ADOLESCENT IMPULSIVITY: A MEDIATOR BETWEEN PARENTAL MONITORING AND ADOLESCENT PSYCHOSOCIAL OUTCOMES

A Thesis

by

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ABSTRACT

Previous research has established a robust relationship between characteristics of authoritative parenting as well as adolescent impulsivity on adolescent psychosocial outcomes. The current study was the first to expand upon this literature and examine the relationship between parenting characteristics and impulsivity, as well as the potential role for impulsivity as a mediator between perceived parenting characteristics and adolescent psychosocial outcomes.

Results indicated that parental acceptance/involvement was positively related to the experiential discounting task (EDT; R^2= .122, F (1, 49) =7.474, *p* = .043) and negatively related to the Barratt Impulsiveness Scale (BIS; R^2= .122, F (1, 49) =7.474, *p* = .008). PSI Psychological Autonomy Granting was only found to be significantly positively related to the DDQ (R^2= .096, F (1, 49) =5.751 *p* = .020). Parental monitoring was only negatively related to the BIS (R^2= .072, F (1, 49) =4.195, *p* = .045). Mediation models revealed that adolescent performance on the DDQ fully mediated the relationship between psychological autonomy granting and both DSM-IV Hyperactive Symptoms and ADHD Symptoms Total. The BIS was a partial mediator in the relationship between parental acceptance/involvement and family problems and the ADHD Index. All other mediation models were not significant. Implications of the current findings and directions for future research are discussed.

DEDICATION

I would like to dedicate this work to the two most important people in my life.

Mom, thank you for shaping me into the person I am today. You have taught me what it means to work hard to achieve my goals, strive to be the best person I can be, and to always put faith first. Although you are a thousand miles away, you are my strength every day. Thank you for giving me the courage and support to pursue my dreams.

Jordan, I am so blessed to be your wife and to have you by my side. I am forever grateful for your unconditional love and patience through my endless days of work and for the sacrifice that you make to support my goals. Thanks, too, for making my time at Texas A&M so special and for helping me embrace the Aggie spirit.

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Finally, to a few true friends who continue to make me laugh every day: Sneha, Michale, and Vince. You have and continue to make every day here entertaining and enjoyable. I am glad to share this graduate school experience with each of you.

TABLE OF CONTENTS

LIST OF FIGURES

Page

LIST OF TABLES

INTRODUCTION

The transition from childhood to adolescence is marked by physical, emotional and social changes that provoke stress and anxiety (Hudson & Findlay, 2006). During this phase, adolescents progress through a process of individuation that allows them to develop their own personality, morality, and emotional independence (Seitz, Besier, & Goldbeck, 2009). Simultaneously, adolescents endure pubertal changes in the brain along with premature executive functioning, making them more susceptible to immediate rewards and impaired decision-making (Steinberg et al., 2009). Gaining increased autonomy while equipped with under-developed decision-making skills places adolescents at risk for a number of adverse health and developmental outcomes. For example, adolescents have an increased risk of substance use, STD's from risky sexual behavior, violence, and an increased likelihood of associating with deviant peers (DiClemente, Hansen, & Ponton, 1996; DiClemente et al., 2001; Dishion, Patterson, Stoolmiller, & Skinner, 1991). Given these substantial adverse consequences that may result from navigating adolescence poorly, it is important to understand the characteristics that reliably promote positive development.

Parenting and Adolescent Development

Prior research consistently indicates that parents play an influential role in whether or not adolescents navigate this transition well (DiClemente et al., 2001; Henricson & Roker, 2000; Parker & Benson, 2004). In particular, increased adolescent autonomy and extensive development of peer relationships require substantial changes to

the parent-child relationship and parenting behaviors during this time (Barber, Olsen, & Shagle, 1994; Rait et al., 1992). Parents are forced to relinquish some control and provide a supportive environment for exploration. Ultimately, although adolescents are increasing their autonomy, those who navigate the phase well remain emotionally connected to their parents and rely on their parents for boundaries of how to navigate the outside world.

Studies that explore parenting strategies identify the authoritative parenting style as robustly related to adaptive adolescent outcomes (Barber, Chadwick, & Oerter, 1992; Bean, Bush, McKenry, & Wilson, 2003). Although research on parenting styles dates back to the early 1930's (eg. Symonds, 1939), the authoritative parenting style model was conceptualized by Diana Baumrind in 1966. Baumrind theorized that three main types of parenting exist: permissive, authoritarian, and authoritative (Baumrind, 1966). She described the authoritative parent as "rational [and] issue-oriented," and further, as one who values explaining reasoning to the child, accepting the child's unique interests while maintaining their role as the adult in power and placing sufficient demands on the child (Baumrind, 1966). Although Baumrind based her typology on the single dimension of control, her later work and that of many others since, has confirmed that parents who use various types of control differ on other dimensions, such as warmth, as well (Baumrind, 1967; Darling & Steinberg, 1993). Baumrind's typology was further validated by a number of studies in both age and ethnically diverse populations (Dornbusch, Ritter, Leiderman, Roberts, & Fraleigh, 1987; Lamborn, Mounts, Steinberg,

& Dornbusch, 1991; Laurence Steinberg, Lamborn, Darling, Mounts, & Dornbusch, 1994).

Characteristics of Authoritative Parenting

Throughout over a half-century of research, definitions of the authoritative parenting style have varied and included a number of constructs. However, the majority of recent studies have agreed upon three important dimensions that define the authoritative approach: parental support, behavioral control, and psychological control/autonomy (eg. Bean, 2003; Parker, 2004).

The construct of parental support has long been associated with the authoritative parenting style, although it has taken on various names based on the developmental stage of the research literature (ie. acceptance, Symonds, 1939; warmth, Baldwin, 1955). In the early stages, parental support was mainly conceptualized as the affective component of parenting often defined as nurturance, compassion, and caring (Barber, Stolz, Olsen, Collins, & Burchinal, 2005; Garber, Robinson, & Valentiner, 1997). However, the same construct, parental support, has also come to encompass parents' emotional support for the child's individualization, and growth (e.g.. Steinberg, 1992; "I can count on them to help me out if I have some kind of problem). Questionnaires that measure this type of acceptance still also capture the loving and responsive nature of authoritative parents that was originally postulated in parental support (Laurence Steinberg et al., 1994).

Arguably, the second and third dimensions are rooted within the same construct, control. However, research expanding upon Baumrind's original conceptualization of control has distinguished between two distinct components found in authoritative

parenting: behavioral and psychological control (Barber et al., 1994). Barber et al. (1994) argues that children transitioning into adolescents need both sufficient psychological autonomy to develop their own identity, as well as regulations on their behavior that help them learn the rules that govern the social world.

The contemporary phenomenon of behavioral control is often conceptualized as parental monitoring, which was originally defined in the Oregon Youth Study in an attempt to understand antisocial behavior (Capaldi & Patterson, 1989; Patterson, 1982). The most commonly utilized definition articulates that parental monitoring is "parental awareness of the child's activities, and communication to the child that the parent is concerned about and aware of the child's activities," (Dishion & McMahon, 1998). In other words, monitoring is parents' general knowledge of their child's whereabouts, activities, and social relationships (Dishion & McMahon, 1998; Jacobson & Crockett, 2000). Monitoring, or behavioral control, can also include parenting characteristics such as supervision or regulation; rules placed on the child's behavior, particularly those that govern their manners, educational responsibilities, and social interactions (Barber et al., 1994; Soenens & Vansteenkiste, 2010). Theories of parental behavioral control posit that parents need to establish rules about where the child is permitted to go, who they can associate with, and the times allotted for social activities (Snyder & Patterson, 1987; Stattin & Kerr, 2000). Taken together, these behaviors are thought of as protective factors in adolescent development; by setting guidelines for behavior a parent helps the child understand what is acceptable by their own morals as well as social and cultural standards (Barber, 1996; Barber & Harmon, 2002).

On the other hand, psychological control is the degree to which a parent attempts to regulate a child's own thoughts and emotions, ensuring continued emotional dependence on the parent (Barber, 1996; Pettit, Laird, Dodge, Bates, & Criss, 2001). While the concept dates back as early as the 1960's, it was largely missing from Baumrind's typology which dominated the field of socialization for several decades. However, when research shifted towards identifying individual characteristics that define parenting types, the construct of psychological control emerged again (Soenens & Vansteenkiste, 2010; L Steinberg, 1990). Psychological control is ensured by using tactics of psychological manipulation (e.g. guilt, love withdrawal; Pettit et al., 2001) and is thought to be detrimental to the child because it inhibits its counterpart, psychological autonomy, a crucial component in the child's exploration of their sense of self (Barber, 1996; Soenens & Vansteenkiste, 2010). Adolescence is a critical time for psychological development just as it is for social and behavioral development, without control over their emotional processes this development is stifled. Parents who demonstrate an authoritative parenting approach tend to demonstrate fewer of these techniques when interacting with their child, leading to less psychological control and more psychological autonomy as the child transitions to adolescence, promoting successful development of their individual identity (Pettit et al., 2001; Soenens & Vansteenkiste, 2010).

Together, these three characteristics are thought to define the authoritative parenting style which Baumrind closely linked with a number of adolescent psychosocial outcomes decades ago. Recent research has expanded upon her findings in two main ways. First, the individual characteristics of the parenting style (as opposed to the

typology as a whole) have also been found to have predictive value for a number of adolescent outcomes. Second, researchers have identified that adolescent's perceptions of these three characteristics are profoundly more predictive than parent's reports of their own behaviors (Jaccard, Dittus, & Gordon, 1998; Parker & Benson, 2004).

Authoritative Parenting and Adolescent Psychosocial Outcomes

Adolescent perceptions of parental support are frequently associated with a number of emotional and behavioral health issues. With regards to adolescent emotional development, support is linked to adolescent self-esteem (Deković & Meeus, 1997; Garber et al., 1997; Parker & Benson, 2004; Spoth, Redmond, Hockaday, & Yoo, 1996), and self-perceptions (Parker & Benson, 2004). Conceptually, this makes sense given that parental support assures that the child has had sufficient space and provision to explore their own identity and engage in individuation during early adolescence. This mechanism may also explain the association between minimal parental support and adolescent depression (Stark, Humphrey, Crook, & Lewis, 1990), which can occasionally result from a lack of self-concept. Although low levels of parental support are not as strongly related to behavioral outcomes as behavioral or psychological control (Bean et al., 2003), they have been correlated to increased substance use, delinquency, and school misconduct (Parker & Benson, 2004).

Associations between behavioral control and adolescent psychosocial outcomes is abundant, particularly for externalizing problems (Barber, 1996). Low levels of behavioral control are associated with antisocial and deviant behaviors (Ary et al., 1999; Barber, 1997; Dishion & McMahon, 1998; Forehand, Miller, Dutra, & Chance, 1997;

Jacobson & Crockett, 2000; McCord, 1990; Snyder, Dishion, & Patterson, 1986), as well as aggression (Loeber & Dishion, 1984). Further, low behavioral control is associated with a number of impulsive behaviors such as alcohol use (Barnes, Murray, Patton, Bentler, & Anderson, 2002; Bogenschneider, Wu, Raffaelli, & Tsay, 1998; Brown, Mounts, Lamborn, & Steinberg, 1993; Dishion & Loeber, 1985), tobacco use (Andrews, Tildesley, Hops, & Li, 2002), and sexual precocity (Romer et al., 1994; Romer et al., 1999). Adolescents without sufficient behavioral control are more likely to act recklessly, take risks, and violate social norms (Barber et al., 2005). Finally, increased behavioral control has been found to facilitate academic success (Brown et al., 19993, Crouter, MacDermid, McHale, & Perry-Jenkins, 1990; Steinberg, Elmen, & Mounts, 1989).

Psychological control is more significantly associated with internalizing symptoms (Barber & Harmon, 2002; Barber et al., 1994) such as depression (Burbach & Borduin, 1986; Garber et al., 1997; Gray & Steinberg, 1999; Pettit et al., 2001), learned helplessness (Barber, 1996), and a lack of self-concept (Barber, 1996; Conger, Conger, & Scaramella, 1997). While a robust relationship with internalizing disorders has been determined, only a few studies have linked psychological control to externalizing problems behavior such as delinquency (Barber, 1996; Eccles, Early, Fraser, Belansky, & McCarthy, 1997). Psychological control also appears to negatively impact academic performance (Barber & Harmon, 2002; Gray & Steinberg, 1999; Herman, Dornbusch, Herron, & Herting, 1997).

Consistent research has confirmed that these three characteristics of parenting are

robust predictors of how children will fare during their transition to adolescence. Thus, it is reasonable to say that any model which attempts to predict adolescent psychosocial outcomes should indeed include measurement of these characteristics. Nevertheless, characteristics of the adolescent themselves may also be an important component to consider in predicting their own behavior.

Impulsivity and Adolescent Development

Previous research suggests that during adolescences, brain areas that are linked to both impulsivity and orientation towards the future are still maturing (Steinberg et al., 2009). Thus, adolescents often demonstrate less concern for future consequences and tend to make more rash decisions, which frequently earns them the title of impulsive (Olson, Hooper, Collins & Luciana, 2007; Steinberg et al., 2009).

Impulsivity is most commonly defined as the tendency to act with less forethought, and predisposes an individual towards rash, unplanned actions without regard for negative consequences and with a disregard for more rational, long-term choices for success (Ainslie, 1975; International Society for Research on Impulsivity, 2011). Particularly during adolescence, impulsivity is can be broken down into three components: decision-making, disinhibition, and inattention (Reynolds, Penfold, & Patak, 2008).

Due to the breadth of behaviors that are considered "impulsive," a variety of methods have been developed to assess impulsivity and can be categorized as either self-report or laboratory behavioral assessments (Reynolds, Penfold & Patak, 2008). Self-report measures are an individual's perception of their own impulsivity and are said to

capture impulsive personalities characterized by unpredictability and spontaneity (Reynolds, Penfold, & Patak, 2008). These measures may be capturing a more trait-like construct. Younger adolescents score higher on self-report measures, such as the Barratt Impulsiveness Scale, than older adolescents enrolled in college (Stanford, Greve, Boudreaux, Mathias, & L Brumbelow, 1996).

Behavioral measures generally focus on a single component of impulsivity, decision-making, although more recent research on adolescents suggests that these tasks may also tap into inattention and disinhibition (Reynolds, Penfold, & Patak, 2008). Delay discounting tasks assess an individual's inclination towards smaller immediate rewards as opposed to larger rewards after a specified delay (Ainslie, 1975; Logue, 1988), which has proven to be a weakness during adolescent development. Adolescents do in fact perform differently on behavioral tasks of impulsivity, such as the delay discounting questionnaire, than adults (Steinberg et al., 2009).

Adolescent impulsivity, particularly delay discounting, has consistently been related to a number of adverse outcomes. Specifically, adolescents who use substances discount more, or tend to choose smaller, immediate outcomes (Reynolds, 2006). This relationship holds true for a number of substances including alcohol (Field, Christiansen, Cole, & Goudie, 2007; Kollins, 2003), tobacco (Fields, Collins, Leraas, & Reynolds, 2009; Reynolds & Fields, 2012), and marijuana use (Kollins, 2003). Although it has not been tested in young adolescents, delay discounting has been associated with lower academic performance in college students (Kirby, Winston, & Santiesteban, 2005). To

date, no research has examined the role of delay discounting in adolescent delinquency, aggression, or social deviance.

It is worth noting that research examining the relationship between self-report measures of impulsivity and behavioral tasks find inconsistent results but suggest modest correlations at best (Cyders & Coskunpinar, 2011; Sharma, Markon, & Clark, 2013). Thus, although the measures claim to capture similar constructs they may be tapping two distinct components of impulsivity. While research on the exact differences between the two measurements is inconclusive, it is hypothesized that self-report measures capture trait impulsivity and while behavioral measures were originally postulated to capture this same enduring pattern, more recent conceptualizations suggest that some of them may capture state impulsivity, or in-the-moment decision-making (Reynolds & Schiffbauer, 2004; Sharma et al., 2013).

Parenting Style Characteristics and Adolescent Impulsivity

Despite robust evidence linking both perceived parenting style characteristics and adolescent impulsivity to adolescent psychosocial outcomes, there is minimal exploration of the relationship of parenting styles and impulsivity directly. Only vague theoretical connections have been made between the two constructs, such as parenting styles that deviate from the authoritative approach may be precursors for later adolescent impulsivity (Olson, Bates, & Bayles, 1990). Furthermore, the two predict some of the same psychosocial outcomes (ie. substance use, academic performance), no research studies have combined both components into a model to predict these psychosocial outcomes. Although research confirming the relationship between authoritative

parenting characteristics and adaptive adolescent outcomes is remarkable strong, the relatively recent exploration of impulsivity as a predictor of similar adolescent outcomes does suggest that both variables may provide unique contributions. Thus, further exploration of how these variables co-exist and impact adolescent development is warranted.

Current Study

The current study seeks to explore the relationship of (1) parental support, behavioral control, and psychological autonomy (2) adolescent impulsivity, and (3) adolescent psychosocial outcomes. Given the hierarchy of allotted research and robustness of the relationship, it is suspected that parental support, behavioral control, and psychological autonomy will have the strongest impact on adolescent psychosocial outcomes. However, it is suspected that impulsivity may play a critical role as a mediator within that relationship.

Study Aim 1

To explore the relationship of three authoritative parenting characteristics: parental support, behavioral control, and psychological autonomy, and adolescent self-report and behavioral impulsivity

Hypothesis: Given previous research showing that high levels of the authoritative parenting characteristics and high levels of impulsivity are both related to psychosocial outcomes, it is hypothesized that the two characteristics will be significantly related to one another. Specifically, higher levels of authoritative parenting characteristics will be related to lower levels of both self-reported and behavioral impulsivity.

Study Aim 2

To determine whether adolescent impulsivity mediates the relationship between authoritative parenting characteristics and adolescent psychosocial outcomes

Hypothesis 2. It is hypothesized that adolescent impulsivity will in fact mediate the relationship between authoritative parenting characteristics and adolescent psychosocial outcomes. Given that both variables independently predict psychosocial outcomes, it is hypothesized that impulsivity will account for a substantial amount of variance in the parenting to outcome relationship.

METHOD

Participants

Participants for the current study were recruited as part of a larger project at Nationwide Children's Hospital in Columbus, Ohio. Adolescents ages 13-15 and their mothers were recruited via flyers and newspaper advertisements. Participants were excluded from the study if they were on ADHD medications. A total of 56 adolescents (Male = 23 Female = 33) were enrolled in the study along with their mothers. The final participant ages ranged from 13-16-year-old. All demographic variables are presented in Table 1.

Measures

Self-Reported Impulsivity

Barratt Impulsiveness Scale-11-Adolescent *(*BIS-11-A; Fossatti et al., 2002). The BIS-11-A is a 30 item self-report questionnaire adapted for adolescents that can be divided into six factors: Motor Impulsiveness, Cognitive Complexity, Self-Control, Lack of Delay, Attention, and Perseverance. Given the high intercorrelations for these factors in the adolescent population, it is more common in adolescent research to utilize the total score as a self-report measure of impulsivity. The BIS-11-A total score has demonstrated good internal consistency in adolescent populations (α=0.78).

Behavioral Impulsivity

Delay Discounting Questionnaire (DDQ). The Delay Discounting Questionnaire is a computerized task based on the principle that impulsive individuals

lack sensitivity to delayed rewards and prefer more immediate outcomes (Ainslie, 1975; Logue, 1988) Participants are presented with the choice of $10 after a specified delay (1,2,30,180, or 365 days) or a smaller amount of money available immediately. In order to determine levels of impulsivity, an indifference point is calculated indicating the smallest amount that an individual would accept rather than the standard delay amount ($10). Using an area under the curve (AUC) transformation, individuals with smaller AUC values are thought to demonstrate greater levels of impulsivity (Myerson et al., 2001).

Experiential Discounting Task (EDT; Reynolds and Schiffbauer, 2004). The EDT is a computerized task that utilizes four delays (0,7,15, 30 seconds) and requires participants to choose between a standard amount and adjusting amount. Unlike traditional discounting tasks, the EDT provides immediate monetary reimbursement for choices from a coin dispenser. Similar procedures are followed for deriving indifference points for each specified delay. An area under the curve method was utilized to analyze data with smaller AUC values indicating greater levels of impulsivity (Myerson et al., 2001).

Perceived Parenting Characteristics

Parental Monitoring Survey (PM). The Parental Monitoring Survey is a measure designed for the current study to examine adolescents' perception of their mothers' knowledge of their own behaviors (eg. My mom knows how I spend my money) and social interactions (eg. My mom knows who I'm with when I'm not at home). The scale requires participants to rate nine statements on a 5-point scale

(0=Never, 4=always). One summary score was determined by summing all responses, with greater numbers indicating higher levels of parental monitoring.

Parenting Style Inventory (PSI; Steinberg, 1992). The PSI is an adolescent self-report measure designed to measure perceptions of parenting behaviors. Derived from work by Steinberg et al., (1989) items were chosen to correspond to three established dimensions of authoritative parenting including acceptance/involvement (parental support), supervision/strictness (behavioral control) and psychological autonomy-granting. Greater scores on each of the three scales indicate more authoritative parenting styles.

Adolescent Outcomes

Conners-Wells' Adolescent Self-Report Scales (**CSR;** Conners, C.K.). The CSR is a standardized measure traditionally used for assessment of Attention-Deficit/Hyperactivity Disorder in children and adolescents. However, the measure is also useful for identifying other psychosocial outcomes and is broken down into eight subscales: family problems (α=.90), conduct problems (α=.89), anger control problems (α=.92), emotional problems (α=.89), cognitive problems (α=.88), hyperactive/impulsivity (α= .84), DSM-IV Inattentive Symptoms, DSM-IV Hyperactive Symptoms, and ADHD Index.

Procedure

All participants were recruited to Nationwide Children's Hospital via newspaper advertisements and flyers. Upon arrival, adolescents and their mothers provided informed consent for study participation. They were then asked to complete both self-

report questionnaires and behavioral tasks. For purposes of the current study, only measures completed by the adolescents were utilized. Upon completion of the tasks, participants were compensated for their time and effort based on task performance.

Statistical Analyses

Data were analyzed using the Statistics Package for the Social Sciences software (SPSS for Windows Version 20.0, 2011). Descriptive statistics were generated for all participant characteristics and can be found in Table 1. To determine the relationship between perceived parenting behaviors and adolescent impulsivity, several ordinary least square regressions were performed.

To examine whether the relationship between perceived parenting behaviors and adolescent psychosocial outcomes was mediated by adolescent impulsivity, a mediation analysis was performed utilizing Baron and Kenny's definition of mediation. Procedure and results for the mediations models are modeled after Hamilton, Ansell, Reynolds, Potenza, and Sinha, (2013). Regressions conducted within the mediation model include perceived parenting characteristics, measures of impulsivity, and adolescent psychosocial outcomes. The proposed mediation model can be found in Figure 1. Ordinary least squares (some presented in the previous section) and ordered regressions were utilized to tests pathways a, b, c, and c'. Pathway "a" represents the non-standardized beta resulting from regressions of perceived parenting characteristic on the mediator, impulsivity. Pathway "b" represents the non-standardized beta resulting from the regressions of the mediator, impulsivity, on the dependent variables, adolescent psychosocial outcomes. Pathway "c", or the direct effect, represents the regression of

perceived parenting characteristics on adolescent psychosocial outcomes without regard for impulsivity. Finally, the “c’” pathway, also called the total effect, represents an ordered logistic regression of perceived parenting characteristics on adolescent psychosocial outcomes while controlling for impulsivity. Mediation occurred if the significance value of pathway c decreased in the c’ pathway. If the effect was still significant, but reduced then Sobel’s test of mediation was utilized to determine if the reduction in significance was statistically significant.

RESULTS

Participant Characteristics

Fifty-six mothers and their adolescents completed questionnaires and behavioral tasks. Adolescents ranged from 13 to 16-years-old(M= 14.29, SD = .80). Mothers ages ranged from 31 to 52-years-old (M = 41.6, SD = 6.215) Adolescents were split evenly between African American (44.6%) and Caucasian (46.4%) with few indicating other ethnicities (8.9%). Mothers identified as Caucasian (53.6%), African American (44.6%), and Hispanic (1.8%). Participant characteristics including age, gender, education, maternal employment, and maternal marital status can be found in Table 1.

Regressions were analyzed to determine whether age was significantly related to parenting variables or adolescent psychosocial outcomes; however, no significant results were found. Further, several analysis of variances were conducted to examine whether parenting variables and psychosocial outcomes varied by gender but again, no significant differences between male and female adolescents were found. Thus, age and gender were not entered as covariates in subsequent analyses.

Perceived Parenting Characteristics and Adolescent Impulsivity

Ordinary least square regressions were used to determine the relationship between each of the perceived parenting variables and the adolescent impulsivity measures. Results from these regressions can be found in Table 3. PSI Strictness/Supervision was not significantly related to either the self-report measure of impulsivity (BIS), or either of the behavioral tasks (EDT, DDQ). PSI

Acceptance/Involvement was positively related to the EDT (R^2= .122, F (1, 49) =4.293, p = .043) and negatively related to the BIS (R^2= .122, F (1, 49) =7.474, p = .008). PSI Psychological Autonomy Granting was only found to be significantly positively related to the DDQ (R^2= .096, F (1, 49) =5.751 p = .020). Parental monitoring was only negatively related to the BIS (R^2= .072, F (1, 49) =4.195, p = .045).

Perceived Parenting Characteristics and Adolescent Psychosocial Outcomes

Ordinary least square regressions were run to determine relationships between each of the PSI subscales and each of the CSR subscales. Results from these analyses can be found in Table 2. Analyses for PSI Strictness/Supervision revealed no significant relationships with any of the CRS subscales. Analyses revealed significant relationships for the PSI Acceptance/Involvement Scale and the Family Problems (R^2= .412, F (1, 49) =33.668, p <.001), Conduct Problems (R^2= .138, F (1, 49) =7.665, p = .008), and ADHD Index (R^2= .176, F (1, 49) =10.287, p = .002). The final PSI subscale, Psychological Autonomy Granting, was also significantly related to the Family Problems (R^2= .238, F (1, 49) =14.989, p <.001), Conduct Problems (R^2= .107, F (1, 49) =5.761, p =.020), and ADHD Index (R^2= .094, F (1, 49) =5.000, p = .030) as well as DSM-IV Hyperactive Symptoms (R^2= .086, F (1, 49) =4.506, p = .039) and DSM-IV ADHD Symptoms Total (R^2= .085, F (1, 49) =4.457, p = .050).

Similar regressions were run for Parental Monitoring. Results indicated that Parental Monitoring was significantly related to Family Problems (R^2= .335, F (1, 49) =24.144, p <.001), Emotional Problems (R^2= .149, F (1, 49) =8.399, p = .006), Conduct

Problems (R^2= .149, F (1, 49) =8.433, p = .006), and the ADHD Index (R^2= .084, F (1, 49) =4.384, p = .042).

Mediation Models for Psychological Autonomy Granting

Results for the first mediation model examining perceived psychological autonomy granting, delay discounting, and adolescent DSM-IV Hyperactive symptoms are presented in Table 2. Perceived psychological autonomy granting was positively associated with delay discounting (R^2= .096, F (1,55) = 5.751, p = .020) and delay discounting was positively associated with adolescent DSM-IV Hyperactive Symptoms (R^2= .089, F (1,49) = 5.786, p =.020). The total effect (c) of perceived psychological autonomy on adolescent DSM-IV Hyperactive Symptoms was significant (R^2=.086, F (1,49) = 4.506, p = .039) , and the direct effect which controls for delay discounting was no longer significant (b= -.422, t(49)= -1.582, p = .120; R^2= .153, F (1,49) = 4.234, p = .020) This indicates that full mediation of the relationship occurred.

Results for the second mediation model examining perceived psychological autonomy granting, delay discounting, and adolescent ADHD symptoms total are presented in Table 2. Perceived psychological autonomy granting was positively associated with delay discounting (R^2= .096, F (1,55) = 5.751, p = .020) and delay discounting was positively associated with adolescent DSM-IV ADHD symptoms total (R^2= .105, F (1,55) = 5.751, p = .020). The total effect (c) of perceived psychological autonomy on adolescent DSM-IV ADHD symptoms total was significant (R^2= .085, F (1,49) = 4.457, p = .040), and the direct effect which controls for delay discounting was

no longer significant (b= .132, t (49) = -.212, p = .132; R^2= .165, F (1,55) = 4.655, p = .014). This indicates that full mediation of the relationship occurred.

Mediation Models for Parental Acceptance/Involvement

Results for the third mediation model examining perceived parental acceptance/involvement, the experiential discounting tasks, and adolescent ADHD Index are presented in Table 2. Perceived parental acceptance/involvement was positively associated with the experiential discounting task (R^2= .076, F (1,53) = 4.293, p = .043) and the experiential discounting task was positively associated with ADHD Index (R^2= .098, F (1,47) = 4.984, p = .030). The total effect (c) of perceived parental acceptance/involvement on adolescent ADHD Index (R^2= .176, F (1,49) = 10.287, p = .002) and the direct effect which controls for the experiential discounting tasks remained significant (b = -.580, t (47)= -2.724, p = .009; R^2= .225, F (1,47) = 6.549, p = .003). Since the absolute value of the unstandardized coefficient was reduced in the mediation model, Sobel's test of mediation was used to determine whether partial mediation occurred. The test revealed that the change in the unstandardized coefficient was not significant (Z= -1.336, p = 0.182).

Results for the fourth mediation model examining perceived parental acceptance/involvement, the Barratt Impulsiveness Scale, and adolescent family problems. Perceived parental acceptance/involvement was positively associated with the Barratt Impulsiveness Scale (R^2= .122, F (1,55) = 7.474, p = .008) and the Barratt Impulsiveness Scale was positively associated with adolescent family problems (R^2= .139, F (1,49) = 7.726, p = .008). The total effect (c) of perceived parental

acceptance/involvement on adolescent family problems was significant (R^2= .412, F (1,49) = 33.668, p < .001) and the direct effect which controls for the Barratt Impulsiveness Scale was also significant (b = -1.015, t (47)= -5.127, p < .001; R^2= .448, F (1,49) = 19.042, p < .001). Since the absolute value of the unstandardized coefficient was reduced in the mediation model, Sobel's test of mediation was used to determine whether partial mediation occurred. The test revealed that the change in the unstandardized coefficient was marginally significant (Z= -1.951, p = 0.05) indicating that partial mediation occurred in the current model.

Results for the fifth mediation model examining perceived parental acceptance/involvement, the Barratt Impulsiveness Scale, and adolescent conduct problems can be found in Table 2. Perceived parental acceptance/involvement was positively associated with the Barratt Impulsiveness Scale (R^2= .122, F (1,55) = 7.474, p = .008) and the Barratt Impulsiveness Scale was positively associated with adolescent conduct problems (R^2= .150, F (1,49) = 5. 485, p = .005). The total effect (c) of perceived parental acceptance/involvement on adolescent conduct problems was significant (R^2= .138, F (1,49) = 7.665, p = .008), and the direct effect which controls for the Barratt Impulsiveness Scale was also marginally significant (b= -.467, t (49) = -2.074, p = .044; R^2= .221, F (1,49) = 6.685, p = .003). Since the absolute value of the unstandardized coefficient was reduced in the mediation model, Sobel's test of mediation was used to determine whether partial mediation occurred. The test revealed that the change in the unstandardized coefficient was not significant (Z= -1.661, p = 0.096) indicating that partial mediation did not occur in the current model.

Results for the sixth mediation model examining perceived parental acceptance/involvement, the Barratt Impulsiveness Scale, and adolescent ADHD Index can be found in Table 2. Perceived parental acceptance/involvement was positively related to the Barratt Impulsiveness Scale (R^2= .122, F (1,55) = 7.474, p = .008) and the Barratt Impulsiveness Scale was positively related to adolescent ADHD Index (R^2= .427, F (1,49) = 35.820, p < .001). The total effect (c) of perceived parental acceptance/involvement on adolescent ADHD Index was significant (R^2= .176, F (1,49) = 10.287, p = .002) and the direct effect which controls for the Barratt Impulsiveness Scale was also significant (b= -.430, t (49) = -2.301, p = .026; R^2= .386, F (1,49) = 14.798, p < .001). Since the absolute value of the unstandardized coefficient was reduced in the mediation model, Sobel's test of mediation was used to determine whether partial mediation occurred. The test revealed that the change in the unstandardized coefficient was not significant (Z= -2.659, p = 0.008) indicating that partial mediation did in fact occur in the current model.

Results for the seventh mediation model examining the relationship of perceived parental monitoring, Barratt Impulsiveness Scale, and adolescent family problems can be found in Table 2. Perceived parental monitoring was positively related to the Barratt Impulsiveness Scale (R^2= .055, F (1,55) = 4.195, p < .045) and the Barratt Impulsiveness Scale was significantly related to family problems (R^2= .122, F (1,55) = 7.474, p = .008). The total effect (c) of perceived parental monitoring and adolescent family problems was significant (R^2= .335, F (1,49) = 24.144, p < .001) and the direct effect which controlled for the Barratt Impulsiveness Scale was significant as well (b= .246, t (49) = 2.349, p =

.023; R^2= .405, F (1,49) = 15.967, p < .001). Since the absolute value of the unstandardized coefficient was reduced in the mediation model, Sobel's test of mediation was utilized to determine whether partial mediation occurred. The test revealed that the change was not significant (Z= -1.650, p = .099) indicating that partial mediation did not occur in the current model.

Results for the eighth mediation model examining the relationship of perceived parental monitoring the Barratt Impulsiveness Scale and adolescent conduct problems can be found in Table 2. Perceived parental monitoring was positively related to the Barratt Impulsiveness Scale (R^2= .055, F (1,55) = 4.195, p = .045) and the Barratt Impulsiveness Scale was significantly related to conduct problems (R^2= .150, F (1,49) = 8.485, p = .005). The total effect (c) of perceived parental monitoring and adolescent conduct problems was significant (R^2= .149, F (1,49) = 8.433, p = .006) and the direct effect which controlled for the Barratt Impulsiveness Scale was significant as well (b= .284, t (49) = 2.520, p = .015; R^2= .501, F (1,49) = 7.861, p = .001). Since the absolute value of the unstandardized coefficient was reduced in the mediation model, Sobel's test of mediation was utilized to determine whether partial mediation occurred. The test revealed the that change was not significant (Z= -1.679, p = .093) indicating that partial mediation did not occur in the current model.

Results for the ninth mediation model examining the relationship of perceived parental monitoring the Barratt Impulsiveness Scale and adolescent ADHD Index can be found in Table 2. Perceived parental monitoring was positively related to the Barratt Impulsiveness Scale (R^2= .055, F (1,55) = 4.195, p =.045) and the Barratt Impulsiveness

Scale was significantly related to the ADHD Index (R^2= .317, F (1,49) = 22.304, p < .001). The total effect (c) of perceived parental monitoring and adolescent ADHD Index was significant (R^2= .084, F (1,49) = 4.384, p = .042) and the direct effect which controlled for the Barratt Impulsiveness Scale was significant as well (b= .430, t (49) = 4.396, p < .001; R^2= .351, F (1,49) = 12.690, p < .001). Since the absolute value of the unstandardized coefficient was reduced in the mediation model, Sobel's test of mediation was utilized to determine whether partial mediation occurred. The test revealed the that change was not significant (Z= -1.883, p = .059) indicating that partial mediation did not occur in the current model.

DISCUSSION

Although authoritative parenting characteristics and impulsivity have both consistently been related to adolescent psychosocial outcomes, the current study is the first to explore both their individual relationship as well as their combined ability in predicting psychosocial outcomes. The current study sought to explore this relationship by utilizing the perceived characteristics of authoritative parenting including parental support (acceptance/involvement), behavioral control (strictness/supervision), and psychology autonomy granting as well as both self-report and behavioral measures of impulsivity. Outcome variables for adolescents included family, emotion, conduct, cognitive, and anger problems as well as hyperactivity, DSM-IV inattentive symptoms, DSM-IV hyperactive symptoms, ADHD Index, and ADHD symptoms total.

Authoritative Parenting and Impulsivity

It was hypothesized that authoritative parenting characteristics would be significantly related to adolescent impulsivity, particularly the behavioral tasks. Specifically, it was hypothesized that increases in parental support, behavioral control, and psychological autonomy would result in lower levels of delay discounting.

Analyses revealed that behavioral control was not significantly related to self-reported impulsivity or task performance on behavioral measures. The findings suggest that adolescent's perceptions of parents' rules and regulations of their behavior were not significantly related to adolescent impulsivity. Conceptually, an absence of this relationship with self-reported impulsivity makes sense; perceived parental behaviors

may not significantly impact a perception of impulsive personality traits like spontaneity. However, the absence of a relationship between perceived behavioral control and behavioral decision-making tasks such as the EDT and DDQ is surprising. Based on previous research indicating that greater levels of behavioral control are related to fewer impulsive behaviors during adolescence, it was hypothesized that adolescents' who rated their parents higher on behavioral control would discount less, indicating lower levels of impulsivity. There are several plausible explanations for the absence of this relationship in the current study. First, since parental supervision was not salient and no regulations were placed on adolescent's performance during the behavioral tasks, their answers performance may not have been impacted as expected. Perhaps this relationship between perceived parental behavioral control and adolescent impulsive behaviors is only observed when rules are placed on specific impulsive behaviors (e.g. substance use, money spending). Further, previous research has suggested that mechanisms other than impulsive decision-making may account for the relationship between high levels of behavioral control and lower levels of adolescent impulsive behaviors, particularly fewer associations with deviant peers (Galambos, Barker, & Almeida, 2003).

Perceived parental support was negatively related to the BIS and positively related to the EDT. This suggests that adolescents who perceived their parents as showing greater levels of support, nurturance, and promotion of growth (Barber et al., 2005; Garber et al., 1997; Laurence Steinberg, Lamborn, Dornbusch, & Darling, 1992) reported less impulsive personality traits and performed less impulsively when presented

with real-time tasks requiring them to make potentially impulsive decisions. Thus, in the current study the parental support serves a protective factor for the development of both trait-like and behavioral impulsivity. This confirms previous research which suggests that parental support includes a component of promoting positive individuation (e.g. Steinberg, 1992) as well as research linking parental support to adolescent behavior outcomes (Parker & Benson, 2004).

Perceived psychological autonomy granting was related to performance on the DDQ, such that adolescents who perceived themselves to have greater psychological autonomy discounted less, indicating lower levels of impulsivity. Although psychological control has been associated with a number of internalizing problems such as depression (e.g. Pettit et al., 2001) and a lack of self-concept (e.g. Barber, 1996), its role in impulsive behaviors such as substance use and aggressive behaviors has received limited attention. This finding is the first to suggest that psychological autonomy does impact adolescent decision-making.

Results indicated that parental monitoring was negatively related to the BIS which supported the initial hypothesis. Greater perception of parental knowledge of adolescent behaviors resulted in less expression of impulsive personality traits. Although conceptually this finding makes sense, it was somewhat surprising given previous findings from the current study that did not associate parental behavioral control with the BIS, suggesting that the behavioral control subscale from the PSI was in fact capturing something different than the Parental Monitoring Survey.

The current results suggest that different perceived parenting characteristics are associated with different measures of impulsivity. These findings further promote the idea that impulsivity measures (self-report and behavioral tasks) may not all capture the broad construct of impulsivity, but rather, specific components such as impulsive personality traits, impulsive decision-making, or disinhibition (Sharma et al., 2013).

Mediation Models

The current study is the first to explore the potential for impulsivity to mediate the robust relationship of perceived parenting characteristics and adolescent psychosocial outcomes.

Two full mediations were revealed in the analyses. First, delay discounting fully mediated the relationship between psychological autonomy granting and DSM Hyperactive Symptoms. Second, delay discounted fully mediated the relationship between psychological autonomy granting and the ADHD Index. The effect of perceived psychological autonomy on adolescent hyperactive symptoms and the ADHD Index depended on levels of discounting, and it is only through their association with discounting that psychological autonomy impacted hyperactive symptoms or the ADHD Index. Previous literature suggesting that adolescents with ADHD perform differently than their peers on delay discounting tasks (Barkley, Edwards, Laneri, Fletcher, & Metevia, 2001; Anouk Scheres et al., 2006; A Scheres, Lee, & Sumiya, 2008) and that impulsive decision-making can accurately identify ninety percent of individuals with an ADHD diagnosis (Winstanley, Eagle, & Robbins, 2006). Given, then, that the purpose of the Conners-Wells' Adolescent Self-Report Scales is to aid in diagnosis of adolescent

ADHD, it is not surprising that it is significantly related to delay-discounting. Further, the mediation suggests that adolescents' perceptions of their own psychological autonomy will only promote hyperactivity and ADHD symptoms if the adolescent makes impulsive decisions. Although it has been suggested that psychological autonomy granting plays a more prominent role in adolescent internalizing problems (Barber, 1996), findings from the current study suggest that through the mechanism of impulsive-decision making, psychological autonomy granting can promote or discourage externalizing behaviors such as hyperactivity as well.

Several partial mediations also occurred in the current study. The BIS partially mediated the relationship between parental acceptance/involvement and family problems and the ADHD Index. The BIS also mediated the relationship between parental monitoring and the ADHD Index. These findings suggest that self-reported impulsivity is not the only factor responsible for the effect of parental acceptance/involvement on family problems or the ADHD index, nor the effect of parental monitoring on the ADHD Index.

Although significant direct effects existed between some variables to warrant mediation analyses, some models were found to be non-significant indicating an absence of mediation. These models included (1) the EDT, parental acceptance/involvement and the ADHD Index, (2) BIS, parental acceptance involvement, and conduct problems, (3) BIS, parental monitoring, and family problems, (4) BIS, parental monitoring, and conduct problems. In these cases, the authoritative parenting characteristics were related to adolescent outcomes independent of the adolescent's level of impulsivity.

Given the robust relationship found in literature for parenting variables and adolescent behaviors, as well as adolescent impulsivity and adolescent behaviors results from the current study are somewhat surprising. However, careful reflection upon previous studies reveals that parenting variables and impulsivity are more commonly associated with specific behaviors such as substance use (e.g. Barnes et al., 2002; Fields et al., 2009), aggressive acts (e.g. Loeber et al., 1984), depression (e.g. Stark et al., 1990) and academic performance (Kirby et al., 2005; Brown et al., 1993). The current study tried to relate both predictors to ratings of adolescent functioning in broad domains (e.g. emotional problems, conduct problems) which may have caused variations in the findings.

Limitations

Although the current study is the first to examine the relationship between perceived parenting characteristics, adolescent impulsivity, and adolescent psychosocial outcomes there are a number of limitations that must be considered. First, this study describes secondary analyses of a larger study. The measures chosen for the larger study may not have lent themselves well to these specific analyses. For example, the Conners' Self-Report Scale, which was utilized in the current study to quantify adolescent outcomes, is traditionally used for diagnosis of Attention-Deficit/Hyperactivity Disorder. Although the measure does provide subscales that capture adolescent difficulties in other domains, they may not have been sensitive to less significant levels of poor adolescent development across other domains. This may have limited the range of detected adolescent psychosocial problems ultimately impacting their relationship with other

measures in the study. Use of a measure that is specifically designed to capture problems in adolescent functioning across a variety of domains (such as the Behavioral Assessment for Children or Child Behavior Checklist) may have been more useful in the current study.

The sample size of the current study was also small which may limit the conclusions that can be drawn from the study. Although the amount of participants was sufficient for the current analyses, a larger sample size may have provided more power to analyses revealing more significant relationships. Further, since previous research indicates that parental influence varies across adolescence, it would have been useful to have expanded age restrictions on adolescent participants.

Future Research

There are a number of directions that future research can proceed based on initial findings from the current study. Replication of the current study is necessary to confirm the relationships established between various components of authoritative parenting, adolescent impulsivity, and adolescent psychosocial outcomes, while taking into account limitations of the current study (e.g.. age restrictions, adolescent outcome measure).

Based upon previous research associating both authoritative parenting and adolescent impulsivity to specific behaviors, including antisocial behavior and substance use, future studies should explore how these two predictors interact to predict more severe behavior problems.

Conclusions

The current study identified a number of interesting findings regarding

adolescent perceptions of parents' authoritative parenting characteristics, adolescent impulsivity, and adolescent psychosocial outcomes. Findings revealed that different parenting characteristics were related to various measures of impulsivity, and some relationships between authoritative parenting characteristics and adolescent psychosocial outcomes were fully or partially mediated by adolescent impulsivity. These findings suggest that while research has identified robust relationships between parenting characteristics and adolescent behaviors, adolescent impulsivity may be one mechanism or part of the mechanism responsible for this relationship. Uncovering the role of impulsivity should shed light on current interventions for deterring adverse outcomes in adolescence. While interventions should continue to improve upon authoritative parenting characteristics, it is equally important to equip adolescence with the necessary decision-making skills in order to avoid impulsive decisions and adverse developmental outcomes.

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APPENDIX

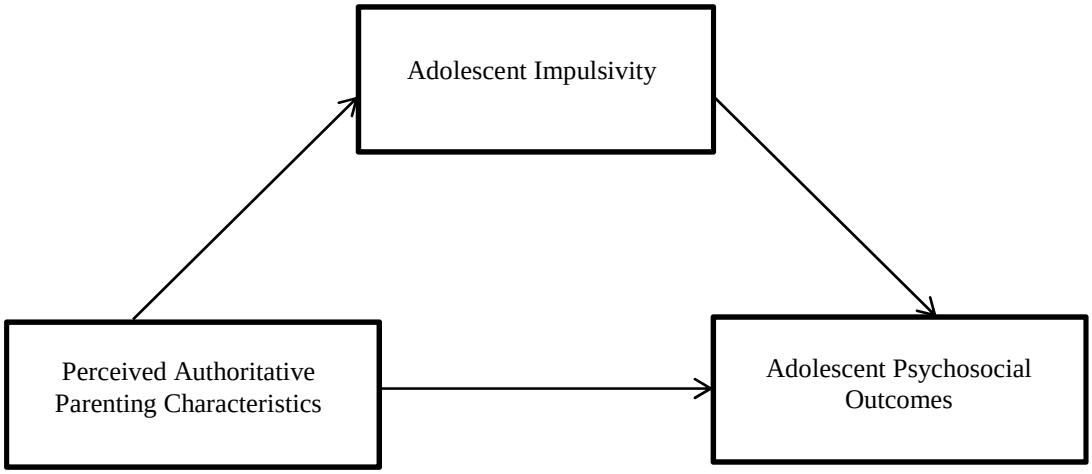

Figure 1. Mediation model of perceived authoritative parenting characteristics, impulsivity, and adolescent psychosocial outcomes.

Table 1.

Descriptive Statistics for Adolescents

	Adolescent Participants
Gender [*n*, male:female]	23:33
Age [years, *M* (SD)]	14.29 (0.803)
Grade [*n, M* (SD)]	8.96 (0.894)
Ethnicity[*n*, white: black: other]	23:26:5

Table 2.

Regression Analyses for Perceived Parenting Characteristics and Adolescent Impulsivity (Pathway a)

	R^2	F (*df*)	*p*	*B*
PSI Strictness/Supervision				
DDQ	.000	.025*(1,49)*	.876	-.021
EDT	.007	.362*(1,49)*	.550	.083
BIS	.004	.200*(1,49)*	.657	-.061
PSI Acceptance/Involvement				
DDQ	.008	.450*(1,49)*	.505	-.091
EDT	.076	4.293*(1,49)*	.043*	.276
BIS	.122	7.474*(1,49)*	.008*	-.349
PSI Psychological Autonomy Granting				
DDQ	.096	5.751*(1,49)*	.020*	.310
EDT	.000	.025*(1,49)*	.875	.022
BIS	.017	.940*(1,49)*	.337	-.131
Parental Monitoring				
DDQ	.010	.573*(1,49)*	.452	.102
EDT	.003	.158*(1,49)*	.692	.055
BIS	.072	4.195*(1,49)*	.045*	-.268

**Denotes significance at the p = .05 level*

Table 3.

Regression Analyses for Adolescent Impulsivity and Adolescent Psychosocial Outcomes (Pathway b)

		R^2	F (*df*)	*p*	*B*
BIS					
	Family Problems	.139	7.726*(1,49)*	.008*	.372
	Emotional Problems	.054	2.753*(1,49)*	.104	.233
	Conduct Problems	.150	8.485*(1,49)*	.005*	.388
	Cognitive Problems	.293	19.893*(1,49)*	<.001*	.541
	Anger Problems	.129	7.130*(1,49)*	.010*	.360
	Hyperactivity	.103	5.532*(1,49)*	.023*	.321
	ADHD Index	.317	22.304*(1,49)*	<.001*	.563
	DSM-IV Inattentive Symptoms	.427	35.820*(1,49)*	<.001*	.654
	DSM-IV Hyperactive Symptoms	.258	16.717*(1,49)*	<.001*	.508
	DSM-IV ADHD Symptoms Total	.432	36.451*(1,49)*	<.001*	.657
EDT					
	Family Problems	.049	2.347*(1,49)*	.132	-.220
	Emotional Problems	.025	1.181*(1,49)*	.283	-.158
	Conduct Problems	.019	.869*(1,49)*	.356	-.136
	Cognitive Problems	.098	4.978*(1,49)*	.031*	-.312
	Anger Problems	.072	3.579*(1,49)*	.065	-.269
	Hyperactivity	.075	3.731*(1,49)*	.060	-.274
	ADHD Index	.098	4.984*(1,49)*	.030*	-.313
	DSM-IV Inattentive Symptoms	.186	10.512*(1,49)*	.002*	-.431
	DSM-IV Hyperactive Symptoms	.011	.496*(1,49)*	.485	-.103
	DSM-IV ADHD Symptoms Total	.103	5.270*(1,49)*	.026*	-.321
DDQ					
	Family Problems	.020	.985*(1,49)*	.326	.142
	Emotional Problems	.006	.277*(1,49)*	.601	-.076
	Conduct Problems	.003	.142*(1,49)*	.708	-.054
	Cognitive Problems	.044	2.235*(1,49)*	.141	-.211
	Anger Problems	.106	5.271*(1,49)*	.021*	-.326
	Hyperactivity	.002	.099*(1,49)*	.754	-.045
	ADHD Index	.045	2.237*(1,49)*	.141	-.326
	DSM-IV Inattentive Symptoms	.002	.099*(1,49)*	.033*	-.045
	DSM-IV Hyperactive Symptoms	.045	2.237*(1,49)*	.020*	-.326
	DSM-IV ADHD Symptoms Total	.002	.099*(1,49)*	.012*	-.045

Table 4.

Regression Analyses for Perceived Parenting Characteristics and Adolescent Psychosocial Outcomes (Pathway c)

	R^2	F (*df*)	*p*	*B*
PSI Strictness/Supervision				
Family Problems	.063	3.245*(1,49)*	.078	-.252
Emotional Problems	.001	0.46*(1,49)*	.831	.031
Conduct Problems	.043	2.162*(1,49)*	.148	-.208
Cognitive Problems	.123	1.115*(1,49)*	.296	.151
Anger Problems	.010	.496*(1,49)*	.485	.101
Hyperactivity	.039	1.974*(1,49)*	.166	.199
ADHD Index	.002	.105*(1,49)*	.747	.047
DSM-IV Inattentive Symptoms	.000	.009*(1,49)*	.926	-.014
DSM-IV Hyperactive Symptoms	.023	1.117*(1,49)*	.296	.151
DSM-IV ADHD Symptoms Total	..005	.220*(1,49)*	.641	.068
PSI Acceptance/Involvement				
Family Problems	.412	33.668*(1,49)*	<.001**	-.642
Emotional Problems	.029	1.446*(1,49)*	.235	-.171
Conduct Problems	.138	7.665*(1,49)*	.008*	-.371
Cognitive Problems	.035	1.746*(1,49)*	.193	-.187
Anger Problems	.002	.100*(1,49)*	.754	.046
Hyperactivity	.001	.065*(1,49)*	.800	-.037
ADHD Index	.176	10.287*(1,49)*	.002*	-.420
DSM-IV Inattentive Symptoms	.048	2.408*(1,49)*	.127	-.219
DSM-IV Hyperactive Symptoms	.009	.412*(1,49)*	.524	.092
DSM-IV ADHD Symptoms Total	.007	.319*(1,49)*	.575	-.081
PSI Psychological Autonomy Granting				
Family Problems	.238	14.989*(1,49)*	<.001**	-.488
Emotional Problems	.047	2.393*(1,49)*	.128	-.218
Conduct Problems	.107	5.761*(1,49)*	.020*	-.327
Cognitive Problems	.051	2.556*(1,49)*	.116	-.225
Anger Problems	.053	2.689*(1,49)*	.108	-.230
Hyperactivity	.027	1.353*(1,49)*	.250	-.166
ADHD Index	.094	5.000*(1,49)*	.030*	-.307
DSM-IV Inattentive Symptoms	.056	2.874*(1,49)*	.096	-.238
DSM-IV Hyperactive Symptoms	.086	4.506*(1,49)*	.039*	-.293
DSM-IV ADHD Symptoms Total	.085	4.457*(1,49)*	.040*	-.291
Parental Monitoring				
Family Problems	.335	24.144*(1,49)*	<.001**	-.578
Emotional Problems	.149	8.399*(1,49)*	.006*	-.386
Conduct Problems	.149	8.433*(1,49)*	.006*	-.387
Cognitive Problems	.054	2.729*(1,49)*	.105	-.232
Anger Problems	.008	.369*(1,49)*	.546	.087

Hyperactivity	.000	.008*(1,49)*	.929	-.013
ADHD Index	.084	4.384*(1,49)*	.042*	-.289
DSM-IV Inattentive Symptoms	.044	2.188*(1,49)*	.146	-.209
DSM-IV Hyperactive Symptoms	.000	.010*(1,49)*	.923	-.014
DSM-IV ADHD Symptoms Total	.017	.829*(1,49)*	.367	-.130

Denotes significance at the p = .05 level; ** Denotes significance at the p <.001 level.

Table 5.

Mediation Analyses for Direct Effect of Perceived Parenting Characteristics on Adolescent Psychosocial Outcomes by Adolescent Impulsivity (Pathway c' and Statistics for the Overall Model)

Independent Variable *Dependent Variable (Mediator)*	b	t (df)	p	R^2	F (df)	p
Psychological Autonomy Granting						
DSM-IV Hyperactive Symptoms (DDQ)	-.422	-1.582(49)	.120	.153	4.234 (1,49)	.020*
ADHD Symptoms Total (DDQ)	.132	-.212 (55)	.132	.165	4.655 (1,55)	.014*
Acceptance/Involvement						
ADHD Index (EDT)	-.580	-2.724 (47)	.009*	.225	6.549 (1,47)	.003*
Family Problems (BIS)	-1.015	-5.127 (47)	<.001**	.448	19.042 (1,49)	<001**
Conduct Problems (BIS)	-.467	2.074 (49)	.044*	.221	6.685 (1,49)	.003*
ADHD Index (BIS)	-.430	-2.301 (49)	.026*	.386	14.798 (1,49)	<.001**
Parental Monitoring						
Family Problems (BIS)	.246	2.349 (49)	.023	.405	15.967 (1,49)	<.001**
Conduct Problems (BIS)	.284	2.520 (49)	.015*	.501	7.861 (1, 49)	.001*
ADHD Index (BIS)	.430	4.396 (49)	<.001**	.351	12.690 (1,49)	<.001*

** Denotes significance at the p = .05 level, ** Denotes Significance at the p < .001 level*