grades from the current academic year, and students' free and reduced price school lunch status, which was utilized as an indicator of socioeconomic status (SES). Additionally, teacher measures were also utilized in this study.

Student Measures and Achievement Indicators

Demographic form. Students completed a demographic form (see Appendix E), which was comprised of 14 questions regarding age, grade, gender, race/ethnicity, SES,

estimated grade point average (GPA), school attendance, school discipline history, history of arrests, medication use, family structure, and past and current mental health concerns. The current study utilized questions regarding gender and age. All 14 questions included on this form were structured in a multiple-choice format.

Florida Comprehensive Assessment Test (FCAT). FCAT reading and math scores were used in this study to indicate students' academic achievement in reading and math. The FCAT is a standardized test administered at the end of the year to students in grades three through eleven in Florida in order to measure students' progress toward meeting benchmark goals established by the Florida Sunshine State Standards. FCAT reading and math scaled scores range from 100, the lowest possible score, to 500, the highest possible score. FCAT scores have been found to have a high internal consistency as determined by Cronbach's alpha scores, which have been found to range from .94 to .95 for math and .85 to .90 for reading for students in 6th and 8th grade, respectively (Florida Department of Education, 2007). For the proposed study, students' reading and math scores from the 2010 FCAT were obtained from school FCAT reports and were utilized to represent students' reading and mathematics achievement.

Students' Life Satisfaction Scale (SLSS). The SLSS (see Appendix F) is a measure that was designed to examine global life satisfaction in children and adolescents (Huebner, 1991). The SLSS is a 7-item measure in which students are asked to respond to items designed to assess global life satisfaction, such as "My life is going well." Two of the items in this measure are reverse-scored (e.g., "I would like to change many things in my life" and "I wish I had a different kind of life"). Students' responses range from a low score of 1, which indicates that the student strongly disagrees with the

aforementioned statement, to a high score of 6, which indicates that the student strongly agrees with the aforementioned statement. To obtain a total score for the measure, reverse-scored items are reflected, and then the average is calculated across all seven items.

The SLSS was piloted by Huebner (1991) on a sample of 254 children ages 7-14 and a second sample of 329 children ages 8-14, all of whom were from the midwestern United States (Huebner, 1991). This initial study and subsequent studies have reported internal consistency reliability scores above .80 for this measure (Dew & Huebner, 1994; Gilman & Huebner, 1997; Huebner, 1991). In the pilot study, researchers also found that the measure had a test-retest reliability of .74 across one to two weeks (Huebner, 1991). Moreover, the measure has been found to have concurrent validity through comparisons of child and parent reports of children's life satisfaction (Dew & Huebner, 1994; Gilman & Huebner, 1997) and comparisons to other measures of global life satisfaction (Dew & Huebner, 1994; Huebner, 1991). Research concludes that the SLSS is not subject to racial bias (Huebner, 1994).

Children's Perception of Interparental Conflict Scale (CPIC). The CPIC (see Appendix G) is a measure that was designed to examine child perceptions of interparental conflict (Grych, Seid, & Fincham, 1992). The CPIC was designed to measure nine dimensions of interparental conflict, which include frequency, intensity, resolution, content, blame, perceived threat, coping, triangulation, and stability (Grych, Seid, & Fincham, 1992).

The CPIC is divided into three scales, the Conflict Properties, Threat, and Self-Blame scales. Only items from the Conflict Properties scale were administered in the

larger study. This scale is considered to be a valid measure of marital conflict because it is designed to measure both the frequency and intensity of marital discord, and it has found to be strongly associated with parent reports of marital conflict (Grych, Seid, & Fincham, 1992). The Conflict Properties scale includes 19 items and specifically assessed the frequency, intensity, and resolution of parental disagreements. At the top of the measure, students are asked to report the individuals with whom they live by choosing between six predetermined options or selecting "other" and supplying additional information. The 19 questions that comprise the measure ask students to respond to statements such as, "I often see my parents arguing," which assesses frequency, "My parents get really mad when they argue," which assesses intensity, and "Even after my parents stop arguing, they stay mad at each other," which measures resolution, by choosing either "True," "Sort of True, " or "False." The Conflict Properties scale was found to be reliable and valid in the pilot study, which included two samples of early adolescents (ages 9 to 12), with 222 adolescents in the first sample and 144 adolescents in the second sample (Grych et al., 1992). Specifically, coefficient alphas for the Conflict Properties scale were .90 for Sample 1 and .89 for Sample 2, and the test-retest correlation over two weeks for children from Sample 2 was .70. The CPIC was also yielded adequate reliability ($\alpha = .87$) when used in an additional study by Reese-Weber and Hesson-McInnish (2008). Grych and colleagues (1992) found the Conflict Properties scale to be a valid measure based on significant correlations with parent-reported measure of conflict within marriages and aggression ($r = .30$), as measured by the O'Leary-Porter Scale (OPS; Porter & O'Leary, 1980) and the Marital Adjustment Test (MAT; Locke & Wallace, 1959).

Center for Epidemiological Studies Depression Scale (CES-D). The CES-D (see Appendix H) is a 20 item self-report measure used to screen for depressive symptoms (Radloff, 1977). Participants are asked to indicate the frequency with which they experience certain feelings or engage in certain behaviors during the past week (e.g., "I thought my life had been a failure," or "I did not feel like eating; my appetite was poor"). Four of the items on the scale are reverse scored (e.g., "I felt I was just as good as other people). All responses are on a 4-point scale, with 0 being the lowest score and indicating the presence of these feelings or behaviors rarely or none of the time, and 3 being the highest score and indicating the presence of their feelings or behaviors most or all of the time. Total scores on the measure range from 0 to 60, with higher scores indicating increased frequency in the experience of depressive symptoms. It is important to note that this measure cannot be used to provide a clinical diagnosis of depression, and high scores do not necessarily indicate clinical levels of depression. In adults, it has been recommended that individuals scoring 16 or higher should be identified as at-risk for a clinical diagnosis of depression (Radloff, 1977). For adolescents, research on appropriate cutoff scores indicates that a score of 24 yields a 9.2% depression prevalence rate in a sample of students in grades 7-12, which is closer to the estimated community-based prevalence rate of 1.5-8% (Rushton, Forcier, & Schechtman, 2002). A cutoff of 16 yielded a much high prevalence rate of 28.7% and therefore is not considered to be an accurate cutoff score for the adolescent population (Rushton et al., 2002).

Although total scores on the CES-D are commonly reported as a global measure of depression (Edwards, Cheavens, Heiy, & Cukrowicz, 2010), it was actually designed using a four-factor structure (Radloff, 1977). The four components originally reported

for the scale include depressed affect (e.g., feeling depressed, lonely, sad, etc.), positive affect (e.g., feeling good, hopeful, and happy), somatic and diminished activity (e.g., decreased appetite, restless sleep, difficulty getting going, etc.), and interpersonal (e.g., feeling that others are unfriendly or feeling disliked). Edwards, Cheavens, Heiy, and Cukrowicz (2010) found that of the 114 studies published since 2000 that used the CES-D as a primary measure, 107 of the studies reported a total score combining all items of the measure. Only seven of the studies mentioned the four-factor structure, and only two studies specifically examined each factor (Edwards, Cheavens, Heiy, & Cukrowicz, 2010).

Research has demonstrated that the CES-D has high internal consistency (all 20 items $\alpha = .88$) and moderate test-retest reliability when utilized with adolescents ($r = .61$; Roberts, Lewinsohn, & Seeley, 1991). It is important to note that higher correlations are found with shorter test-retest intervals, which is not surprising given that the scale measures depressive symptoms during the past week (Roberts, Lewinsohn, & Seeley, 1991). High, positive correlations ($r = .70$) with the Beck Depression Inventory (BDI) demonstrate criterion validity evidence (Roberts et al., 1991).

Teacher Measures

Vanderbilt ADHD Diagnostic Teacher Rating Scale (VADTRS). To determine the severity of ADHD symptoms for the student participants, inattentive and/or hyperactive symptoms endorsed on the VADTRS (Wolraich, Feurer, Hannah, Baumgaertel & Pinnock, 1998; see Appendix D**)** were counted**.** Symptoms of ADHD were examined along a continuum, allowing all study participants to be included in the analyses. The one study examining life satisfaction in university students with ADHD by

Gudjonsson et al. (2009) also examined severity of symptoms, rather than only including students in the study who met a predetermined cut-off for number or intensity of symptoms present. Although the Gudjonsson and colleagues (2009) study utilized self-report of ADHD symptoms, it was a study that was conducted with adults rather than children. Given that past research has suggested that children are less accurate reporters of externalizing behavior than their parents and teachers, teachers' ratings were utilized in this study (Phares, 1997). Both inattentive and hyperactive/impulsive symptoms were considered for each student participant, with the severity of these symptoms ranging from 0 (no symptoms endorsed) to 9 (all symptoms endorsed by the teacher).

The Vanderbilt ADHD Diagnostic Teacher Rating Scale (VADTRS; Wolraich et al., 1998) is a 43 item rating scale in which teachers are asked to report the presence and severity of inattention, hyperactivity, and impulsivity displayed by a student in their homeroom classroom. The VADTRS items directly correspond to the *Diagnostic and Statistical Manual of Mental Disorders, Fourth Edition* (DSM-IV; APA, 2000) ADHD diagnostic criteria. When completing this measure, the teacher is to keep in mind the developmentally appropriate behaviors that would be expected for the student based on his or her age. The measure includes nine items that assess symptoms of Inattention (e.g., "Is forgetful in daily activities") and nine items that assess Hyperactive/Impulsive symptoms (e.g., "Fidgets with hands or feet and squirms in seat"). The VADTRS also includes items that are intended to screen for comorbid symptoms (e.g., "Is sad, unhappy, or depressed). All items on the measure are rated on a four-point scale from 0 (*never*) to 3 (*very often)*. Based on recommendations by the authors of the VADTRS, symptoms are considered present in the present study if they are rated as a 2 (*often*) or 3 (*very often*).

The VADTRS has high internal consistency for both the Inattention (α= .92) and the Hyperactivity/Impulsivity scales (α = .90; Wolraich et al., 1998). The high internal consistency of the scale was also evident in a study including teachers' ratings of ADHD symptoms for children in elementary school in Spain, Germany, and the United States (Wolraich, Lambert, Baumgaertel, Garcia-Tornel, Fuerer, Bickman, et al., 2003). In this study, internal consistencies ranged from .95-96 for items measuring Inattention and from .87-.93 for items measuring Hyperactivity/Impulsivity. Wolraich et al. (1998) also conducted a confirmatory factory analysis and found that data supported a two-factor solution, in which Inattention and Hyperactivity/Impulsivity are viewed separately, rather than considering all the symptoms together or as three separate symptoms (e.g., Inattention, Hyperactivity, and Impulsivity). Test-retest and validity data have not yet been reported for this instrument.

Procedures

The current study is part of a larger study, which was approved by the Institutional Review Board (IRB) at the University of South Florida (USF), that is examining the experiences of adolescents displaying symptoms of inattention, hyperactivity, and impulsivity in order to better understand how these behaviors relate to adolescents' academic, social, emotional, and psychological functioning. The principal investigators (PIs) for this study are Drs. Julia Ogg and Rance Harbor. Data were collected in the Spring of 2010 by a research team of graduate students, including the author of the current study, led by the first PI, who is a faculty member in the USF School Psychology Graduate Program. All data collection assistants received training from the PI in to ensure standardization across data collection. Separate IRB approval

was obtained for the proposed study in order to allow the author of this document access to the larger dataset.

Student Survey

The aforementioned student questionnaires, as well as additional measures that were part of the larger study but are not relevant to the proposed study, were compiled into a comprehensive packet. Six versions of the survey packet, in which measures were arranged systematically in differing orders, were administered in order to control for possible order effects. The questionnaire packet and standardized instructions were piloted with a group of 15 middle school students in a 7th grade English class comprised of students who were considered to be average or typically achieving for their grade level. After completing the pilot questionnaire, students were asked questions regarding the clarity of the survey and appropriateness of the length and time necessary for completion of the survey. Necessary revisions were made the survey following the pilot.

A letter of informed consent was sent home to parents of all students currently attending the two middle schools (N = 2,000) prior to data collection. Students were offered two incentives to return their parent consent forms. Specifically, students were informed that they would be entered into a drawing for a $25 gift card to a local store if they brought back signed parent consent forms. Students were also informed that they would receive a small incentive for completing the survey on the day of data collection.

Once parental consent was obtained, students were told to report to a predetermined location at their respective school in order to complete the survey one day during the 2010 spring semester. Students completed the surveys during an elective class period, and completion of the survey required approximately 40 minutes. One of the PIs

and at least one graduate student who was trained in administering the survey packets was present throughout adminsitration in order to read the student assent form aloud prior to survey completion (including to explain confidentiality and to inform students that their participation was voluntary and that they could withdraw their participation at any time during completion of the survey) and to monitor the classroom throughout survey administration while students independently completed the measures in order to answer questions, and ensure accurate completion of the survey. When the students completed the survey, one of the PIs or a trained graduate student reminded students to review their survey and double-check that they had answered every question they wanted to answer and had only provided one response for each item.

Teacher Survey

Informed consent was also gathered from teacher participants prior to administration of the teacher survey. Teachers who gave consent were provided with a packet containing the VADTRS and an additional measure not relevant to the proposed study for each student participant in their homeroom class. Teachers were given approximately one week to complete the rating scales, and completion of the scales was estimated to be approximately 5 minutes per student. Teachers were provided with contact information for one of the PIs if they had questions related to completion of the rating scales. The PI picked up the completed packets from the school. Teachers were provided with a small incentive ($2 gift card) for completion of each packet of measures.

Analyses

A series of statistical analyses were performed to answer the research questions proposed for this study. Descriptive statistics were calculated, and analyses intended to

answer the five research questions were conducted. SPSS 19.0 statistical software was used to complete all analyses.

Descriptive Analysis

First, all data were screened to detect the presence of outliers. Means, standard deviations, and additional descriptive data (i.e., skew, kurtosis, etc.) were obtained for the entire sample for all variables of interest, including: demographic variables (gender, grade, ethnicity, free/reduced lunch status), students' reports of interparental conflict (CPIC), students' total depression score (CES-D), FCAT reading and math scores (school records), and ADHD symptoms (VADTRS). Cronbach's alpha was also calculated for each measure in order to determine the internal consistency of these measures when utilized with this particular sample.

Preliminary Analyses

A correlation matrix was calculated with all variables of interest to determine the direction and strength of the bivariate relationships between these variables. In particular, intercorrelations between inattentive and hyperactive/impulsive symptoms were examined in order to ensure that the two variables were not highly correlated ($r \geq$ .08). Because the two variables were not highly correlated, they were both entered as predictors in simultaneous multiple regressions for research questions 1-5. The correlation matrix also demonstrated if symptoms of ADHD were significantly related to academic achievement in reading, academic achievement in mathematics, and symptoms of depression, as the relationships between these variables are assumed in research questions 3-5.

Research Question 1

The following analyses were conducted to address the research questions, which examined the relationship between life satisfaction and varying degrees of specific symptoms of ADHD. Given research demonstrating that associated outcomes vary depending on the subtype of ADHD (Gaub & Carlson, 1997; Hodgens, Cole, & Boldizar, 2000; McBurnett, Pfiffner, & Frick, 2001), each of the following research questions addressed both the inattentive and hyperactive/impulsive symptoms separately.

1. *To what extent, if any, do ADHD symptoms predict life satisfaction in middle school students?*
    a. *When considering the degree of inattentive symptoms?*
    b. *When considering the degree of hyperactive/impulsive symptoms?*

To determine the extent to which ADHD symptoms predict life satisfaction in middle school students, a multiple regression was calculated with life satisfaction as the dependent variable. Both inattentive and hyperactive/impulsive symptoms were entered as predictors in a simultaneous multiple regression. Based on previous research on life satisfaction in adults with ADHD symptoms (Gudjonsson et al., 2009), it was expected that middle school students with more symptoms of ADHD, regardless of subtype, would indicate lower levels of life satisfaction.

Research Question 2

2. *Do levels of perceived interparental conflict moderate the relationship between severity of ADHD symptoms and life satisfaction?*
    a. *When considering the degree of inattentive symptoms?*
    b. *When considering the degree of hyperactive/impulsive symptoms?*

It was proposed that interparental conflict may have a moderating effect on the relationship between ADHD symptoms and levels of life satisfaction, given that family experiences have been found to be related to life satisfaction, regardless of the presence

of ADHD symptoms (Dew & Huebner, 1994; Demo & Acock, 1996; Young et al., 1995; Burke & Weir, 1979; Suldo & Huebner, 2004b).

In order to investigate whether perceived interparental conflict moderated the relationship between the degree of specific ADHD symptoms and life satisfaction, multiple regression analyses that included interaction terms (ADHD x interparental conflict) were conducted with life satisfaction serving as the dependent variable. An alpha level of .05 was used to identify statistically significant beta weights. This method indicated whether or not interparental conflict acted as a moderator and affected the relationship between ADHD symptoms and life satisfaction.

Research Questions 3-5

Three additional questions explored the possibility that life satisfaction served as a moderator variable that specified the conditions under which students' ADHD symptoms related to academic achievement in reading, academic achievement in mathematics, and comorbid depressive symptoms.

3. *Does life satisfaction moderate the relationship between severity of ADHD symptoms and academic achievement in reading?*
    a. *When considering the degree of inattentive symptoms?*
    b. *When considering the degree of hyperactive/impulsive symptoms?*
4. *Does life satisfaction moderate the relationship between severity of ADHD symptoms and academic achievement in mathematics?*
    a. *When considering the degree of inattentive symptoms?*
    b. *When considering the degree of hyperactive/impulsive symptoms?*
5. *Does life satisfaction moderate the relationship between severity of ADHD symptoms and severity of depressive symptoms?*
    a. *When considering the degree of inattentive symptoms?*
    b. *When considering the degree of hyperactive/impulsive symptoms?*

The third and fourth research questions examined if life satisfaction had a moderating effect on the relationship between ADHD symptoms and academic achievement in reading and ADHD symptoms and academic achievement in

mathematics, given research suggesting that adolescents with higher levels of life satisfaction demonstrate increased academic competence (Gilman & Huebner, 2006; Suldo & Huebner, 2006). The fifth research question examined if life satisfaction had a moderating effect on the relationship between ADHD symptoms and depressive symptoms, given research suggesting that lower levels of life satisfaction often precede the development of depression (Lewinsohn et al., 1991).

In order to investigate whether life satisfaction moderated the relationship between ADHD symptoms and academic achievement in reading, ADHD symptoms and academic achievement in mathematics, and ADHD symptoms and comorbid depressive symptoms, multiple regression analyses were conducted with academic achievement in reading and mathematics and depressive symptoms as the dependent variable. For the third, fourth, and fifth research questions, an alpha level of .05 was used to identify statistically significant beta weights. This method indicated whether or not life satisfaction acted as a moderator and affects the strength of the relationship between ADHD symptoms and achievement in reading, achievement in mathematics, and depressive symptoms.

Ethical Considerations

Precautions were taken throughout the proposed study in order to protect all participants. IRB approval, which ensures that the appropriate precautions are taken in order to protect human research participants, was obtained prior to data collection from the University of South Florida (Ogg & Harbor, 2009) and from the local school district in which the two participating middle schools are located.

A parental consent form, which outlines the goals and procedures for the project, was distributed to ensure that parents were aware of all aspects of the study, including

potential risks and benefits associated with their child's participation in the study. The letter also included contact information for one of the PIs to ensure that parents would be able to discuss questions or concerns related to the proposed study with one of the PIs. Each family was provided two copies of the form: one to sign and return, and one for their records.

For all students who returned a signed parent consent form, a student assent form was also administered immediately prior to survey completion. The student assent form outlined the risks and benefits of the study and allowed students to decide whether or not they wanted to participate, even though parental consent had already been obtained. One of the PIs or a trained member of the research team read the letter aloud to students immediately prior to data collection to ensure student understanding. Additionally, students were provided with time to ask questions about the study or to inform the researchers if they did not want to participate in the study. Teacher consent was sought from all teachers with student participants in their homeroom, and teachers were provided with a copy of the consent letter, which described the purpose of the study and provided information fo the timeframe of survey completion. This letter also indicated that their participation was voluntary and included contact information for one of the PIs in order to address any questions that teachers may have. Students and teachers were also provided with two copies of these forms allowing them to keep a copy for their records.

Participant confidentiality is ensured in part by examining aggregate data, such that individual students will not be identifiable. Specific students' responses are only known by study investigators. It is important to note that there were two instances in which confidential data was shared, and the nature of these instances had been previously

outlined in the parental consent and student assent forms. Specifically, students and parents were informed that the investigators would inform district school psychologists and threat assessments would be conducted if a student indicated on the survey that he had thoughts of harming himself or others based on the responses made by the student on one of the survey measures. It was also indicated on the consent and assent forms that school psychologists would be provided with a list of students who scored at or above a cutoff score of 24 on the CES-D, given that this score is considered to be indicative of risk of depression (Roberts et al., 1991; Rushton et al., 2002). Therefore, the investigators provided a mental health professional at each school with the names of all students who scored above this cutoff immediately after data collection, and the school was then responsible for determining how this information would be used.

In order to ensure that valid results are obtained, precautions were taken in the design and administration of this study. First, the survey packet was piloted with a group of typically-achieving 7th grade students in order to ensure that the directions for completion of the study were clear. Additionally, six counterbalanced versions of the survey packet were utilized in order to control for order effects. Before administering the surveys, all of the graduate students assisting with data collection were trained to ensure that they were able to clearly provide the standardized instructions and were able to provide uniform responses to student questions. Each of these procedures helped to control for errors in survey administration and data collection. The researcher also took appropriate precautions (i.e., consider limitations to the current study and the generalizabilty of the sample to the overall population) when interpreting the results of this study.

CHAPTER IV: Results

This chapter contains the results of the analyses conducted to answer the research questions. First, results of data screening, preliminary analyses, and descriptive analyses are discussed. Next, correlations among variables of interest are reported. Finally, results from regression analyses are provided to answer each of the research questions.

Data Screening

Descriptive analyses were conducted for the variables to check: (a) that data fell into expected ranges, (b) for normality by examining skewness and kurtosis, and (c) for outliers.

Data entry. The excel spreadsheet in which data were entered was created such that data could only be entered within the appropriate ranges for each scale in order to prevent errors in data entry. In addition, after all data were entered, integrity checks were completed for 11% of the participants. The author of this manuscript had a key role in data entry for this project. When any errors in data entry were identified, an additional survey immediately following the survey with the error was checked. Thus, a total of 14% of surveys were checked for errors until when no additional errors were found.

After data were entered, the original 183 cases were examined to determine if they met criteria for inclusion based on the percentage of items completed on the scales to be analyzed for the variables of interest in this study. Specific details related to the number of items required to be completed and the number of cases that did not meet this criterion for each variable of interest in the present study are outlined below. Ten cases

were excluded from this study due to not having at least 70% of items complete, and one additional case was excluded due to the absence of a score on the FCAT mathematics test. Excluded cases were examined to determine if there were significant differences between these cases and the cases that met inclusion criteria for the present study. Statistically significant differences in the mean scores of the variables of interest were not identified. Using procedures detailed in the next section, the final sample size for this study was 172.

Variable Construction

Variables for each of the scales of interest (i.e., SLSS, CPIC, CES-D, and VANDTRS) in the present study were constructed as described below. For scales in which the manual specified a minimum number of items that must be completed in order for the measure to be included in analyses, these criteria were utilized. For scales in which there was no suggested cut-off, a minimum of at least 70% completion of items on the measure was required in order for the case to be retained in the current study.

Life satisfaction. In order to create the life satisfaction variable, items three and four on the SLSS were reverse-scored. Next, the average across the seven items on the SLSS was calculated. Regarding missing data, it was determined that participants' responses would be included if they answered at least five out of the seven items (71%). All participants answered at least five of the seven items, and therefore no participants were excluded for incomplete data on this scale.

Interparental conflict. In order to create the interparental conflict variable, items 1, 2, 6, 9, 11, 12, 15, and 17 on the CPIC were reverse-scored. Next, the average of all 19 items on the CPIC was calculated. Regarding missing data, it was determined that

participants' responses would be included if they answered at least 15 out of the 19 items (79%) based on the recommendation provided by the creators of the scale (Grych, Seid, & Fincham, 1992). Two cases were excluded from the present study based on this criterion.

Depressive symptoms. In order to create the depressive symptoms variable, items 4, 8, 12, and 16 on the CES-D were reverse-scored. Next, the average of all 20 items on the CESD was calculated. Regarding missing data, it was determined that participants' responses would be included if they answered at least 16 out of the 20 items (80%) based on the recommendation provided by the creators of the scale (Radloff, 1977). All participants answered at least 16 of 20 items.

Inattentive symptoms. In order to create the inattentive symptoms variable, the average of items one through nine on the VANDTRS was calculated. Regarding missing data, it was determined that participants' responses would be included if at least seven out of nine items were completed (78%). Six cases were excluded from the present study based on this criterion.

Hyperactive/impulsive symptoms. In order to create the hyperactive/impulsive symptoms variable, the average of items ten through eighteen on the VANDTRS was calculated. Regarding missing data, it was determined that participants' responses would be included if at least seven out of nine items were completed (78%). Seven cases were excluded from the present study based on this criterion, but five of the seven cases overlapped with the cases that were excluded due to missing data for the inattentive symptoms variable. Thus, only two additional cases were excluded based on this variable.

Academic achievement. FCAT reading scores were obtained for all cases, but one case was excluded due to the absence of an FCAT mathematics score.

After examining missing data for each of the variables of interest, 11 total cases were excluded. Thus, remaining analyses were conducted with a sample of 172 students.

Screening for Outliers

Data were also screened using SPSS 19.0 to detect the presence of univariate and/or multivariate outliers. First, the minimum and maximum values for all variables were examined to determine that they did not fall outside of the permissible values. No scores outside the permissible value ranges were identified for any of the variables. Second, z scores were created for each of the variables to detect the presence of univariate outliers. Univariate outliers were determined for six cases, all of which had z scores of about 3.3 on the hyperactive/impulsive and inattentive variables. Third, data were screened to detect the presence of multivariate outliers using the SPSS normtest function, which identifies the cases with the highest Mahalanobis distance scores. Multivariate analyses identified five cases. Each of these cases was examined and determined to also be a univariate outlier. Therefore, upon further examination, all cases that were identified as univariate and multivariate outliers had very high scores on the hyperactive/impulsive and inattentive variables. However, it was expected that there would be a range of scores on this variable and that only a small number of cases would have high scores on these variables, thus demonstrating significant symptoms of hyperactivity/impulsivity and/or inattention. Moreover, all identified univariate and multivariate outliers had scores that fell within the permissible range (0-3) for these variables. Given that the presence of these outliers was expected and that the data for the

univariate outliers fell within permissible ranges, the decision was made to retain both the univariate and multivariate outliers in the analyses for this study.

Descriptive Analyses

Descriptive statistics for the data set are presented in Table 5. To assess univariate normality, skewness, and kurtosis of each of the variables were calculated. All obtained values, with the exception of depressive symptoms, hyperactive/impulsive symptoms, inattentive symptoms, and FCAT math scores fell between -1.0 and +1.0, demonstrating approximate normal distributions of scores on each of the target variables. Although the skewness and kurtosis for the hyperactive/impulsive symptoms variable, the skewness for the inattentive symptoms variable, and the kurtosis for the FCAT math variable exceeded plus or minus one, ±1 has been suggested to be a stringent criterion, and plus or minus three has been suggested to be an acceptable range for skewness and kurtosis in studies containing larger sample sizes (Tabachnick & Fidell, 2001). All values except the kurtosis for the hyperactivity/impulsivity fell within this (±3) range. To address the potential non-normality of this variable, the hyperactive/impulsive symptoms variable was transformed using the log function, and analyses were recalculated with the transformed variable. Because the differences in the outcomes of these analyses between the transformed and untransformed data did not change the significance of any of the findings for the present study, the untransformed data is reported for the purposes of this study to increase interpretability of outcomes.

Scale Reliability

Prior to further analyses, all scales (i.e., SLSS, CPIC, CES-D, and VADTRS) were analyzed to determine internal consistency. Cronbach's alphas for each of the

scales of interest are presented in Table 5. The Cronbach's alphas for each of the variables in the current study were at or above .89, thus indicating high estimates of reliability for these measures with the given sample.

Table 5. *Cronbach's Alpha, Means, Standard Deviations, Ranges, Skewness, & Kurtosis (N =172)*

Variable	Cronbach's Alpha	*M*	*SD*	Range for Means	Skewness	Kurtosis
Life Satisfaction	.90	4.43	1.16	1-6	-0.72	-0.08
Interparental Conflict	.93	0.76	0.51	0-1.94	0.36	-0.95
Depressive Symptoms	.89	0.68	0.53	0-2.6	1.08	0.55
Hyperactive/Impulsive Symptoms	.95	0.40	0.65	0-3	2.17	4.35
Inattentive Symptoms	.97	0.74	0.81	0-3	1.05	0.09
FCAT Reading	--	322.83	60.17	100-500	-0.22	-0.87
FCAT Math	--	326.56	52.75	100-500	-0.84	1.82

Correlational Analyses

Pearson product-moment correlations among all continuous variables included in the analyses are presented in Table 6. Results demonstrate that interparental conflict was significantly negatively associated with life satisfaction (r =-.54, p < .01), thus indicating that as interparental conflict increases, life satisfaction decreases. As expected, life

satisfaction was also negatively correlated with depressive symptoms (r = -.60, p < .01), indicating that as depressive symptoms increase, life satisfaction decreases. Life satisfaction was not significantly related to either inattentive (r = -.13) or hyperactive/impulsive symptoms (r = -.01). Depressive symptoms were also positively correlated with interparental conflict (r = .51, p < .01), suggesting that higher levels of interparental conflict were associated with higher levels of depression. As expected, inattentive symptoms were found to be correlated with hyperactive/impulsive symptoms (r = .69, p < .01). Academic achievement in mathematics was found to be significantly positively related to life satisfaction (r = .27, p < .01), indicating that higher levels of life satisfaction were associated with higher achievement in mathematics. Academic achievement in mathematics was found to be significantly negatively related to interparental conflict (r = -.19, p < .05), depressive symptoms (r = -.30, p < .01), inattentive symptoms (r = -.38, p < .01), and hyperactive/impulsive symptoms (r = -.27, p < .01), indicating that lower mathematics scores were associated with higher levels of interparental conflict and symptoms of depression, inattention, and hyperactivity/impulsivity. Lastly, academic achievement in reading was found to be significantly positively related to life satisfaction (r = .22, p < .01), thus indicating a similar positive relationship as the relationship between life satisfaction and academic achievement in mathematics. As expected, academic achievement in reading was found to be significantly negatively related to depressive symptoms (r = -.18, p < .05), inattentive symptoms (r = -.31, p < .01), and hyperactive/impulsive symptoms (r = -.24, p < .10); however, this relationship did not emerge between achievement in reading and interparental conflict. As expected, academic achievement in reading was found to be

highly correlated with academic achievement in mathematics ($r = .73$, $p < .01$). It is important to note that no significant differences in correlations between variables of interest were found when analyses were run separately by school. Therefore, the subsequent analyses were run with both schools grouped together.

Table 6. *Intercorrelations between Continuous Variables (n =172)*

Variable	1.	2.	3.	4.	5.	6.	7.	8.	9.	10.
1. Life Satisfaction	1									
2. Interparental Conflict	-.54**	1								
3. Depressive Symptoms	-.60**	.51**	1							
4. Inattentive Symptoms	-.13	.01	.11	1						
5. Hyperactive/ Impulsive Symptoms	-.01	.02	.07	.67**	1					
6. FCAT Math	.27**	-.19*	-.30**	-.38**	-.27**	1				
7. FCAT Reading	.21**	-.09	-.18*	-.30**	-.23**	.73**	1			
8. Gender	.22**	-.14	-.12	.26**	.20**	.15*	.15*	1		
9. Age	-.15	.16*	.12	-.16*	-.04	.08	.04	-.03	1	
10. FRL	-.17*	.21**	.24**	.24*	.17*	-.37**	-.47**	-.13	-.00	1

Note. **$p < .01$, *$p < .05$. FRL=Free and Reduced Lunch status (1=yes). Gender (0=male; 1=female).

Regression Analyses

Multiple regression analyses were conducted to address each of the research questions for this study.

Research question one. In order to determine the extent to which ADHD symptoms predict life satisfaction in middle school students, a multiple regression was conducted with life satisfaction as the dependent variable and hyperactive/impulsive and

inattentive symptoms as the independent variables. As indicated in Chapter 3, both hyperactive/impulsive and inattentive symptoms were entered simultaneously into this regression because the correlation between these two variables was less than .80 (r = .67), thus indicating that the assumption of collinearity was not violated. An alpha level of .05 was used to determine statistical significance. In the regression model, hyperactive/impulsive and inattentive symptoms explained 2.5% of the variance in the dependent variable, life satisfaction, which is not significant $F(2, 169) = 2.2$, $p = .12$. However, inattentive symptoms were found to make a statistically significant unique contribution to the equation ($\beta = -.21$, $p = .04$). Inattentive symptoms uniquely accounted for 2.4% of the variance, thus suggesting that there may be a trend for inattentive symptoms to be stronger predictors of life satisfaction. However, additional analyses were conducted to determine if students who met criteria for inattention (i.e., if teachers had endorsed six of the nine symptoms of inattention) had statistically different levels of life satisfaction in comparison to students who did not meet criteria for inattention, and statistically significant differences between groups were not identified $F(2, 166) = .37$, $p = .55$.

Research question two. In order to determine the extent to which perceived interparental conflict affects the relationship between symptoms of ADHD and life satisfaction, multiple regression analyses were conducted with life satisfaction as the dependent variable. The moderating effect of perceived interparental conflict was examined independently with inattentive versus hyperactive/impulsive symptoms. In order to examine the effect of perceived interparental conflict on the relationship between inattentive symptoms and life satisfaction, first both predictor variables (i.e., perceived

interparental conflict and inattentive symptoms) were centered at their means. Next, a series of five models was conducted. An alpha level of .05 was used to determine statistical significance in each of these models. See Table 7 for a summary of the results of regression analyses conducted for inattention and life satisfaction. First, demographic variables of interest (gender, age, and free and reduced-price lunch status) were entered simultaneously into the regression equation (Model 1). These demographic variables explained 8.8% of the variance in the dependent variable, life satisfaction, which was significant $F(3, 165) = 5.30$, $p < .01$. Next, inattentive symptoms were added to the demographic variables in the regression equation (Model 2). Demographic variables and inattentive symptoms explained 12% of the variance in the dependent variable, life satisfaction, which was significant $F(4, 164) = 5.61$, $p < .01$. Thus, inattentive symptoms accounted for approximately an additional 3% of the variance in life satisfaction over demographic variables, and the change in F from Model 1 to Model 2 was significant ($\Delta R^2 = .03$, $p = .02$). Next, perceived interparental conflict was added to the demographic variables of interest in the regression equation (Model 3). Demographic variables and perceived interparental conflict explained 32% of the variance in the dependent variable, life satisfaction, which was significant $F(4, 164) = 19.00$, $p < .01$. Thus, perceived interparental conflict accounted for approximately an additional 10% of the variance in life satisfaction over the demographic variables, and the change in F from Model 1 to Model 3 was significant ($\Delta R^2 = .23$; $p = .00$). Next, inattentive symptoms were added to the regression equation that was created in Model 3 (Model 4). Demographic variables of interest, inattentive symptoms, and perceived interparental conflict explained 35% of the variance in the dependent variable, life satisfaction, which

was significant $F(5, 163) = 17.24$, $p < .01$; and the change in F from Model 3 to Model 4 was significant ($\Delta R^2 = .03$; $p = .01$), with inattentive symptoms explaining an additional 3% of the variance in life satisfaction on top of demographic symptoms and interparental conflict. Lastly, the interaction term (i.e., inattentive symptoms x perceived interparental conflict) was added to the regression equation that was created in Model 4 (Model 5). These predictors together explained 35% of the variance in the dependent variable. Although the overall model was significant $F(6, 162) = 14.30$, $p < .01$, there was not a significant change in F between Model 4 and Model 5 ($\Delta R^2 = .00$; $p = .75$). Therefore, interparental conflict does not significantly impact the relationship between inattentive symptoms and life satisfaction.

Table 7. *Summary of Regression Analyses for Inattention Symptoms and Parent Conflict as Predictors of LS (n = 172)*

	Model 1		Model 2		Model 3		Model 4		Model 5	
Variable	B (SE)	ß	B (SE)	ß	B (SE)	ß	B (SE)	ß	B (SE)	ß
Gender	.47 (.18)	.19*	.61 (.18)	.25**	.34 (.16)	.14*	.47 (.16)	.19**	.48 (.17)	.20**
Age	-.16 (.08)	-.15	-.19 (.08)	-.18*	-.07 (.07)	-.07	-.10 (.07)	-.10	-.10 (.07)	-.09
FRL	-.35 (.18)	-.14	-.21 (.18)	-.09	-.12 (.16)	-.05	.01 (.16)	.01	.01 (.16)	.01
Inattentive Symptoms			-.28 (.12)	-.20*			-.27 (.10)	-.19**	-.27 (.10)	-.19**
Parent Conflict					-1.5 (.16)	-.50**	-1.14 (.15)	-.50**	-1.10 (.15)	-.49**
Inattentive Symptoms x Parent Conflict									.06 (.20)	.02
R^2	.09		.12		.32		.35		.35	
F	5.30**		5.61**		19.00**		17.24**		14.30**	

Note: Inattentive symptoms and parent conflict were centered at their means.
*$p < .05$. **$p < .01$.

In order to examine the effect of perceived interparental conflict on the relationship between hyperactive/impulsive symptoms and life satisfaction, first both predictor variables (i.e., perceived interparental conflict and hyperactive/impulsive symptoms) were centered at their means. Next, a series of five models was conducted. An alpha level of .05 was used to determine statistical significance in each of these models. See Table 8 for a summary of the results of regression analyses conducted for hyperactive/impulsive symptoms and life satisfaction. First, demographic variables of interest (gender, age, and free and reduced-price lunch status) were entered simultaneously into the regression equation (Model 1). These demographic variables explained 8.8% of the variance in the dependent variable, life satisfaction, which was significant $F(3, 165) = 5.30$, $p < .01$. Next, hyperactive/impulsive symptoms were added to the demographic variables in the regression equation (Model 2). Demographic variables and hyperactive/impulsive symptoms explained 9% of the variance in the dependent variable, life satisfaction, which was significant $F(4, 164) = 4.00$, $p < .05$. However, there was not a significant change in F between Model 1 and Model 2 ($\Delta R^2 = .00$; $p = .65$), thus demonstrating that hyperactive/impulsive symptoms do not account for any additional variance in life satisfaction over demographic variables. Next, perceived interparental conflict was added to the demographic variables of interest in the regression equation (Model 3). Demographic variables and perceived interparental conflict explained 32% of the variance in the dependent variable, life satisfaction, which was significant $F(4, 164) = 19.00$, $p < .01$. Thus, perceived interparental conflict accounted for approximately an additional 10% of the variance in life satisfaction over the demographic variables, and the change in F from Model 1 to Model 3 was significant

($\Delta R^2 = .23$; $p = .00$). Next, hyperactive/impulsive symptoms were added to the regression equation that was created in Model 3 (Model 4). Demographic variables of interest, hyperactive/impulsive symptoms, and perceived interparental conflict explained 32% of the variance in the dependent variable, life satisfaction, which was significant $F(5, 163) = 15.16$, $p < .01$. However, the change in F from Model 3 to Model 4 was not significant ($\Delta R^2 = .00$; $p = .68$), which indicates that hyperactive/impulsive symptoms do not count for a statistically significant portion of the variance on top of demographic symptoms and interparental conflict. Lastly, the interaction term (i.e., hyperactive/impulsive symptoms x perceived interparental conflict) was added to the regression equation that was created in Model 4 (Model 5). These predictors together explained 32% of the variance in the dependent variable. Although the overall model was significant $F(6, 162) = 12.66$, $p < .01$, there was not a significant change in F between Model 4 and Model 5 ($\Delta R^2 = .00$; $p = .51$). Therefore, interparental conflict does not significantly impact the relationship between hyperactive/impulsive symptoms and life satisfaction.

Table 8. *Summary of Regression Analyses for Hyperactive/Impulsive Symptoms and Parent Conflict as Predictors of LS (n = 172)*

	Model 1		Model 2		Model 3		Model 4		Model 5	
Variable	B (SE)	ß	B (SE)	ß	B (SE)	ß	B (SE)	ß	B (SE)	ß
Gender	.47	.19*	.49	.20*	.34	.14*	.35	.15	.36	.15*
	(.18)		(.19)		(.16)		(.16)		(.16)	
Age	-.16	-.15	-.16	-.15	-.07	-.07	-.07	-.07	-.07	-.07
	(.08)		(.08)		(.07)		(.07)		(.07)	
FRL	-.35	-.14	-.32	-.14	-.12	-.05	-.09	-.04	-.09	-.04
	(.18)		(.18)		(.16)		(.16)		(.16)	
HI Symptoms			-.06	-.04			-.05	-.03	-.04	-.02
			(.14)				(.12)		(.12)	
Parent Conflict					-1.5	-.50**	-1.14	-.50	-1.16	-.51**
					(.16)		(.16)		(.16)	
HI x Parent conflict									-.18	-.04
									(.27)	
R^2	.09		.09		.32		.32		.32	
F	5.30**		4.00*		19.00**		15.16**		12.66**	

Note: HI symptoms and parent conflict were centered at their means.
*$p < .05$. **$p < .01$.

Research question three. In order to determine the extent to which life satisfaction moderates the relationship between symptoms of ADHD and academic achievement in reading, multiple regression analyses were conducted with academic achievement in reading as the dependent variable. The moderating effect of life satisfaction was examined independently with inattentive versus hyperactive/impulsive symptoms. In order to examine the effect of life satisfaction on the relationship between inattentive symptoms and academic achievement in reading, first both predictor variables (i.e., life satisfaction and inattentive symptoms) were centered at their means. Next, a series of five models was conducted. An alpha level of .05 was used to determine statistical significant in each of these models. See Table 9 for a summary of the results of

regression analyses conducted for inattention and academic achievement in reading. First, demographic variables of interest (gender, age, and free and reduced-price lunch status) were entered simultaneously into a regression equation (Model 1). These demographic variables explained 15% of the variance in the dependent variable, academic achievement in reading, which was significant $F(3, 165) = 9.77$, $p < .01$. Next, inattentive symptoms were added to the demographic variables of interest in the regression equation (Model 2). Demographic variables and inattentive symptoms explained 21.6% of the variance in the dependent variable, academic achievement in reading, which was significant $F(4, 164) = 11.30$, $p < .01$. Thus, inattentive symptoms accounted for approximately an additional 6.6% of the variance in academic achievement in reading over demographic variables, and the change in F from Model 1 to Model 2 was significant ($\Delta R^2 = .07$; $p = .00$). Next, life satisfaction was added to the demographic variables of interest in the regression equation (Model 3). Demographic variables and life satisfaction explained 17.3% of the variance in the dependent variable, academic achievement in reading, and the overall model significant $F(4, 164) = 8.60$, $p < .01$. Thus, life satisfaction accounted for an additional 2.3% of the variance in academic achievement in reading over demographic variables, and the change in F from Model 1 to Model 3 was not significant ($\Delta R^2 = .02$; $p = .04$). Next, inattentive symptoms were added to the regression equation that was created in Model 3 (Model 4). Demographic variables of interest, inattentive symptoms, and life satisfaction explained 22.7% of the variance in the dependent variable, academic achievement in reading, which was significant $F(5, 163) = 9.60$, $p < .01$, and the change in F from Model 3 to Model 4 was significant ($\Delta R^2 = .05$; $p = .00$), as inattentive symptoms contributed an additional 5.4% of the variance in

academic achievement in reading on top of demographic variables and life satisfaction. Lastly, the interaction term (i.e., inattentive symptoms x life satisfaction) was added to the regression equation that was created in Model 4 (Model 5). These predictors together explained 22.7% of the variance in the dependent variable, academic achievement in reading (Model 5). Although the overall model was significant $F(6, 162) = 7.93$, $p < .01$, there was not a significant change in F between Model 4 and Model 5 ($\Delta R^2 = .00$; $p = .84$). Therefore, life satisfaction does not significantly impact the relationship between inattentive symptoms and academic achievement in reading.

Table 9. *Summary of Regression Analyses for Inattention Symptoms and LS as Predictors of Reading Achievement (n = 172)*

	Model 1		Model 2		Model 3		Model 4		Model 5	
Variable	B (SE)	ß	B (SE)	ß	B (SE)	ß	B (SE)	ß	B (SE)	ß
Gender	13.49	.11	23.77	.20*	9.66	.08	20.27	.16	20.04	.16*
	(9.12)		(9.21)		(9.20)		(9.46)		(9.56)	
Age	4.40	.08	1.20	.04	5.69	.10	3.09	.05	3.00	.05
	(4.07)		(4.00)		(4.07)		(4.02)		(4.07)	
FRL	-42.67	-.35**	-33.33	-.28**	-39.94	-.33**	-32.13	-.27**	-32.44	-.27**
	(8.77)		(8.82)		(8.77)		(8.82)		(9.00)	
Inattentive Symptoms			-20.71	-.28**			-19.09	-.26**	-19.05	-.26**
			(5.60)				(5.68)		(5.70)	
Life Satisfaction					8.14	.16*	5.73	.11	5.67	.11
					(3.85)		(3.80)		(3.83)	
Inattentive Symptoms x Life Satisfaction									.88	.01
									(4.48)	
R^2	.15		.22		.17		.23		.23	
F	9.77**		11.30**		8.60**		9.57**		7.93**	

Note: Inattentive symptoms and life satisfaction were centered at their means.
*$p < .05$. **$p < .01$.

In order to examine the effect of life satisfaction on the relationship between hyperactive/impulsive symptoms and academic achievement in reading, first both predictor variables (i.e., life satisfaction and hyperactive/impulsive symptoms) were

centered at their means. Next, a series of five models was conducted. An alpha level of .05 was used to determine statistical significant in each of these models. See Table 10 for a summary of the results of regression analyses conducted for hyperactive/impulsive symptoms and academic achievement in reading. First, demographic variables of interest (gender, age, and free and reduced-price lunch status) were entered simultaneously into a regression equation (Model 1). These demographic variables explained 15% of the variance in the dependent variable, academic achievement in reading, which was significant $F(3, 165) = 9.77$, $p < .01$. Next, hyperactive/impulsive symptoms were added to demographic variables of interest in the regression equation (Model 2). Demographic variables and hyperactive/impulsive symptoms explained 19.1% of the variance in the dependent variable, academic achievement in reading, which was significant $F(4, 164) = 9.68$, $p < .01$. Thus, hyperactive/impulsive symptoms accounted for approximately an additional 4.1% of the variance in academic achievement in reading over demographic variables, and the change in F from Model 1 to Model 2 was significant ($\Delta R^2 = .04$; $p = .01$). Next, life satisfaction was added to the demographic variables of interest in the regression equation (Model 3). Demographic variables and life satisfaction explained 17.3% of the variance in the dependent variable, academic achievement in reading, and the overall model significant $F(4, 164) = 8.60$, $p < .01$. Thus, life satisfaction accounted for an additional 2.3% of the variance in academic achievement in reading over demographic variables, and the change in F from Model 1 to Model 3 was not significant ($\Delta R^2 = .02$; $p = .04$). Next, hyperactive/impulsive symptoms were added to the regression equation that was created in Model 3 (Model 4). Demographic variables of interest, hyperactive/impulsive symptoms, and life satisfaction explained 21.1% of the

variance in the dependent variable, academic achievement in reading, which was significant $F(5, 163) = 8.74$, $p < .01$, and the change in F from Model 3 to Model 4 was significant ($\Delta R^2 = .04$; $p = .01$), as hyperactive/impulsive symptoms contributed an additional 3.8% of the variance in academic achievement in reading on top of demographic variables and life satisfaction.. Lastly, the interaction term (i.e., hyperactive/impulsive symptoms x life satisfaction) was added to the regression equation that was created in Model 4 (Model 5). These predictors together explained 21.3% of the variance in the dependent variable, academic achievement in reading (Model 5). Although the overall model was significant $F(6, 162) = 7.29$, $p < .01$, there was not a significant change in F between Model 4 and Model 5 ($\Delta R^2 = .00$; $p = .63$). Therefore, life satisfaction does not significantly impact the relationship between hyperactive/impulsive symptoms and academic achievement in reading.

Table 10. *Summary of Regression Analyses for Hyperactivity/Impulsivity Symptoms and LS as Predictors of Reading Achievement (n = 172)*

	Model 1		Model 2		Model 3		Model 4		Model 5	
Variable	B (SE)	ß	B (SE)	ß	B (SE)	ß	B (SE)	ß	B (SE)	ß
Gender	13.49 (9.12)	.11	19.27 (9.15)	.15*	9.66 (9.20)	.08	15.46 (9.24)	.12	15.29 (9.27)	.12
Age	4.40 (4.07)	.08	3.98 *3.98(	.07	5.69 (4.07)	.10	5.23 (3.99)	.09	5.51 (4.05)	.10
FRL	-42.67 (8.77)	-.35**	-37.78 (8.75)	-.31**	-39.94 (8.77)	-.33**	-35.30 (8.75)	-.29**	-35.32 (8.77)	-.29**
Hyperactive/ Impulsive Symptoms			-10.28 (6.76)	6.76**			-18.79 (6.70)	-.20**	-18.32 (6.79)	-.20**
Life Satisfaction					8.14 (3.85)	.16*	7.76 (3.78)	.15*	7.67 (3.79)	.15*
Hyperactive/ Impulsive x LS									-3.13 (6.52)	-.03
R^2	.15		.17		.17		.21		.21	
F	9.77**		9.68**		8.60**		8.74**		7.29**	

Note: Inattentive symptoms and life satisfaction were centered at their means.
*$p < .05$. **$p < .01$.

Research question four. In order to determine the extent to which life satisfaction moderates the relationship between symptoms of ADHD and academic achievement in mathematics, multiple regression analyses were conducted with academic achievement in mathematics as the dependent variable. The moderating effect of life satisfaction was examined independently with inattentive versus hyperactive/impulsive symptoms. In order to examine the effect of life satisfaction on the relationship between inattentive symptoms and academic achievement in mathematics, first both predictor variables (i.e., life satisfaction and inattentive symptoms) were centered at their means. Next, a series of five models was conducted. An alpha level of .05 was used to determine statistical significant in each of these models. See Table 11 for a summary of the results of regression analyses conducted for inattention and academic achievement in reading. First, demographic variables of interest (gender, age, and free and reduced-price lunch status) were entered simultaneously into a regression equation (Model 1). These demographic variables explained 23% of the variance in the dependent variable, academic achievement in reading, which was significant $F(3, 165) = 16.42$, $p < .01$. Next, inattentive symptoms were added to the demographic variables of interest in the regression equation (Model 2). Demographic variables and inattentive symptoms explained 32.7% of the variance in the dependent variable, academic achievement in mathematics, which was significant $F(4, 164) = 19.96$, $p < .01$. Thus, inattentive symptoms accounted for approximately an additional 9.7% of the variance in academic achievement in mathematics over demographic variables, and the change in F from Model 1 to Model 2 was significant ($\Delta R^2 = .10$; $p = .00$). Next, life satisfaction was added to the demographic variables of interest in the regression equation (Model 3).

Demographic variables and life satisfaction explained 26.6% of the variance in the dependent variable, academic achievement in mathematics, which was significant $F(4, 164) = 14.85$, $p < .01$. Thus, life satisfaction accounted for an additional 3.6% of the variance in academic achievement in mathematics over demographic variables, and the change in F from Model 1 to Model 3 was significant ($\Delta R^2 = .04$; $p = .01$). Next, inattentive symptoms were added to the regression equation that was created in Model 3 (Model 4). Demographic variables of interest, inattentive symptoms, and life satisfaction explained 34.5% of the variance in the dependent variable, academic achievement in mathematics, which was significant $F(5, 163) = 17.18$, $p < .01$, and the change in F from Model 3 to Model 4 was significant ($\Delta R^2 = .08$; $p = .00$), as inattentive symptoms contributed an additional 7.9% of the variance in academic achievement in mathematics over demographic variables and life satisfaction. Lastly, the interaction term (i.e., inattentive symptoms x life satisfaction) was entered added to the regression equation that was created in Model 4 (Model 5). These predictors together explained 34.7% of the variance in the dependent variable, academic achievement in mathematics. Although the overall model was significant $F(6, 162) = 14.33$, $p < .01$, there was not a significant change in F between Model 4 and Model 5 ($\Delta R^2 = .00$; $p = .53$). Therefore, life satisfaction does not significantly impact the relationship between inattentive symptoms and academic achievement in mathematics.

Table 11. *Summary of Regression Analyses for Inattention Symptoms and LS as Predictors of Mathematics Achievement (n = 172)*

	Model 1		Model 2		Model 3		Model 4		Model 5	
Variable	B (SE)	ß	B (SE)	ß	B (SE)	ß	B (SE)	ß	B (SE)	ß
Gender	10. 59	.10	21.60	.20**	6.35	.06	17.67	.16*	17.07	.16*
	(7.61)		(7.48)		(7.60)		(7.64)		(7.71)	
Age	1.98	.04	-.60	-.01	3.41	.07	.64	.01	.39	.01
	(3.40)		(3.23)		(3.36)		(3.25)		(3.28)	
FRL	-48.45	-	-38.44	-	-45.43	-	-37.10	-	-37.89	-
	(7.32)	.46**	(7.16)	.36**	(7.25)	.43**	(7.12)	.35**	(7.24)	.36**
Inattentive			-22.18	-			-20.36	-	-20.27	-
Symptoms			(4.55)	.34**			(4.59)	.31**	(4.60)	.31**
Life					9.02	.20**	6.44	.14*	6.29	.14*
Satisfaction					(3.18)		(3.07)		(3.09)	
Inattentive									2.28	.04
Symptoms									(3.61)	
x Life										
Satisfaction										
R^2	.23		.33		.27		.35		.35	
F	16.42**		19.96**		14.85**		17.18**		14.33**	

Note: Inattentive symptoms and life satisfaction were centered at their means.
*$p < .05$. **$p < .01$.

In order to examine the effect of life satisfaction on the relationship between hyperactive/impulsive symptoms and academic achievement in mathematics, first both predictor variables (i.e., life satisfaction and hyperactive/impulsive symptoms) were centered at their means. Next, a series of five models was conducted. An alpha level of .05 was used to determine statistical significant in each of these models. See Table 12 for a summary of the results of regression analyses conducted for hyperactive/impulsive symptoms and academic achievement in mathematics. First, demographic variables of interest (gender, age, and free and reduced-price lunch status) were entered simultaneously into a regression equation (Model 1). These demographic variables explained 15% of the variance in the dependent variable, academic achievement in mathematics, which was significant $F(3, 165) = 9.77$, $p < .01$. Next,

hyperactive/impulsive symptoms were added to demographic variables of interest in the regression equation (Model 2). Demographic variables and hyperactive/impulsive symptoms explained 19.1% of the variance in the dependent variable, academic achievement in mathematics, which was significant $F(4, 164) = 9.68$, $p < .01$. Thus, hyperactive/impulsive symptoms accounted for approximately an additional 4.1% of the variance in academic achievement in mathematics over demographic variables, and the change in F from Model 1 to Model 2 was significant ($\Delta R^2 = .05$; $p = .00$). Next, life satisfaction was added to the demographic variables of interest in the regression equation (Model 3). Demographic variables and life satisfaction explained 17.3% of the variance in the dependent variable, academic achievement in mathematics, and the overall model significant $F(4, 164) = 8.60$, $p < .01$. Thus, life satisfaction accounted for an additional 2.3% of the variance in academic achievement in mathematics over demographic variables, and the change in F from Model 1 to Model 3 was not significant ($\Delta R^2 = .02$; $p = .04$). Next, hyperactive/impulsive symptoms were added to the regression equation that was created in Model 3 (Model 4). Demographic variables of interest, hyperactive/impulsive symptoms, and life satisfaction explained 21.1% of the variance in the dependent variable, academic achievement in mathematics, which was significant $F(5, 163) = 8.74$, $p < .01$. The change in F from Model 3 to Model 4 was significant ($\Delta R^2 = .04$; $p = .00$). Hyperactive/impulsive symptoms accounted for an additional 3.8% of the variance in academic achievement in mathematics over demographic variables and life satisfaction. Lastly, the interaction term (i.e., hyperactive/impulsive symptoms x life satisfaction) was added to the regression equation that was created in Model 4 (Model 5). These predictors together explained 21.3% of the variance in the dependent variable,

academic achievement in mathematics (Model 5). Although the overall model was significant $F(6, 162) = 7.29$, $p < .01$, there was not a significant change in F between Model 4 and Model 5 ($\Delta R^2 = .00$; $p = .54$). Therefore, life satisfaction does not significantly impact the relationship between hyperactive/impulsive symptoms and academic achievement in mathematics.

Table 12. *Summary of Regression Analyses for Hyperactive/Impulsive Symptoms and LS as Predictors of Mathematics Achievement (n = 172)*

	Model 1		Model 2		Model 3		Model 4		Model 5	
Variable	B (SE)	ß	B (SE)	ß	B (SE)	ß	B (SE)	ß	B (SE)	ß
Gender	10. 59	.10	16.02	.15*	6.35	.06	11.78	.11	11.59	.11
	(7.61)		(7.58)		(7.60)		(7.59)		(7.61)	
Age	1.98	.04	1.58	.03	3.41	.07	2.97	.06	3.28	.07
	(3.40)		(3.30)		(3.36)		(3.28)		(3.32)	
FRL	-48.45	-	-43.86	-.41**	-45.43	-	-41.09	-	-41.11	-
	(7.32)	.46**	(7.26)		(7.25)	.43**	(7.18)	.39**	(7.19)	.39**
HI			-18.14	5.61**			-17.59	-	-17.09	-
Symptoms							(5.50)	.22**	(5.57)	.21**
LS					9.02	.20**	8.66	.19**	8.57	.19**
					(3.18)		(3.10)		(3.11)	
HI									-3.33	-.04
Symptoms									(5.35)	
x LS										
R^2	.23		.28		.27		.30		.31	
F	16.42**		15.63**		14.85**		14.59**		12.18**	

Note: HI symptoms and life satisfaction (LS) were centered at their means.
*$p < .05$. **$p < .01$.

Research question five. In order to determine the extent to which life satisfaction moderates the relationship between symptoms of ADHD and depressive symptoms, multiple regression analyses were conducted with depressive symptoms as the dependent variable. The moderating effect of life satisfaction was examined independently with inattentive versus hyperactive/impulsive symptoms. In order to examine the effect of life satisfaction on the relationship between inattentive symptoms and depressive symptoms, first both predictor variables (i.e., life satisfaction and

inattentive symptoms) were centered at their means. Next, a series of five models was conducted. An alpha level of .05 was used to determine statistical significant in each of these models. See Table 13 for a summary of the results of regression analyses conducted for inattention and depressive symptoms. First, demographic variables of interest (gender, age, and free and reduced-price lunch status) were entered simultaneously into a regression equation (Model 1). These demographic variables explained 8% of the variance in the dependent variable, depressive symptoms, which was significant $F(3, 165) = 4.80$, $p < .01$. Next, inattentive symptoms were added to the demographic variables of interest in the regression equation (Model 2). Demographic variables and inattentive symptoms explained 9.3% of the variance in the dependent variable, depressive, which was significant $F(4, 164) = 4.19$, $p < .01$. Thus, inattentive symptoms accounted for approximately an additional 1.3% of the variance in depressive symptoms over demographic variables; however, the change in F from Model 1 to Model 2 was not significant ($\Delta R^2 = .01$; $p = .14$). Next, life satisfaction was added to the demographic variables of interest in the regression equation (Model 3). Demographic variables and life satisfaction explained 38.6% of the variance in the dependent variable, depressive symptoms, which was significant $F(4, 164) = 25.83$, $p < .01$. Thus, life satisfaction accounted for an additional 30.6% of the variance in depressive symptoms over demographic variables, and the change in F from Model 1 to Model 3 was significant ($\Delta R^2 = .31$; $p = .00$). Next, inattentive symptoms were added to the regression equation that was created in Model 3 (Model 4). Demographic variables of interest, inattentive symptoms, and life satisfaction explained 38.7% of the variance in the dependent variable, depressive symptoms, which was significant $F(5, 163) = 20.54$, $p <$

.01. The change in *F* from Model 3 to Model 4 was not significant ($\Delta R^2 = .00$; $p = .91$), which demonstrates that inattentive symptoms do not account for an additional statistically significant portion of the variance in depressive symptoms over demographic variables and life satisfaction. Lastly, the interaction term (i.e., inattentive symptoms x life satisfaction) was added to the regression equation that was created in Model 4 (Model 5). These predictors together explained 38.9% of the variance in the dependent variable, depressive symptoms. Although the overall model was significant $F(6, 162) = 17.21$, $p < .01$, there was not a significant change in *F* between Model 4 and Model 5 ($\Delta R^2 = .00$; $p = .40$). Therefore, life satisfaction does not significantly impact the relationship between inattentive symptoms and depressive symptoms.

Table 13. *Summary of Regression Analyses for Inattention Symptoms and LS as Predictors of Depressive Symptoms (n = 172)*

	Model 1		Model 2		Model 3		Model 4		Model 5	
Variable	B (SE)	ß	B (SE)	ß	B (SE)	ß	B (SE)	ß	B (SE)	ß
Gender	-.10	-.09	-.14	-.13	.02	.02	.02	.02	.01	.01
	(.08)		(.09)		(.07)		(.08)		(.08)	
Age	.06	.12	.07	.13	.02	.03	.02	.04	.02	.03
	(.04)		(.04)		(.03)		(.03)		(.03)	
FRL	.25	.23**	.21	.20*	.16	.15*	.15	.14*	.14	.13*
	(.08)		(.08)		(.07)		(.07)		(.07)	
Inattentive			.08	.12			.01	.01	.01	.01
Symptoms			(.05)				(.05)		(.05)	
Life					-.27	-	-.27	-	-.27	.-
Satisfaction					(.03)	.58**	(.03)	.58**	(.03)	.58**
Inattentive									.03	.05
Symptoms									(.04)	
x Life										
Satisfaction										
R^2	.08		.09		.39		.39		.39	
F	4.80**		4.19**		25.83**		20.54**		17.21**	

Note: Inattentive symptoms and life satisfaction were centered at their means.
*$p < .05$. **$p < .01$.

In order to examine the effect of life satisfaction on the relationship between hyperactive/impulsive symptoms and depressive symptoms, first both predictor variables (i.e., life satisfaction and hyperactive/impulsive symptoms) were centered at their means. Next, a series of five models was conducted. An alpha level of .05 was used to determine statistical significant in each of these models. See Table 14 for a summary of the results of regression analyses conducted for hyperactive/impulsive symptoms and depressive symptoms. First, demographic variables of interest (gender, age, and free and reduced-price lunch status) were entered simultaneously into a regression equation (Model 1). These demographic variables explained 8% of the variance in the dependent variable, depressive symptoms, which was significant $F(3, 165) = 4.80$, $p < .01$. Next, hyperactive/impulsive symptoms were added to the demographic variables of interest in the regression equation (Model 2). Demographic variables and hyperactive/impulsive symptoms explained 8.3% of the variance in the dependent variable, depressive symptoms, which was significant $F(4, 164) = 3.72$, $p < .01$. Thus, hyperactive/impulsive symptoms accounted for approximately an additional 0.3% of the variance in depressive symptoms over demographic variables; however, the change in F was not significant ($\Delta R^2 = .00$; $p = .47$). Next, life satisfaction was added to demographic variables of interest in the regression equation (Model 3). Demographic variables and life satisfaction explained 38.6% of the variance in the dependent variable, depressive symptoms, which was significant $F(4, 164) = 25.83$, $p < .01$. Thus, life satisfaction accounted for an additional 30.6% of the variance in depressive symptoms over demographic variables, and the change in F from Model 1 to Model 3 was significant ($\Delta R^2 = .31$; $p = .00$). Next, hyperactive/impulsive symptoms were added to the regression equation that was created

in Model 3 (Model 4). Demographic variables of interest, hyperactive/impulsive symptoms, and life satisfaction explained 38.8% of the variance in the dependent variable, depressive symptoms, which was significant $F(5, 163) = 20.64$, $p < .01$. The change in F from Model 3 to Model 4 was not significant ($\Delta R^2 = .00$; $p = .57$), which indicates that hyperactive/impulsive symptoms did not account for an additional statistically significant portion of the variance in depressive symptoms over demographic variables and life satisfaction. Lastly, the interaction term (i.e., hyperactive/impulsive symptoms x life satisfaction) was added to the regression equation that was created in Model 4 (Model 5). These predictors together explained 38.8% of the variance in the dependent variable, depressive symptoms. Although the overall model was significant $F(6, 162) = 17.11$, $p < .01$, there was not a significant change in F between Model 4 and Model 5 (ΔR^2 change = 00; $p = .81$). Therefore, life satisfaction does not significantly impact the relationship between hyperactive/impulsive symptoms and depressive symptoms.

Table 14. *Summary of Regression Analyses for Hyperactive/Impulsive Symptoms and LS as Predictors of Depressive Symptoms (n = 172)*

	Model 1		Model 2		Model 3		Model 4		Model 5	
Variable	B (SE)	ß	B (SE)	ß	B (SE)	ß	B (SE)	ß	B (SE)	ß
Gender	-.10 (.08)	-.09	-.12 (.09)	-.10	.02 (.07)	.02	.02 (.07)	.07	.02 (.07)	.01
Age	.06 (.04)	.12	.06 (.04)	.12	.02 (.03)	.03	.02 (.03)	.04	.02 (.03)	.03
FRL	.25 (.08)	.23**	.23 (.08)	.22**	.16 (.07)	.15*	.15 (.07)	.14*	.15 (.07)	.14*
HI Symptoms			.05 (.06)	.06			.03 (.05)	.04	.03 (.05)	.03
Life Satisfaction					-.27 (.03)	-.58**	-.27 (.03)	-.58**	-.27 (.03)	.-.58**
HI Symptoms x Life Satisfaction									.01 (.05)	.02
R^2	.08		.08		.39		.39		.39	
F	4.80**		3.72**		25.83**		20.64**		17.11**	

Note: Hyperactive/Impulsive (HI) symptoms and life satisfaction were centered at their means.
*$p < .05$. **$p < .01$.

CHAPTER V: Discussion

The purpose of the current study was to gain insight into the association between levels of ADHD symptoms and reports of global life satisfaction with a middle school population. This study had four aims. First, it examined if the degree of ADHD symptoms present predicted levels of life satisfaction in middle school students. Second, it examined if interparental conflict, a variable that is related to both life satisfaction and ADHD, moderated the relationship between ADHD symptoms and levels of life satisfaction. Third, it examined if life satisfaction moderated the relationship between ADHD symptoms and academic achievement in reading and mathematics. Fourth, it examined if life satisfaction moderated the relationship between ADHD symptoms and depressive symptoms.

Relationship between Life Satisfaction and ADHD

Results of the current study demonstrated that ADHD symptoms were not significantly related to levels of life satisfaction in middle school students. Both inattentive and hyperactive/impulsive symptoms together accounted for only 2.5% of the variability in life satisfaction in the present study. However, the fact that inattentive symptoms contributed a statistically significant unique amount of the variance in life satisfaction suggests a trend for inattentive symptoms to be stronger predictors of life satisfaction than hyperactive/impulsive symptoms. These results were contrary to what was hypothesized based on the available literature. It was expected that ADHD symptoms would significantly predict levels of life satisfaction in middle school students,

given research demonstrating a link between these two constructs in an adult population (Gudjonsson et al., 2009). Moreover, children with ADHD often experience deficits in the academic (Loe & Feldman, 2007) and social domains (Danforth, Barkley, & Stokes, 1991; Gaub & Carlson, 1997), as well as an increased risk for comorbid psychopathology (Jensen, Burke, & Garfinkel, 1988; Kadesjö & Gillberg, 2001; Miranda, Soriano, Fernández, & Meliá, 2008; Szatmari, Offord, and Boyle, 1989), and difficulties in these areas have been consistently linked to lower levels of life satisfaction in children and adolescents (Gilman & Huebner, 2006; Lewinsohn, Redner, & Seeley, 1991; Suldo & Huebner, 2006; Valois, Zullig, Huebner, & Drane, 2004).

Although the results on the relationship between ADHD symptoms and life satisfaction in the present study were not as anticipated, this study still contributes to the literature on this topic, given that this is the first study to examine the link between these two constructs with a middle school population. The only study to date that has examined the relationship between ADHD symptoms and life satisfaction was conducted with an adult population (Gudjonsson et al., 2009). Moreover, there are several methodological differences between the Gudjonsson and colleagues (2009) study and the present study that could provide additional explanations for the discrepant findings. First, the Gudjonsson and colleagues (2009) study was conducted in Iceland, and it utilized different measures of both ADHD symptoms (i.e., the RATE scale) and life satisfaction (i.e., the SWLS) than the present study. Moreover, in Gudjonsson and colleagues' study, both ADHD symptoms and life satisfaction were measured through self-report, whereas in the current study, life satisfaction was measured through self-report and ADHD symptoms were measured through teacher report. The present study utilized teacher

reports of ADHD symptoms given that past research has suggested that children are less accurate reporters of externalizing behavior than their parents and teachers (Phares, 1997). However, future research should examine if ADHD symptoms rated by different groups of reporters (i.e., teachers, parents, and children themselves) differ in their relationships to levels of life satisfaction.

Although the findings in the current study differed from the one study examining the relationship between life satisfaction and ADHD symptoms (Gudjonsson et al., 2009), studies examining the relationship between ADHD symptoms and quality of life, a construct that is related to life satisfaction, have produced more discrepant findings. For example, some studies have indicated that parents of children with ADHD report significantly lower levels of quality of life for their children than do parents of children without ADHD (Escobar, Soutullo, Hervas, Gastaminza, Polavieja, & Gilaberte, 2005; Graetz, Sawyer, Hazell, Arney, & Baghurst; Klassen, Miller, & Fine, 2004; Sawyer, Whaites, Rey, Hazell, Graetz, & Baghurst, 2002), but children with ADHD often rate their own quality of life less negatively than their parents do (Klassen, Miller, & Fine, 2006) or report levels of quality of life similar to that of peers without ADHD (Klassen, Miller, & Fine, 2006; Landgraf & Abetz, 1997). However, other studies report that children and adolescents with ADHD report lower levels of quality of life than their peers without ADHD (Bussing, Mason, Bell, Porter, & Garvan, 2010; Hampel & Desman, 2006). Thus, current research on reports of quality of life among children and adolescents with ADHD has produced mixed results, particularly regarding the self-reports of children with ADHD. This research is relevant to the current study given the similarities between the constructs life satisfaction, which refers to subjective indicators

of well-being, and quality of life, which refers to subjective and objective indicators of well-being.

An additional possible explanation for the surprising outcomes in the present study is the possible effects of the presence of the positive illusory bias (PIB), which is a phenomenon that refers to the fact that children with ADHD typically provide extremely positive reports of their own competence in comparison to parent and teacher reports and/or measures reflecting their actual levels of competence (Owens, Goldfine, Evangelista, Hoza, & Kaiser, 2007; Owens & Hoza, 2003). It was originally hypothesized that children with symptoms of ADHD would experience lower levels of life satisfaction due to the fact that they are more likely to encounter academic and social difficulties than their peers without symptoms of ADHD. However, if students demonstrate the PIB and therefore do not view themselves as experiencing significant impairment in the academic and social domains, then it would make sense that they would not feel worse about their lives overall. Although positive illusions have been found to exist in moderate levels in the general population, the discrepancy between ratings of competence by children with ADHD and their actual levels of competence is much more extreme than in the general population (Owens et al., 2007). There are several hypotheses for why the PIB is present in children with ADHD, but the most commonly accepted hypothesis is the self-protective hypothesis, which posits that the PIB serves a functional purpose when children with ADHD are faced with a challenging task in that children hide their feelings of incompetence or failure by inflating their reports of self-competence (Owens et al., 2003). In particular, children and adolescents with ADHD rate themselves as more competent than teachers and parents rate them in

specific domains, such as in academics and social interactions (Owens et al., 2003). Thus, although children with ADHD may experience difficulties within these domains, they may not recognize these difficulties as a means of self protection. Therefore, it is possible that children with ADHD may report levels of life satisfaction similar to those of their peers and may report higher levels of quality of life than those reported for them by their parents because of the presence of the PIB. Future research should examine if the presence of the PIB impacts the relationship between symptoms of ADHD and levels of life satisfaction.

An additional possible explanation for the surprising outcomes in the present study is the fact that in this study, only symptoms of ADHD, not impairment in various domains associated with these symptoms, were examined to see their relation to levels of life satisfaction. In order to meet diagnostic criteria for ADHD, impairment in two or more domains is necessary. However, this study only examined symptoms of hyperactivity, impulsivity, and inattention. It is possible that although these symptoms may not be significantly related to life satisfaction, the impairment that is associated with symptoms of ADHD may be related to life satisfaction. It is important to examine the relationship between impairment and life satisfaction as well, as research has suggested that symptoms of ADHD and impairment may be only moderately correlated (Gordon, Antshel, Faraone, Barkley, Lewandowski, Hudziak et al., 2006). In addition, impairment may be more directly related to outcomes than symptoms (Gordon et al., 2006). Therefore, studies should examine outcomes related to samples of students who demonstrate not only symptoms but also meet criteria for impairment.

Lastly, it is possible that the results demonstrated in the present study differed from those in the study conducted by Gudjonsson and colleagues (2009) because there is a meaningful difference in the levels of life satisfaction in individuals with symptoms of ADHD based on age. Research suggests that ADHD persists throughout the course of life and that difficulties in the academic and social domains, as well as other comorbidities, can compound over time. Therefore, adults, versus middle school students, may have had more opportunities to experience difficulties in academics or social interactions and comorbid psychopathological symptoms and may therefore be at greater risk for lower levels of life satisfaction.

In summary, the results of the analyses conducted in order to answer the first research question suggest that middle school students' symptoms of ADHD are not related to their levels of life satisfaction. There are several possible explanations for these unexpected findings. First, this is the first study to examine this relationship in middle school students, and the only study that had previously examined the relationship between ADHD symptoms and life satisfaction was conducted with an adult population, was conducted internationally, utilized different measures of ADHD symptoms and life satisfaction, and relied completely on self-report data. Second, although there is a dearth in the literature on the relationship between ADHD symptoms and life satisfaction, studies that examined the relationship between ADHD symptoms and a related construct, quality of life, have produced discrepant findings. Third, it is possible that the presence of the PIB may affect the relationship between ADHD symptoms and life satisfaction. Fourth, it is possible that decreased levels of life satisfaction were not found because only symptoms of ADHD, rather than impairment in various domains associated with

symptoms of ADHD, were examined. Lastly, it is possible that middle school students with symptoms of ADHD do not experience the same deficits in levels of life satisfaction as adults with symptoms of ADHD do because they have not experienced as much difficulty in various domains as adults have.

Interparental Conflict and the Link Between ADHD and Life Satisfaction

An additional purpose of the current study was to examine if a related construct, perceived interparental conflict, served as a moderator in the relationship between ADHD symptoms and life satisfaction. Results of the current study demonstrated that levels of perceived interparental conflict did not moderate the relationship between reported ADHD symptoms and levels of life satisfaction in middle school students. These results were also contrary to what had been hypothesized based on the available literature. It was expected that levels of perceived interparental conflict might moderate the relationship between ADHD symptoms and levels of life satisfaction given that children with ADHD often experience greater familial conflict than children without ADHD (Danforth, Barkley, & Stokes, 1991), and family experiences have been found to be related to levels of life satisfaction for children and adolescents (Burke & Weir, 1979; Demo & Acock, 1996; Dew & Huebner, 1994; Suldo & Huebner, 2004b; Young, Miller, Norton, & Hill, 1995).

Surprisingly, levels of perceived interparental conflict were not found to be significantly related to levels of ADHD symptoms in the present study. This was surprising given past research indicating that there is a relationship between levels of parental conflict and children in the family with ADHD (Biederman, Faraone, & Monuteaux, 2002; Biederman, Milberger, Faraone, Kiely, Guite, Mick et al., 1995;

Counts, Nigg, Stawicki, Rappley, & von Eye, 2005; Deault, 2010; Wymbs, Pelham, Molina, & Gnagy, 2008; Wymbs, Pelham, Molina, Gnagy, Wilson, & Greenhouse, 2008). However, these studies focused on children and adolescents who met diagnostic criteria for ADHD, rather than children who demonstrated varying levels of symptoms of ADHD. It seems plausible that levels of interparental conflict could be less elevated in children who have symptoms ADHD, rather than children who meet full diagnostic criteria for ADHD (which requires both symptoms and impairment, whereas this study only examined symptoms), thus explaining the discrepant findings evidenced in this study versus past research.

Research has consistently demonstrated that positive family experiences are related to life satisfaction in children and adolescents (Burke & Weir, 1979; Demo & Acock, 1996; Dew & Huebner, 1994; Suldo & Huebner, 2004b; Young, Miller, Norton, & Hill, 1995). This relationship is not surprising given research demonstrating that positive daily experiences have been found to be among the most important of all of the contributors in predicting positive global life satisfaction in adolescents (McCullough, Huebner, & Laughlin, 2000), and children and adolescents spend the majority of their time outside of school with their families. Given research demonstrating the important influence that family interactions have on life satisfaction, it is important to conduct additional research to examine if positive family experiences might impact the relationship between symptoms of ADHD and life satisfaction. In particular, future research should look beyond perceived levels of interparental conflict as a moderator and should examine if parent-child conflict may moderate the relationship between ADHD symptoms and life satisfaction, as parent-child conflict may be more directly related to

symptoms of ADHD than perceived interparental conflict. It would be important to identify if the presence of this conflict does influence life satisfaction in children and adolescents with ADHD, because, if so, the family could be a target of intervention for children with ADHD who are experiencing lower levels of life satisfaction.

Life Satisfaction and the Link Between ADHD and Academic Achievement

An additional purpose of the current study was to examine if life satisfaction moderated the relationship between ADHD symptoms and academic achievement in reading and mathematics. It is important to consider this relationship given that children and adolescents with ADHD often experience significant academic impairments (Loe & Feldman, 2007). This study examined if life satisfaction could serve as a buffer against the development of academic problems for adolescents with ADHD given that high levels of life satisfaction have been determined to be related to increased academic competence (Gilman & Huebner, 2006; Suldo & Huebner, 2006). As expected, significant negative relationships were found in the current study between ADHD symptoms and academic achievement, such that when severity of ADHD symptoms increased, achievement in reading and mathematics decreased. Moreover, as expected, significant positive relationships were also found between levels of life satisfaction and academic achievement, such that as life satisfaction increased, achievement in reading and mathematics also increased. However, results of the current study demonstrated that life satisfaction surprisingly did not moderate the relationship between reported ADHD symptoms and academic achievement in reading or mathematics. It is possible that the academic impairment associated with symptoms ADHD is so significant that even high levels of life satisfaction may not impact a student's ability to be successful in school.

Moreover, although research has consistently demonstrated that higher levels of life satisfaction are associated with increased academic success, the majority of this research has been of a correlational design (Gilman & Huebner, 2006). Thus, it cannot be implied from this research that higher levels of life satisfaction impact a student's ability to be successful in school; rather, it is possible that increased academic success affects a student's life satisfaction. However, further research is needed to determine if life satisfaction truly does not moderate the relationship between ADHD symptoms and academic achievement. Moreover, future research could examine the relationship between life satisfaction and academic achievement, as it is possible that it is a bidirectional relationship.

Life Satisfaction and the Link Between ADHD and Depression

An additional purpose of the current study was to examine if life satisfaction moderated the relationship between ADHD symptoms and depressive symptoms. This relationship is important to consider given that adolescents with ADHD are at higher risk of developing comorbid depression than peers without ADHD, and the ADHD diagnosis often precedes the diagnosis of depression (Jensen, Burke, & Garfinkel, 1988). It is important to consider if life satisfaction moderates this relationship given that lower levels of life satisfaction have also been found to precede the development of depression (Lewinsohn, Redner, & Seeley, 1991). As expected, a significant negative relationship was found in the present study between life satisfaction and depressive symptoms, such that as life satisfaction increased, depressive symptoms decreased. However, significant relationships between ADHD symptoms and depressive symptoms were surprisingly not identified in this study. It is possible that this relationship was not identified with a

young adolescent population because the risk of experiencing comorbid psychopathology with ADHD symptoms increases over time. For example, once children with ADHD reach adolescence, their chances of having an accompanying mood or anxiety disorder increase, with 24% of boys and 50% of girls meeting criteria during the adolescent years, in comparison to approximately 21% of boys and 17% of girls between the ages of 4 and 11 meeting criteria (Szatmari, Offord, & Boyle, 1989). Because this study was conducted with a young adolescent population, it is possible that the participants in the current study with elevated symptoms of ADHD were at a decreased risk for comorbid psychopathology when compared to older adolescents and adults with ADHD. Moreover, it is possible that this relationship was not identified because only ADHD symptoms, and not the associated impairment necessary to meet diagnostic criteria, were examined in the present study. In addition, it is again possible that having teachers rate ADHD symptoms and using self-report data for depressive symptoms did not allow for the most accurate relationship between these constructs to emerge. For example, it is possible that teachers may have missed some students with ADHD because these students may be taking medications that control their symptoms or may have inattentive symptoms that are not readily observed by teachers; however, these students may still be at risk for comorbid depression. Lastly, there are limitations associated with the measure utilized to indicate the severity of depressive symptoms in the current study. These limitations will be discussed in the following section of this discussion. Results of the current study also demonstrated that life satisfaction did not moderate the relationship between reported ADHD symptoms and depressive symptoms, or the relationship between ADHD symptoms and depressive symptoms was not significantly affected by

one's global satisfaction with life. Therefore, students with symptoms of ADHD may be at risk for developing depressive symptoms regardless of their subjective appraisals of life. However, it is possible that the extent to which life satisfaction serves as a moderator in the relationship between ADHD symptoms and depressive symptoms would be different if examined with a sample in which these ADHD and depressive symptoms were determined to be significantly related symptoms, such as in a sample of older adolescents or students not only reporting ADHD symptoms but also reporting impairment associated with these symptoms.

Contributions to the Literature

The current study contributes to existing literature on life satisfaction given that there is currently only one study, which was conducted with an adult population, specifically examining levels of life satisfaction in individuals with ADHD. This study found that even mild ADHD symptoms are associated with lower levels of life satisfaction (Gudjonsson, Sigurdsson, Eyjolfsdottir, Smari, & Young, 2009). Given that research has demonstrated that there is a relationship between the two constructs in adulthood, it is important to examine this relationship in adolescents as well. Moreover, lower levels of life satisfaction are associated with increased risk for psychopathology (Diener & Diener, 1996; Lewinsohn, Redner, & Seeley, 1991), suicidal ideation or behavior (Valois, Zullig, Huebner, & Drane, 2004), decreased academic, emotional, and social self-efficacy (Suldo & Huebner, 2006), decreased GPA and self-esteem (Gilman & Huebner, 2006), and impaired relationships with family (Gilman & Huebner, 2006). Given that individuals with ADHD are at higher risk of negative outcomes in multiple domains, it is important to consider if adolescents with ADHD experience lower levels of life satisfaction than their peers. It is also important to consider if perceived levels of

interparental conflict alter the strength of this relationship. Moreover, it is important to consider if higher levels of life satisfaction may serve as a protective factor against the development of negative outcomes for adolescents with ADHD, such as decreased academic achievement and increased symptoms of depression. The current study provides important insight into the relationship between ADHD and life satisfaction in middle school students and provide additional support for the importance of developing interventions that increase students' global life satisfaction.

Limitations of the Current Study

The use of self-report and teacher-report methods are potential limitations to the study design. However, previous research has indicated that teachers are accurate reporters of student behavior, especially with externalizing behavior (Pelham, Fabiano, & Massetti, 2005; Phares, 1997). Moreover, the fact that expected relationships between ADHD symptoms and other variables, such as the negative relationships identified beween ADHD symptoms and academic achievement in reading and mathematics, were identified suggests that teachers were likely accurate reporters of ADHD symptoms in this study. Regarding use of student self-report data, research has indicated that life satisfaction is most appropriately measured by self-report, as it is an internal, subjective construct (Huebner, 1991). In support of the use of self-report on the CES-D, research has demonstrated that children are more accurate reporters of internalizing behavior than they are of externalizing behavior (Reynolds & Graves, 1989). Moreover, research has suggested that parents and teachers may not be aware of the internalizing symptoms a child is experiencing because these symptoms are often inherently covert (Reynolds, 1994), and thus, researchers have suggested that it is preferable to obtain these data from children themselves (Merrell, 1999).

Population validity, which refers to the generalizability of results from the sample in the study to a larger population, is also a potential limitation to this research project. For example, the students in the sampled population may have unique characteristics that could limit the population to which the results of the study could be applied. An additional limitation to the current study was the low response rate (only 10% of students across both schools returned completed parent consent forms, and only 9% of students provided assent to participate in the current study). Thus, the sample size in the current study was smaller than was desired, and the subsamples of students with elevated symptoms of ADHD as rated by their teachers were particularly small. Moreover, it is possible that the students who returned parental consent forms and agreed to participate in the study may represent an inadvertently self-selected sample of middle school students that differs in some ways from other middle schools students who did not return their parental consent forms or declined to participate in the current study.

An additional limitation associated with this study is the use the CES-D to measure severity of depression. The CES-D was utilized in this study as a unidimensional measure of depression; however, this measure was not developed as a unidimensional scale, but rather a four-factor scale measuring depressed affect, positive affect, somatic and retarded activity, and interpersonal constructs (Radloff, 1977). However, in a recent review, Edwards, Cheavens, Heiy, and Cukrowicz (2010) examined studies using the CES-D as a primary measure of depression and found that, despite a lack of research supporting a unidimensional score for the scale, only seven of 107 studies using the CES-D mentioned the factor structure of the scale, and only two of the

studies specifically examined factor structure. Thus, reporting the CES-D as a total depressive score has become a common practice.

An additional limitation associated with this study is a limitation with the measure of perceived interparental conflict (e.g., the CPIC) that was used in the current study. Although the CPIC includes a question that asks students to report on their family structure, the questions in the conflict properties scale do not take into account that some students would not have the opportunity to witness parent interactions (e.g., if students lived with only one parent). In the current study, 21.5% of students reported that they lived with a single parent (i.e., mom or dad). Therefore, these students would not be able to report perceived interparental conflict because they only live with one parent.

Lastly, although significant differences by school on variables and relationships of interest were not identified in the present study, it is possible that differences between schools may have contributed to lack of significant expected relationships identified in the given study. Future research might consider who school variables could impact the relationship between symptoms of ADHD and levels of life satisfaction.

Implications for School Psychologists

The current study enhances the current knowledge base related to the relationship between life satisfaction and degree of ADHD symptoms in middle-school students. This study adds to the literature in that there is only one study that explicitly examines the relationship between ADHD symptoms and life satisfaction in adults (Gudjonsson et al., 2009); no published research has examined life satisfaction in relation to ADHD symptoms in adolescents. Given increased evidence related to the importance of fostering life satisfaction in the overall population (Diener & Diener, 1996), as well as

recent suggestions regarding the importance of increasing positive academic and social outcomes for children with ADHD rather than focusing on problem behaviors (DuPaul, 2007), it is important to gain a clearer understanding of how life satisfaction may be related to the presence or degree of ADHD symptoms.

Although the fact that the present study demonstrated a non-significant relationship between ADHD symptoms and life satisfaction was not expected, the results of this study still provide an important contribution to the knowledge base. Moreover, the fact that middle school students with elevated symptoms of ADHD were not found to have lower levels of life satisfaction is encouraging. Although these students may experience more hardships in the academic and social domains and may be at greater risk for developing comorbid psychopathology, the results of this study suggest that they are no less satisfied with their lives than their peers who do not have elevated symptoms of ADHD. DuPaul (2007) recently highlighted the importance of increasing positive academic and social outcomes for children with ADHD, as opposed to focusing solely on problem behaviors, which has traditionally been the focus of treatment. Although DuPaul (2007) did not address the life satisfaction in this population, these perspectives are complimentary as there is a clear focus on increasing positive outcomes versus an emphasis on reducing symptoms or problems. Therefore, the fact that the results of this study demonstrate that middle school students with elevated symptoms of ADHD do not necessarily experience lower levels of life satisfaction has important implications for school psychologists, as it demonstrates that although students with ADHD may experience difficulties in the academic and social domains, they do not necessarily experience lower levels of life satisfaction as a result of this. This information may be

particularly encouraging to parents of children and adolescents with ADHD, who are likely well aware of the fact that their children may experience difficulties throughout their lives. The message that, despite these difficulties, these children may not experience lower life satisfaction during the middle school years, is encouraging. The results of this study may also be encouraging to parents of middle school students with elevated symptoms of ADHD because a relationship between ADHD symptoms and depressive symptoms was not identified in the given study.

Future Directions

There is a need for additional research on the relationship between symptoms of ADHD and life satisfaction in children and adolescents. The current study was the first study to examine this relationship in a young adolescent population, and it needs to be replicated in additional studies before conclusions on this relationship can be determined. Additional studies should be conducted which address the limitations of the current study. First, it would be important to examine this relationship with a larger sample size than what was obtained in the present study, as the number of students who reported clinically elevated symptoms of ADHD in the present study was very small. Moreover, it may be beneficial to examine this relationship with students who have a clinical diagnosis of ADHD in order to capture not only symptoms but also associated impairment. Second, future research could examine if there are differences in the relationship between symptoms of ADHD and life satisfaction when reports of ADHD symptoms are obtained from different groups (e.g., parents, teachers, and children themselves). Third, future research should examine how the presence of the PIB may influence the relationship between ADHD symptoms and life satisfaction, as the PIB may

serve as a protective factor in this relationship. Fourth, future research should examine how other forms of familial conflict, such as parent-child conflict, may affect the relationship between ADHD symptoms and life satisfaction. Fifth, future research should use other measures of depressive symptoms that are more appropriate for measuring overall depressive symptomology.

In conclusion, the results of the present study determined that life satisfaction was not significantly related to ADHD symptoms. Several reasons were provided for why this unexpected non-significant relationship may have emerged, and future research should explore if these findings hold true with other samples. Although the non-significant relationship was unexpected, it is encouraging that possibly, although children and adolescents with ADHD may experience more difficulties than their peers without ADHD, they may not feel significantly differently about their overall lives than their peers do. The results of the present study also demonstrated that interparental conflict did not moderate this relationship. Future research may examine if other types of familial conflict, such as parent-child conflict, have a significant effect on the life satisfaction of children and adolescents with ADHD. Interestingly, the results of the present study also demonstrated that life satisfaction did not moderate the relationship between ADHD symptoms and academic achievement or the relationship between ADHD symptoms and depressive symptoms. Although these findings were not as expected, they still have important implications for school psychologists. Students exhibiting symptoms of ADHD may not be particularly vulnerable to lower levels of life satisfaction, which is encouraging information that could be provided to parents of children with ADHD who are used to reading negative research about their child's outcomes. Moreover, the results

of this study suggest that middle school students with ADHD may not be particularly vulnerable to experiencing comorbid depressive symptoms. These findings demonstrate that, with a middle school population, it is important to consider strategies to prevent the development of comorbid depressive symptoms. This study also provides further evidence of the correlation between ADHD symptoms and academic achievement, suggesting that there is still more to be done in terms of finding appropriate methods to teach and engage students with symptoms of ADHD. In summary, the present study provides further information on young adolescents who experience symptoms of ADHD, and it is the first to examine life satisfaction in this specific population.

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Appendices

Appendix A: Parent Consent Letter

Dear Parent or Caregiver:

This letter provides information about a research study that will be conducted at _____ Middle School by Dr. Julia Ogg and Dr. Rance Harbor. Dr. Ogg is a professor from the University of South Florida and Dr. Harbor is a school psychologist in _____County, as well as a visiting professor at the University of South Florida. Our goal in conducting the study is to investigate the experiences of adolescents exhibiting symptoms of inattention, hyperactivity, and impulsivity and to better understand the perceptions of adolescents toward those exhibiting these behaviors.

- ✓ Who We Are: Julia Ogg, Ph.D. is a professor in the College of Education at the University of South Florida (USF). Rance Harbor, Ph.D. is a school psychologist in _____County and a visiting professor at USF. We are planning the study in cooperation with the principal and administrators of _____ Middle School to ensure the study provides information that will be helpful to the schools.
- ✓ Why We Are Requesting Your Participation and Your Child's Participation: This study is being conducted as part of a project entitled, "The Experiences of and Perceptions toward Adolescents Exhibiting Inattention, Hyperactivity, and Impulsivity." You and your child are being asked to participate because your child is a student at _____ Middle School. All students at _____ Middle School are being asked to participate.
- ✓ Why You and Your Child Should Participate: We need to learn more about how to help students be successful during the pre-teen and teenage years. The information that we collect from students and parents may help increase our overall knowledge of difficulties frequently encountered in school and help support students' success. Please note neither you nor your child will be paid for your participation in the study. However, all students who return parental consent forms will be entered into a drawing for a gift certificate, regardless of if you allow your child to participate or not.
- ✓ What Participation Requires: If you give permission for your child to participate in the study, he or she will be asked to complete paper-and-pencil questionnaires. The surveys will ask about your child's behaviors, feelings about themselves, medication use, substance use, life events, and about how family members get along. They will also be asked to report their gender, ethnicity, experiences getting in trouble, diagnoses, and the marital status of their parents. Completion is expected to take your child about 40 minutes. We will personally administer the questionnaires at _____ Middle School along with a trained team of researchers from USF during regular school hours. Questionnaires will be administered to students who have parent permission to participate. Participation will occur during one class period this Spring semester. In addition, students' school records will be reviewed for academic achievement (e.g., grades, FCAT scores) and reduced lunch status. If you choose to participate, you will be asked to complete a questionnaire about your child's behavior. Completion of the questionnaire is expected to take about 5 minutes.
- ✓ Please Note: Your decision to participate and to allow your child to participate in this research study is completely voluntary. You are free to allow your child to participate in this research study or to withdraw him or her at any time. You are also free to decide if you would like to participate in this study or to withdraw at any time. If you choose not to participate or not to allow your child to participate, or if you withdraw your child at any point during the study, this will in no way affect your relationship with _____ Middle School, USF, or any other party.
- ✓ Confidentiality of Your Responses and Your Child's Responses: There is minimal risk to you and your child for participating in this research. We will be present during administration of the questionnaires, along with a team of trained researchers, in order to provide assistance to your child if he or she has any questions or concerns. Your child's privacy and research records will be kept confidential to the extent of the law. Authorized research personnel, employees of the Department of Health and Human Services, and the USF Institutional Review Board

Appendix A: Continued

may inspect the records from this research project, but you and your child's individual responses will not be shared with school system personnel or anyone other than us and our research assistants. Your questionnaire and your child's completed questionnaire will be assigned a code number to protect the confidentiality of his or her responses. Only we will have access to the locked file cabinet stored at USF that will contain: 1) all records linking code numbers to participants' names, and 2) all information gathered from school records. The questionnaires will be kept for 5 years and then will be destroyed. Please note that although your child's specific responses on the questionnaires will not be shared with school staff, if your child indicates that he or she intends to harm him or herself, we will provide your child's name to the mental health counselors at _____ Middle School and ask that they follow up with your child to ensure your child's safety. We will also let school mental health counselors know
if your child scores high on a measure of depression. The mental health counselors will determine if additional follow-up is needed.

- ✓ What We'll Do With Your Responses and Your Child's Responses: We plan to use the information from this study to inform educators and psychologists about helping all students be successful in school. The results of this study may be published. However, the data obtained from you and your child will be combined with data from other people in the publication. The published results will not include your name or your child's name or any other information that would in any way personally identify you or your child.
- ✓ Questions? If you have any questions about this research study, please contact Dr. Julia Ogg at (813) 974-9698. If you have questions about you or your child's rights as a person who is taking part in a research study, you may contact a member of the Division of Research Compliance of the University of South Florida at (813) 974-9343.
- ✓ Do You Want to Participate or Have Your Child Participate? To permit your child to participate in this study, complete the attached child consent form (top portion below) and have your child turn it in to his or her 1st period teacher. If you would like to participate in this study, please complete the parent consent form (2nd portion of form below). If you choose to participate, your child will also bring the questionnaire home for you to fill out.

Sincerely,

Julia A. Ogg, Ph.D.
Assistant Professor of Educational Psychology
USF College of Education

Rance Harbor, Ph.D.
School Psychologist & Visiting Professor
_____County & USF College of Education

Consent for Child to Take Part in this Research Study

☐ I do not give permission to let my child take part in this study.

☐ I freely give my permission to let my child take part in this study. I understand that this is research. I have received a copy of this letter and consent form for my records.

_____ _____ _____

Printed name of child | Child's Homeroom Teacher | Date

_____ _____

Signature of parent of child taking part in the study | Printed name of parent

Consent For You To Take Part in this Research Study

☐ I do not give permission to participate in this study.

☐ I freely give my permission to take part in this study. I understand that this is research. I have received a copy of this letter and consent form for my records.

_____ _____ _____

Appendix A: Continued

Signature of parent taking part in study | Printed name of parent | Date

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Statement of Person Obtaining Informed Consent

I certify that participants have been provided with an informed consent form that has been approved by the University of South Florida's Institutional Review Board and that explains the nature, demands, risks, and benefits involved in participating in this study. I further certify that a phone number has been provided in the event of additional questions.

Signature of person obtaining consent | Printed name of person obtaining consent | Date

Appendix B: Student Assent Letter

Hello!
This letter explains a research study that we would like you to take part in. Our goal in conducting the study is to learn more about your thoughts, feelings, and attitudes related to school, family, friends, and life in general.

- ✓ Who We Are: Julia Ogg, Ph.D. is a professor in the College of Education at the University of South Florida (USF). Rance Harbor, Ph.D. is a school psychologist in _____ County and a visiting professor at USF. Several doctoral students in the College of Education at USF are also part of the team. We are working with your principal and administrators to make sure this study will be helpful to your school.

- ✓ Why We are Asking You to Take Part in the Study: This study is being conducted as part of a project entitled, "The Experiences of and Perceptions toward Adolescents Exhibiting Inattention, Hyperactivity, and Impulsivity." You are being asked to participate because you are a student at _____ Middle School**.**

- ✓ Why You Should Take Part in the Study: We need to learn more about how to help students be successful during the pre-teen and teenage years! The information that we collect from you may help increase our overall knowledge of difficulties frequently encountered in school and help support your success. Please note you will not be paid for your participation in the study. However, all students who complete and return parental consent forms will be entered into a drawing for a gift certificate.

- ✓ What Will Happen if You're in the Study: If you choose to take part in the study you will be asked to complete a paper-and-pencil questionnaire. The survey will ask you about your thoughts and behaviors. It will take you about 40 minutes to complete the questionnaire. If you choose to take part in the study, we will also look at some of your school records including your grades, and reduced lunch status.

- ✓ Please Note: Your involvement in this study is voluntary (it's your choice). By signing this form, you are agreeing to take part in this study. Your decision to take part, not to take part, or to stop taking part in the study at any time will not affect your student status or your grades; you will not be punished in any way. If you choose not to take part, it will not affect your relationship with _____ Middle School, USF, or anyone else.

- ✓ Privacy of your Involvement: Your privacy and research records will be kept confidential (private, secret) to the extent of the law. People approved to do research at USF, people who work with the Department of Health and Human Services, the USF Institutional Review Board, and its staff, and other individuals acting on behalf of USF may look at the records from this research project. However, your responses to the surveys will not be shared with people in the school system or anyone other than us and our research assistants. Your surveys will be given a code number to protect the confidentiality of your responses. Only

Appendix B: Continued

we will have the ability to open the locked file cabinet stored at USF that will contain: 1) all records linking code numbers to names, and 2) all information gathered from school records. All records from the study (completed surveys, information from school records) will be destroyed in four years. Please note that although your specific responses and comments will not be shared with school staff, if you say or write that you may harm yourself or someone else, or if your responses on specific surveys indicate extreme emotional distress, we will contact district mental health counselors to make sure everyone is safe. The district mental health counselor may meet with you to make sure you are safe.

- ✓ What We'll Do With Your Responses: We plan to use the information from this study to learn more about how to help students be successful during the pre-teen and teenage years! The information that we collect from you may help increase our overall knowledge of difficulties frequently encountered in school and help support your success. The results of this study may be published. However, your responses will be combined with other students' responses in the publication. The published results will not include your name or any other information that would identify you.

- ✓ Questions? If you have any questions about this research study, please contact Dr. Julia Ogg at (813) 974-9698. If you have questions about your rights as a person who is taking part in a research study, you may contact a member of the Division of Research Compliance of the University of South Florida at (813) 974-9343.

Thank you for taking the time to take part in this study.

Sincerely,

Julia A. Ogg, Ph.D.
Assistant Professor of School Psychology
USF College of Education

Rance Harbor, Ph.D.
School Psychologist & Visiting Professor
_____ County & USF College of Education

Assent to Take Part in this Research Study

I give my permission to take part in this study. I understand that this is research. I have received a copy of this letter and assent form.

_____ _____ _____

Signature of student taking part in the study | Printed name of student | Date

_____

Your Homeroom Teacher

Appendix B: Continued

Statement of Person Obtaining Assent

I certify that participants have been provided with an assent form that has been approved by the University of South Florida's Institutional Review Board and that explains the nature, demands, risks, and benefits involved in participating in this study. I further certify that a phone number has been provided in the event of additional questions.

_____	_____	_____
Signature of person obtaining assent	Printed name of person obtaining assent	Date

Appendix C: Teacher Consent Letter

Dear Teacher:

This letter provides information about a research study that will be conducted at _____ Middle School by Dr. Julia Ogg and Dr. Rance Harbor. Dr. Ogg is a professor from the University of South Florida and Dr. Harbor is a school psychologist in _____ County, as well as a visiting professor at the University of South Florida. Our goal in conducting the study is to investigate the experiences of adolescents exhibiting symptoms of inattention, hyperactivity, and impulsivity and to better understand the perceptions of adolescents toward those exhibiting these behaviors.

- ✓ Who We Are: Julia Ogg, Ph.D. is a professor in the College of Education at the University of South Florida (USF). Rance Harbor, Ph.D. is a school psychologist in _____ County and a visiting professor at USF. We are planning our study in cooperation with the principal and administrators of _____ Middle School to ensure the study provides information that will be helpful to the schools.

- ✓ Why We are Requesting Your Participation: This study is being conducted as part of a project entitled, "The Experiences of and Perceptions toward Adolescents Exhibiting Inattention, Hyperactivity, and Impulsivity." You are being asked to participate because you are a teacher of at least one student who is a participant in the study.

- ✓ Why You Should Participate: We need to learn more about how to help students be successful during the pre-teen and teenage years! The information that we collect from teachers may help increase our overall knowledge of difficulties frequently encountered in school and help support students' success. Please note that you will receive a gift card for participating in the study.

- ✓ What Participation Requires: You will be asked to complete a questionnaire(s) about the behavior of each of your students who is a participant in the study. Completion of the questionnaire(s) is expected to take between 5 and 10 minutes.

Appendix C: Continued

- ✓ Please Note: Your decision to participate in this research study must be completely voluntary. You are free to participate in this research study or to withdraw from participation at any time. If you choose not to participate, or if you withdraw at any point during the study, this will in no way affect your relationship with _____ Middle School, USF, or any other party.

- ✓ Confidentiality of Your Responses: There is minimal risk for participating in this research. Your privacy and research records will be kept confidential to the extent of the law. Authorized research personnel, employees of the Department of Health and Human Services, the USF Institutional Review
  Board and its staff, and other individuals acting on behalf of USF may inspect the records from this research project, but your individual responses will not be shared with school system personnel or anyone other than the USF research team. Your completed questionnaire(s) will be assigned a code
  number to protect the confidentiality of your responses. Only the USF research team will have access to the locked file cabinet stored at USF that will contain all records linking code numbers to participants' names.

- ✓ What We'll Do With Your Responses: We plan to use the information from this study to inform educators and psychologists about helping all students be successful in school. The results of this study may be published. However, the data obtained from you will be combined with data from other people in the publication. The published results will not include your name or any other information that would in any way personally identify you.

- ✓ Questions? If you have any questions about this research study, please contact Dr. Julia Ogg at (813) 974-9698. If you have questions about your rights as a person taking part in a research study, you may contact a member of the Division of Research Compliance of the University of South Florida at (813) 974-9343.

- ✓ Want to Participate? To participate in this study, please sign the attached consent form.

Sincerely,

Julia A. Ogg, Ph.D.
Assistant Professor of Educational Psychology
USF College of Education

Rance Harbor, Ph.D.
School Psychologist & Visiting Professor
_____ County & USF College of Education

Consent to Take Part in this Research Study

I freely give my permission to take part in this study. I understand that this is research. I have received a copy of this letter and consent form for my records.

_____ _____ _____
Signature of teacher Printed name of teacher Date

Appendix C: Continued

Statement of Person Obtaining Informed Consent

I certify that participants have been provided with an informed consent form that has been approved by the University of South Florida's Institutional Review Board and that explains the nature, demands, risks, and benefits involved in participating in this study. I further certify that a phone number has been provided in the event of additional questions.

_____	_____	_____
Signature of person obtaining consent	Printed name of person obtaining consent	Date

Appendix D: Vanderbilt ADHD Diagnostic Teacher Rating Scale (VADTRS)

Vanderbilt ADHD Diagnostic Teacher Rating Scale

Name: _____ Grade: _____

Date of Birth: _____ Teacher: _____ School: _____

Each rating should be considered in the context of what is appropriate for the age of the children you are rating.

	Frequency Code: 0 = Never; 1 = Occasionally; 2 = Often; 3 = Very Often			
1. Fails to give attention to details or makes careless mistakes in schoolwork	0	1	2	3
2. Has difficulty sustaining attention to tasks or activities	0	1	2	3
3. Does not seem to listen when spoken to directly	0	1	2	3
4. Does not follow through on instruction and fails to finish schoolwork (not due to oppositional behavior or failure to understand)	0	1	2	3
5. Has difficulty organizing tasks and activities	0	1	2	3
6. Avoids, dislikes, or is reluctant to engage in tasks that require sustaining mental effort	0	1	2	3
7. Loses things necessary for tasks or activities (school assignments, pencils, or books)	0	1	2	3
8. Is easily distracted by extraneous stimuli	0	1	2	3
9. Is forgetful in daily activities	0	1	2	3
10. Fidgets with hands or feet or squirms in seat	0	1	2	3
11. Leaves seat in classroom or in other situations in which remaining seated is expected	0	1	2	3
12. Runs about or climbs excessively in situations in which remaining seated is expected	0	1	2	3
13. Has difficulty playing or engaging in leisure activities quietly	0	1	2	3
14. Is "on the go" or often acts as if "driven by a motor"	0	1	2	3
15. Talks excessively	0	1	2	3
16. Blurts out answers before questions have been completed	0	1	2	3
17. Has difficulty waiting in line	0	1	2	3
18. Interrupts or intrudes on others (e.g., butts into conversations or games)	0	1	2	3
19. Loses temper	0	1	2	3

(continued on next page)

Appendix D: Continued

	Frequency Code: 0 = Never; 1 = Occasionally; 2 = Often; 3 = Very Often			
20. Actively defies or refuses to comply with adults' requests or rules	0	1	2	3
21. Is angry or resentful	0	1	2	3
22. Is spiteful and vindictive	0	1	2	3
23. Bullies, threatens, or intimidates others	0	1	2	3
24. Initiates physical fights	0	1	2	3
25. Lies to obtain goods for favors or to avoid obligations (i.e., "cons" others)	0	1	2	3
26. Is physically cruel to people	0	1	2	3
27. Has stolen items of nontrivial value	0	1	2	3
28. Deliberately destroys others' property	0	1	2	3
29. Is fearful, anxious, or worried	0	1	2	3
30. Is self-conscious or easily embarrassed	0	1	2	3
31. Is afraid to try new things for fear of making mistakes	0	1	2	3
32. Feels worthless or inferior	0	1	2	3
33. Blames self for problems, feels guilty	0	1	2	3
34. Feels lonely, unwanted, or unloved; complains that "no one loves him/her"	0	1	2	3
35. Is sad, unhappy, or depressed	0	1	2	3

PERFORMANCE

	Problematic		Average	Above Average	
Academic Performance					
1. Reading	1	2	3	4	5
2. Mathematics	1	2	3	4	5
3. Written expression	1	2	3	4	5
Classroom Behavioral Performance					
1. Relationships with peers	1	2	3	4	5
2. Following directions/rules	1	2	3	4	5
3. Disrupting class	1	2	3	4	5
4. Assignment completion	1	2	3	4	5
5. Organizational skills	1	2	3	4	5

Appendix E: Demographic Form

1. **Gender**
   - ❍ 1) Female
   - ❍ 2) Male

2. **Ethnicity**
   - ❍ 1. African American/Black
   - ❍ 2. Asian/ Pacific Islander
   - ❍ 3. White
   - ❍ 4. Hispanic
   - ❍ 5. Native American/ Alaska Native
   - ❍ 6. Other (Specify _____)

3. **Age**

❍ 10	❍ 14	❍ 18
❍ 11	❍ 15	❍ 19
❍ 12	❍ 16	❍ 20
❍ 13	❍ 17	❍ 21

4. **Grade**

❍ 6	❍ 9	❍ 11
❍ 7	❍ 10	❍ 12
❍ 8		

5. **Estimated GPA**
   - ❍ 4.0 or higher (A)
   - ❍ 3.0-3.9 (B)
   - ❍ 2.0-2.9 (C)
   - ❍ 1.0-1.9 (D)
   - ❍ Less than 1.0 (F)

6. **Are you on Free or Reduced Lunch (e.g. do you pay for your lunch in the cafeteria)?**
   - ❍ 1. Yes
   - ❍ 2. No

7. **Do you attend school regularly?**
   - ❍ 1. No
   - ❍ 2. Sometimes
   - ❍ 3. Yes

8. **Including last year, and this year, have you received any discipline referrals for behaviors other than being tardy?**
   - ❍ 1. Often (More than 5)
   - ❍ 2. Some (1-5)
   - ❍ 3. Never

9. **Including last year, and this year, have you been suspended out of school (including ATOSS)?**
   - ❍ 1. Often (More than 5 days total)
   - ❍ 2. Some (1-5 days total)
   - ❍ 3. Never

10. **Including last year, and this year, have you been arrested?**
    - ❍ 1. Often (More than 2 times)
    - ❍ 2. Some (1-2 times)
    - ❍ 3. Never

11. **Have you ever been diagnosed with ADHD?**
    - ❍ 1. Yes
    - ❍ 2. No

12. **Have you ever been diagnosed with Anxiety, Depression, or other mental health problems?**
    - ❍ 1. Yes
    - ❍ 2. No

13. **Have you ever been prescribed medication for ADHD?**
    - ❍ 1. Yes, and I still take the medication.
    - ❍ 2. Yes, but I no longer take medication.
    - ❍ 3. No

14. **Have you ever been prescribed medication for Anxiety, Depression, or other mental health problems?**
    - ❍ 1. Yes, and I still take the medication.
    - ❍ 2. Yes, but I no longer take medication.
    - ❍ 3. No

15. **My biological parents are:**
    - ❍ 1. Married
    - ❍ 2. Divorced
    - ❍ 3. Separated
    - ❍ 4. Never married
    - ❍ 5. Never married but living together
    - ❍ 6. Widowed

Appendix F: Students' Life Satisfaction Scale (SLSS)

We would like to know what thoughts about life you've had during the past several weeks. Think about how you spend each day and night and then think about how your life has been during most of this time. Here are some questions that ask you to indicate your satisfaction with life. In answering each statement, circle a number from (**1**) to (**6**) where (**1**) indicates you **strongly disagree** with the statement and (**6**) indicates you **strongly agree** with the statement.

	Strongly Disagree	***Disagree***	***Slightly Disagree***	***Slightly Agree***	***Agree***	***Strongly Agree***
1. My life is going well	1	2	3	4	5	6
2. My life is just right	1	2	3	4	5	6
3. I would like to change many things in my life	1	2	3	4	5	6
4. I wish I had a different kind of life	1	2	3	4	5	6
5. I have a good life	1	2	3	4	5	6
6. I have what I want in life	1	2	3	4	5	6
7. My life is better than most kids'	1	2	3	4	5	6

Appendix G: Children's Perceptions of Interparental Conflict (CPIC)

I live with:

1. ____ both my mom *and* my dad
2. ____ my mom *and* her significant other (e.g., a step-father, mom's boyfriend)
3. ____ my dad *and* his significant other (e.g., a step-mother, dad's girlfriend)
4. ____ just my mom
5. ____ just my dad
6. ____ another relative (e.g., grandmother, aunt)
7 ____ other (please specify):_____

In every family there are times when the parents don't get along. Below are some things that kids sometimes think or feel when their parents have arguments or disagreements. We would like you to write what you think or feel when your parents argue by answering each of the sentences below.

If your parents are not living together, answer these questions in regard to the parent and stepparent (or your parent's significant other) that you spend the most time with. If your parents are not living together and neither one is living with a new partner, think about times when your parents are together and don't get along when you answer the questions.

T = TRUE ST = SORT OF OR SOMETIMES TRUE F = FALSE

1.	I never see my parents arguing or disagreeing.	T	ST	F
2.	When my parents have an argument they usually work it out.	T	ST	F
3.	My parents get really mad when they argue.	T	ST	F
4.	They may not think I know it, but my parents argue or disagree a lot.	T	ST	F
5.	Even after my parents stop arguing they stay mad at each other.	T	ST	F
6.	When my parents have a disagreement they discuss it quietly.	T	ST	F
7.	My parents are often mean to each other even when I'm around.	T	ST	F
8.	I often see or hear my parents arguing.	T	ST	F
9.	When my parents disagree about something, they usually come up with a solution.	T	ST	F
10.	When my parents have an argument they say mean things to each other.	T	ST	F
11.	My parents hardly ever argue.	T	ST	F
12	When my parents argue they usually make up right away.	T	ST	F
13.	When my parents have an argument they yell at each other.	T	ST	F
14	My parents often nag and complain about each other around the house.	T	ST	F
15.	My parents hardly ever yell when they have a disagreement.	T	ST	F
16	My parents have broken or thrown things during an argument.	T	ST	F
17.	After my parents stop arguing, they are friendly towards each other.	T	ST	F
18.	My parents have pushed or shoved each other during an argument.	T	ST	F
19.	My parents still act mean after they have had an argument.	T	ST	F

Appendix H: Center for Epidemiological Studies Depression Scale (CES-D)

Below is a list of the ways you might have felt or behaved. Please tell me how often you have felt this way during the **past week**. (Circle one number on each line)

During the past week…		Rarely or none of the time (less than 1 day)	Some or a little of the time (1-2 days)	Occasionally or a moderate amount of time (3-4 days)	Most or all of the time (5-7 days)
1	I was bothered by things that usually don't bother me.	0	1	2	3
2.	I did not feel like eating; my appetite was poor.	0	1	2	3
3.	I felt that I could not shake off the blues even with help from my family or friends.	0	1	2	3
4.	I felt I was just as good as other people.	0	1	2	3
5.	I had trouble keeping my mind on what I was doing.	0	1	2	3
6.	I felt depressed.	0	1	2	3
7.	I felt that everything I did was an effort.	0	1	2	3
8.	I felt hopeful about the future.	0	1	2	3
9.	I thought my life had been a failure.	0	1	2	3
10.	I felt fearful.	0	1	2	3
11.	My sleep was restless.	0	1	2	3
12.	I was happy.	0	1	2	3
13.	I talked less than usual.	0	1	2	3
14.	I felt lonely.	0	1	2	3
15.	People were unfriendly.	0	1	2	3
16.	I enjoyed life.	0	1	2	3
17.	I had crying spells.	0	1	2	3
18.	I felt sad.	0	1	2	3
19.	I felt that people dislike me.	0	1	2	3
20.	I could not get "going."	0	1	2	3