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THE EFFECT OF DEPRESSION ON ADOLESCENT DEVIANT BEHAVIOR AND THE MEDIATING EFFECT OF AUTONOMY

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THE EFFECT OF AUTONOMY ON ADOLESCENT DEVIANT BEHAVIOR AND THE
MEDIATING EFFECT OF DEPRESSION

By

Theresa J. Lee

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2021

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By

Theresa J. Lee

DEDICATION

This dissertation is dedicated to my mother, Rita Cheong, OSC, whose life of life-long learning and deep reflection and prayer have inspired me, her daughter, to pursue my own life-long learning and research.

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THE EFFECT OF AUTONOMY ON ADOLESCENT DEVIANT BEHAVIOR AND THE
MEDIATING EFFECT OF DEPRESSION

Abstract

By Theresa J. Lee

University of the Pacific
2021

The purpose of this study was to synthesize the relations among the adolescent need for autonomy in decision making process, depression, and tendencies for deviant or risk-taking behaviors as adolescents. Background variables such as socio-economic status, sex, race, previous academic achievement, parent warmth and support, resistance to peer pressure were controlled for. Using the NICHD database set, multiple regression analyses revealed that adolescent autonomy was not correlated with adolescent depression, and earlier depression at sixth grade was not a significant mediator of the effect of earlier deviant behaviors at sixth grade on later adolescent deviant behaviors. More importantly, however, the study did show that when SES, sex, race, previous achievement, parent warmth/support, and peer influences/relationships were controlled for, autonomy at sixth grade did indeed predict depression in later adolescence at age fifteen. Additionally, depression at age fifteen turned out to be a significant mediator of the effect of early autonomy on later deviant behaviors.

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CHAPTER 1: INTRODUCTION

Why do some teenagers engage in deviant behaviors while some still do not? There is a recent flourishing of literature on adolescent brain development and its effect on their behaviors that are beginning to emerge and paint a clearer picture of the role brain development plays in adolescents' behavioral choices (Jensen & Nutt, 2015). However, it is true that adolescence has been known to be a turbulent time and has had to endure not a few negative perceptions of behavioral choices and outcomes often attributed to "hormones." In light of much neuroscientific research data explaining the neural workings of the teenage brain development and social and educational research regarding the predictors of adolescent pursuit of autonomy and its relation to deviant behavioral choices as well as other psychological factors underlying these behavioral choices, it behooves us to research these relations to help understand adolescent behaviors and intervene appropriately while they are still within reach of intervention.

General Problem Statement

Given the statistics regarding adolescent depression (at least 28% of 13-18 year olds experiencing at least one episode of major depression in their life time according to a study from the University of Oregon) and adolescent deviant behavior outcome, schools have long been facing a need to address socio-emotional well-being of students. Now in the midst of a global pandemic known as COVID-19, there is an even more pressing need to monitor student's socio-emotional well-being. Those researching the impact of COVID-19 on teens found that 22% of teens surveyed responded that they experienced anxiety/depression symptoms during the quarantine (Duan et al., 2020). The need for prevention as well as intervention efforts is dire at this time, for all sectors of population, but more than ever for adolescents, many of whom may

not feel that they have the coping skills or tools to cope with yet another barrier (i.e., being home-bound and possibly distance learning) to their freedom or autonomy, in their search for autonomy, which is so characteristic of this age. While this research study was undertaken in the midst of a global pandemic, variables regarding the pandemic's effect on adolescents were not explored. However, this may be a topic to explore in future studies.

Adolescent Need for Autonomy

The search for autonomy over their decision-making process has been generally known as a developmental marker for adolescents. The question for many adults has been more about figuring out how much freedom adolescents need and how to balance that freedom with the support they still continue to need rather than whether or not they need autonomy.

Depression

According to the National Institute of Mental Health (Data Courtesy of Substance Abuse and Mental Health Services Administration (SAMHSA), in 2017, 13.3% of U.S. adolescents aged 12 through 17 reported to have had at least one major depressive episode. Among these adolescents, depression was more prevalent among females (20%) than in males (6.8%) and those adolescents reporting two or more ethnic backgrounds (ibid, 2017). The focus on mental health has faced an increased need due to the COVID-19 global pandemic, which has taken a toll on adolescents' need for autonomy, peer relationships, and positive "distractions" that are healthy ways of coping with depression (Castonguay & Oltmanns, 2013).

Deviant Behavior

Previous literature has shown that deviant behavior appears to be related to parental attachment history and parental relationships with teens as children as well as depression, especially in later adolescence (Low & Webster, 2015; Davis, Vortruba-Drzal, & Silk, 2015).

For example, according to Costello et al. (2008), deviant behavior, alcohol use, and peer smoking appeared to be differentiating factors for trajectories of teen smokers vs. non-smokers. It begs the question, then, specifically, what are the underlying factors related to deviant behavior in adolescence, and how are they related to adolescent search for autonomy, and underlying depression?

Significance of This Study

What this study aims to do is to synthesize a relation between what we already know whether implicitly or explicitly and to bridge the gap in the literature regarding adolescent autonomy, depression and deviant behavior.

Research Questions

The current study aims to answer the following questions:

- 1) What is the relation between autonomy and depression in adolescents when SES, sex, and previous achievement are accounted for? In other words, is being more autonomous in decision making (the tendency to rely on self more than on the parents to make their decisions) correlated with depression in adolescents? It is hypothesized that more autonomous students may feel less depressed as adolescents. Is this relation curvilinear?
- 2) Does earlier depression (sixth grade) mediate the effect of earlier deviant behaviors (sixth grade) on later deviant behaviors in adolescents (age fifteen)? It is hypothesized that the more depressed the student is the more likely the student is to subscribe to risky behaviors, as substantiated by research. It is hypothesized that the more depressed a student feels in sixth grade, the more likely the student is to engage in risky behaviors at age fifteen. So, depression is hypothesized to mediate the effect of early deviant behaviors on later deviant behaviors.
- 3) Does cultural background/race moderate the effect of depression on deviant behaviors in adolescents? In other words, is the effect of depression on later deviant behaviors different depending on the cultural background of adolescents? As substantiated by research literature on the moderation effect of culture on depression in adolescents, it is hypothesized that the mediation effect of depression on later deviant behaviors in adolescents may differ varying on the cultural background of adolescents.
- 4) When SES, sex, race, previous achievement, and peer influences/relationships are controlled for, does autonomy in earlier years (sixth grade) predict depression in later

adolescence? In the case of the relation between autonomy, depression, and deviant behaviors, does depression mediate the effect of autonomy on deviant behaviors?

CHAPTER 2: REVIEW OF LITERATURE

The intent of this chapter is to present the current and past research on the topic of locus of control and its relation to deviant thinking and behavior, and their impact on depression in adolescence. Relevant key terms and concepts will be discussed. The gap that exists between the current literature and directions for future research will be discussed.

Purpose

The purpose of this literature review is to present the prevalent literature on the topics of adolescent autonomy, depression, and deviant behavior and to make evident the gap in available research so as to present the significance of this study in what this study aims to bridge.

Autonomy in Adolescence

According to Merriam Webster, the second definition of autonomy is defined as “self-directing freedom and especially moral independence,” which is befitting the discussion of the topic of adolescent autonomy. Autonomy is also defined as “the process of becoming a self-governing person” (Smetana et al., 2004; Steinberg, 1990, 2002; Zimmer-Gembeck & Collins, 2003). The increasing need and prevalence of literature on autonomy in adolescence is balanced by the continued parental control/support for this autonomy especially as teens tend to turn to peer for support during what could be the most turbulent time of their life. According to Bandura’s reciprocal determinism, the environment interacts with the person, and the person interacts with the environment, thereby influencing one another (Bandura, 1989). In the case of understanding adolescent autonomy, the adolescent’s biological, neurological, psychological drive for autonomy leads the adolescent to interact with parents in a way that may either strengthen or weaken their bonds, depending on parental style and the existent attachment

patterns (Bowlby, 1979; Low & Webster, 2015). These interactions, in turn, may drive the adolescent either to push away from parents or to seek out more opportunities to exercise this new drive for autonomy with peers, who may be more accepting of their newfound need for freedom. However, literature supports that perhaps adolescent autonomy is not so linear in its relation to either parental or peer influence. In other words, the more autonomous and supported in their relationship with their parents, the more autonomous the adolescents in their relation with their peers. Their first steps in autonomy must be supported and nurtured by parenting style and attachment with their primary adult figures even into their adolescence in order for them to exercise autonomy among their peers, indicating that deviant behaviors, in some way, must be related to their relationship (Allen & Loeb, 2015). As a matter of fact, the stronger the “connection” with their primary adult figures, the better they would be able to navigate their also tumultuous relationships with their own peers (Allen & Loeb, 2015; Schlegel & Barry, 1991). Too much of this autonomy may indeed be linked with deviant behaviors, indicating that a balance in autonomy may be more beneficial in ensuring that teens are well-equipped to navigate their own need for establishing autonomy among their peers (Allen & Loeb, 2015; McElhaney et al., 2001).

Autonomy and Parental Factors & Peer Factors

Ample literature supports that autonomy in adolescence is balanced by parental support and availability, which in turn results in autonomy in peer relations, which would have positive outcomes for these adolescents. Too much or too little autonomy appear to have negative results, as they indicate too little or too much parental control. Adolescents who are well connected with their primary adult caregivers, which is in line with attachment theories (Bowlby, 1979), tend to be able to develop their autonomy in a way that allows them to be autonomous

with their peers. Adolescents with strong parental attachment were more likely to have better social skills and less delinquent behaviors in adolescence (Allen et al., 2002).

Literature supports the idea that autonomy among peers is an important way to conceptualize adolescent need for peer relations. Adolescents tend to rely on their peers for moral support during adolescence more than looking to their parents. However, according to Allen and Loeb (2015), only those adolescents with a properly developed autonomy with their parents may be able to exercise autonomy among their peers, indicating that while relating positively with their peers, they are also able to be autonomous in their decision-making among their peers. Contrary to popular belief that adolescents rely on peers to make their choices, the degree of this reliance on peers may indeed depend on many factors including but not limited to their particular attachment history, parental style, relationships, and connections they have experienced in their developmental period, all of which contribute to the skills the adolescents have in navigating the turbulent decision-making in adolescence. Unfortunately, however, adolescents with poor attachment relationships with their primary caregivers may, in turn, have propensities for deviant behaviors due to lack of parental control and support, which, in turn, may lead them to choose peers that are deviant and may not exhibit the kind of autonomy needed to survive peer influences that tend to be strong in adolescence.

According to Dishion & Medici (2000), adolescents who seek out deviant peers do so in pursuit of those who are similar to themselves and as an attempt to break away from their parents. And in doing so, they attest to the importance of parenting styles, attachment to parents, their own experiences of peer acceptance, academic performance, and their own social tendencies or skills and the roles they play in predicting deviant tendencies and behaviors. Adolescents, then, appear to be caught in the middle of trying to balance the need for autonomy,

which is a paramount driving force in adolescence, and in their need for further direction and support of parental or other primary adult figures in their lives, the lack or dearth of which could precipitate a series of unfortunate events.

While adolescents may feel they are developmentally ready, their frontal lobes have not fully matured, leaving their drive for reward and dopamine rush in overdrive (Jensen & Nutt, 2015). Research has shown that this reward-seeking behavior is actually neuronally based, and while equipped with cognitive readiness to learn, teenagers with their reward-seeking behavior in overdrive may have difficulty exercising impulse control, which may, in turn, without a balanced approach to autonomy and support from parental figures, lead to risk-taking behaviors (Jensen & Nutt, 2015).

Autonomy and Cultural Influences

Smetana et al. (2004) found in their 5-year-longitudinal study involving African-American youth that early adolescents who made decisions alone on personal matters at age thirteen tended to have more negative adjustment outcomes at late adolescence (18 years of age), including depressed mood. However, youth during their mid-adolescence (15 years of age), who were allowed increased autonomy over decisions regarding personal matters tended to have less depressed mood at late adolescence. The study did not control for previous depressed mood; however, the results regarding curvilinear effect of autonomy on depressed mood (needing less autonomy at earlier age while needing more autonomy at a later age) for African-American youth (Smetana et al., 2004) appeared to be consistent with existent literature attesting to the need for more autonomous decision making opportunities in the family for adolescents between 11 to 16 years of age for healthier adjustment at later adolescence, in general (Fulgini & Eccles, 1993; Brody et al., 1994). While literature supports that for most youth, parental involvement in

youth's decisions in personal matters as well as multi-faceted matters [things that cross personal (e.g., "what time to get up") to conventional (e.g., "whether to do chores") or "prudential" (e.g., "whether to smoke cigarettes") boundaries according to parental and adolescent perceptions] is beneficial for youth's developmental process of autonomy-building (Smetana et al., 2004), it is interesting to note that the differences may exist for students coming from diverse cultural backgrounds in terms of what is considered personal vs. conventional or prudential and how much parental involvement is considered appropriate. While there was no direct effect or influence of autonomy on later deviance, Smetana et al. (2004) found that autonomy had an effect on later depressed mood. It begs the question, then, "What is the relation between autonomy, depressed mood and deviance?" which was left unanswered in the research study.

Depression in Adolescence

There has been an incremental increase in the rate of depression diagnoses in children in the ages of six to seventeen years since 2003 (5.4% in 2003 to 8% in 2007, and then to 8.4 in 2011-2012) according to Center for Disease Control (CDC) website (Bitsko et al., 2018). Depression also has been known to be more prevalent in girls than in boys [almost as twice as much according to Powell et al. (1995) and Kazdin (1989)] and tends to continue into adulthood, especially for girls (Weissman & Klerman, 1977). While depression as a mood and depression as a disorder are differentially understood, with mood as being in proportion to expected life events while disorder being out of proportion to expected life events or stressors (Kazdin, 1989), the age of onset for depression has been found to be most frequent during adolescence (Christie et al., 1989; Powell et al., 1995). Given that there has been much research emphasizing the need for women to be "relational," therapeutic approaches that have this emphasis have also been successful in treating depression: interpersonal psychotherapy, for example (Mufson et al., 1993;

Powell et al., 1995), which also sheds light on the need for adolescents to grow in this relational support from parents as they strive for independence to gain autonomy over their lives in the course of their adolescence.

Predictors of Depression

Emotional warmth in parent-adolescent interactions and relationships has been supported in literature to be one of the important predictors of emotional well-being in adolescence. Specifically, “mutual relationships” where mother-daughter dyads feel emotionally connected and supported appear to be an important predictor of lowering adolescent depression in females (Powell et al., 1995). Powell et al. (1995) found that gender (more females than males), adolescent perceived mutuality (connectedness of adolescent relationship with their mothers), adolescent locus of control (internal locus predicting less depressive symptoms reported), and mother’s depression level significantly predicted adolescents’ self-reported depressive symptoms. Internal locus of control was negatively correlated with depression scores for both males and females (Powell et al., 1995). In another study examining sex differences in depression rates in adolescence among low-income urban African-American population, Lyons et al. (2006) found that among the low-income African-American adolescent population, the previous findings of sex differences according to their diathesis-stress model set forth by Nolen-Hoeksema and Girgus (1994) (viz., some of the expected predictors of female depression, e.g., poorer body image, stronger female gender role identification) were moderately supported for African-American young girls. However, they did not tend to have the negative attributional style most closely regarded as a predictive factor of depression in female adults (Lyons et al., 2006). Cultural differences in socialization of females in ethnic minorities were considered to be a possible factor in the differences in the findings. The differences in life experiences and

expectations in raising African-American women may have been a reason for a more positive attributional style for young women. Nonetheless, having a poorer body image and a stronger feminine gender role orientation were still found to be more salient in girls than boys according to the researchers (Lyons et al., 2006). It may be interesting to see when these cultural differences in cultural upbringing and expectations in terms of identity formation) are controlled for, if depression in adolescents would still be moderated by sex. Given that according to the social learning theories (Bandura, 1977; Rotter, 1966; Cheng et al., 2013), that locus of control is culturally dependent, it is comprehensible that culture may be a moderator of the effect of some of well-known predictors of depression in female adolescents.

Deviant Behavior

According to Center for Disease Control (CDC) publication dated November of 2019, while cigarette smoking in middle school and high school has seen a decrease since 2011 (2.3%, 5.8%, in 2019, respectively), electronic cigarette smoking in middle school and high school has seen an increase since 2011 (10.5%, 27.5%, respectively). Age of onset for deviant behavior, especially for smoking tobacco has been associated with adolescence (Lee et al., 2018; CDC, 2007). Current literature has established the link between deviant behavior, such as smoking, with mental health issues, such as depression. For example, Lee et al. (2018) found a significant association between depressive symptoms and non-daily smoking, confirming existing studies that have had similar results. Deviant behavior at later adolescence was related to negative personal control (locus of control or perceived control) at age 14 for girls but not for boys (Adalbjarnardottir et al., 2001).

Predictors and Relation to Autonomy

According to Adalbjarnardottir et al. (2001), external locus of control was found to be related to smoking for girls but not for boys. Locus of control (Rotter, 1966) has been interchangeably used and understood as perceived control (Skinner, 1996), self-efficacy (Bandura, 1989), etc., all to affirm that adolescents highly value and long for some type of “control” in their lives over matters that they consider personal and important. While relation between autonomy and locus of control, self-efficacy, or perceived control have not been established, a sense of autonomy by definition indicates some type of exercise of control over matters that adolescents can make decisions about. While locus of control indicates a certain sense or feeling or belief of control adolescents may feel that they have, autonomy may be understood as action taken to exercise that control. Given this theoretical understanding, one might wonder if the relation between deviant behavior and autonomy may be similar to the relation between deviant behavior and locus of control. Adolescents with a sense of autonomy over personal matters may fare better in terms of avoiding deviant behavioral choices than those who may either have too little or too much autonomy over their personal matters, depending on the age of the developmental stage, parental attachment history and support.

Predictors and Relation to Depression

There is ample literature that supports the important influence of parenting practices that contribute to the development of social skills that also, in turn, affect adolescent deviant behavior choices in the long-term (Dishion & Medicin, 2000; Dishion et al., 1994, Henry et al., 2001). Widely-held-to-be-true evidence shows that warm, supportive parenting styles with clear guidelines and expectations tend to have the best outcome in terms of adolescent behavior choices while a laissez-faire to the detriment of adolescent autonomy approach to parenting with low emotional support tend to have the expected detrimental effect on adolescent behavioral

choices. Henry et al. (2001) differentiated four different types of parenting practices and found that “coercive” parenting practices led to the adolescents learning to be equally coercive in their interpersonal relations, and thereby resulting in an increased deviant behavioral outcome. In other words, parental practices influence the social skills development of children. While peer influences are important during adolescence, much research converge on this quintessential point that without parental practices that support autonomy, or the development of appropriate social skills thereby, adolescents are either left on their own to navigate the tumult of adolescent choices without the appropriate tools or skills (“absent” parenting) or they model what they have learned from their own parents (“coercive” parenting), which may in turn lead to joining deviant peer groups as a default (sociometric research showing rejection by peers may lead thus to joining deviant peer groups) (Henry et al., 2001). As Henry et al. (2001) discuss in their research, family plays a vital role not only in the development of the adolescent but also in the prediction of behavioral choices and outcome.

Research Questions

The current study aims to answer the following questions:

- 1) What is the relation between autonomy and depression in adolescents when SES, sex, and previous achievement are accounted for? In other words, is being more autonomous in decision making (the tendency to rely on self more than on the parents to make their decisions) correlated with depression in adolescents? It is hypothesized that more autonomous students may feel less depressed as adolescents. Is this relation curvilinear?
- 2) Does the earlier depression (sixth grade) mediate the effect of earlier deviant behaviors (sixth grade) on later deviant behaviors in adolescents (age fifteen)? It is hypothesized that the more depressed the student is the more likely the student is to subscribe to risky behaviors, as substantiated by research. It is hypothesized that the more depressed a student feels in sixth grade, the more likely to engage in risky behaviors at age fifteen. So, depression is hypothesized to mediate the effect of early deviant behaviors on later deviant behaviors.

- 3) Does cultural background/race moderate the effect of depression on deviant behaviors in adolescents? In other words, is the effect of depression on later deviant behaviors different depending on the cultural background of adolescents? As substantiated by research literature on the moderation effect of culture on depression in adolescents, it is hypothesized that the mediation effect of depression on later deviant behaviors in adolescents may differ varying on the cultural background of adolescents.
- 4) When SES, sex, race, previous achievement, and peer influences/relationships are controlled for, does autonomy in earlier years (sixth grade) predict depression in later adolescence? In the case of the relation between autonomy, depression, and deviant behaviors, does depression mediate the effect of autonomy on deviant behaviors?

CHAPTER 3: METHODOLOGY

Participants

The National Institute of Child Health and Development (NICHD) Study of Early Child Care and Youth Development (SECCYD) Database will be used for the purposes of this study. The NICHD database was collected over four phases, starting with the cohort of 1,364 children and their families in Phase I (1991-1994). Subsequent phases spanned 1995-1999 for Phase II, 2000-2004 for Phase III, and 2005-2008 for Phase IV. This study will focus on data collected during the Phases III and IV of the NICHD database. In Phase III, out of the initial cohort of 1364 children and their families, 1,100 children and their families were followed, and in Phase IV, there were 1,073 children and families were followed. In Phase III, data were collected by grade, and therefore, the children were divided into Wave 1 and Wave 2 depending on when they started school (85% of the available sample started school in the fall of 1996 comprising Wave 1, and 15% of the sample started school in the fall of 1997 comprising Wave 2). In Phase III, the NICHD database included data collected from the participating children, their families, after-school caregivers, and teachers from the second through sixth grades. The database also included data collected from friends of the participating children and their families and teachers at fourth grade and at sixth grade (NICHD- SECCYD, 2005). Initial participants were recruited from pre-selected hospitals at 10 separate sites in 1991, and were selected to ensure an unbiased, representative sample, using “a conditionally random sampling plan” that included mothers planning to work as well as stay home in the child’s first year and that was representative of the demographic diversity of the chosen area (NICHD- SECCYD, 2005).

Instruments

Background Variables

Sex variable will be reported by parents, and Socio-economic Status (SES) will be measured by income-to-needs ratio, which is calculated by dividing family's reported income by the poverty threshold. Cultural background was measured by the race variable, which will be coded 0=Caucasian and 1=non-Caucasian.

Previous achievement. Previous achievement will be measured by the Woodcock-Johnson Psycho-educational Battery—Revised (WJ-R), a comprehensive assessment consisting of two parts, the Tests of Cognitive Ability (WJ-R COG) and the Tests of Achievement (WJ-R-ACH), measuring cognitive skills and academic achievement, respectively (Woodcock & Johnson, 1989; Woodcock, 1990, NICHD- SECCYD, 2002, 2005). This tool was administered to participants at 54 Months, First, Third, and Fifth Grades, and at Age 15. For the purposes of this dissertation, data collected at fifth grade will be used. Participants were administered one subtest named Picture Vocabulary from the cognitive battery (WJ-R COG) to measure cognitive skills and four subtests (namely, Letter-Word Identification, Passage Comprehension, Calculation, and Applied Problems) from the achievement battery (WJ-R-ACH) to measure academic achievement (NICHD- SECCYD, 2002). Participants were given additional measures of Broad Reading and Broad Mathematics subtests. Picture Vocabulary subtest was reported to have an internal consistency ranging from .70 to .82 for the norming samples of ages 4-7 years. Test-retest reliability was estimated to have a range of .63 to .78 for each individual subtest of the WJ-R-COG. The internal consistency reliability for the WJ-R ACH was reported to range from .94 to .98 for the Skills Cluster while test-retest reliability was reported to have a range of .80 to .87 for individual tests (NICHD- SECCYD, 2002). WJ-R COG was reported to have

strong predictive validity, in general in predicting achievement in reading (McGrew, 1993), writing (McGrew & Knopik, 1993) and mathematics (McGrew & Hessler, 2002). WJ-R-ACH subtests in Skills Cluster were found to have high correlations (in the .60s with the Boehm Test of Basic Concepts and the Bracken Basic Concepts Scale (McGrew et al., 1991). According to The Twelfth Mental Measurements Yearbook reviewers, subtest reliabilities were reported to be "very good," specifically, with forty-nine out of the fifty-five median reliabilities reported across all age ranges either at the .80 level or higher (based on split-half procedures or test-retest reliabilities on timed tests) (Conoley & Impara, 1995).

Parent attachment/support. Parental attachment/support will be measured by a measure named "Getting Along with My Parent" administered at sixth grade (Phase III) and again at age 15 (Phase IV), intended to measure parental warmth, support and hostility. Phase III questionnaire had 19 questions (and Phase IV, 17 questions, respectively) regarding the primary adult (parent #1) and a secondary parent (parent #2, if present) on a four point Likert scale where a 1 indicated "Never" and a 4 indicated "Always" (NICHD- SECCYD, 2002, 2005). The Phase III questionnaire had two additional questions regarding the participant's wish to be like the parent and respect for the parent on a four point scale, ranging from "Not at all, Just a little, Quite a bit, and A lot" (NICHD- SECCYD, 2005). Phase III questionnaire was reported to have an internal consistency of .79 for the hostility scale and .78 for the warmth scale (Conger et al., 2002; NICHD- SECCYD, 2002). Phase IV (Adolescent questionnaire) Parent #1 and Parent #2 Warmth/Support items had the following internal reliability: Cronbach's alpha =.92; .94, respectively (Phase IV). Phase IV (Adolescent questionnaire) Parent #1 and Parent #2 Hostility items were reported to have "moderate" internal reliability with Cronbach's alphas at .79 and .80, respectively (Phase IV).

Peer influences/relationships. Peer influences will be measured using data in Phase III (administered to child at lab at sixth grade) and in Phase IV (administered at Age 15) by administering Peer Pressure measure that was revised from Steinberg's original measure named "Resistance to Peer Influence (RPI)" Scale (Steinberg, 2002). Participants responded to nine questions like "I go along with my friends just to keep them happy" about how they respond to peer influences on a four-point scale (where 1= Not all true, 4 = Very true) (NICHD- SECCYD, 2005, 2008). The reported internal reliability of the nine items was modest (Cronbach's alpha = .63; with item # four removed: Cronbach's alpha =.65; NICHD- SECCYD, 2005). Scores ranged from 15 to 36, where a higher score indicated that participants were less likely to be influenced by peer pressure (NICHD- SECCYD, 2005).

Autonomy Measure

Autonomy will be measured by using data in Phase III (administered to child at lab at sixth grade) and again in Phase IV (Mother, Father and Child at Home at Age 15) by administering a set of eight questions about "how decisions are made in [the] family" to the child and friend at lab on a scale of 5, where a 1 indicated that "My parent(s) decide," a 2 meant that "My parents decide after discussing it with me," a 3 indicated that "We decided together," a 4 meant that "I decide after discussing it with my parents," and a 5 meant that "I decide all by myself," thereby ranging from minimal autonomy (1), to collaborative autonomy (3), to excessive autonomy (5). The questions were asked about staying up on a school night, friends they choose to hang out with, after-school activities they participated in, going out someplace with a friend in the afternoon, how they choose to dress, what they do with their money, "what [they] watch on TV or whether or not they watch TV at all," and choosing to participate in religious education activities (Making Decisions – Block 1, Form #5 10/1/02, The NICHD Study

of Early Child Care and Youth Development FLV11G6). The name of the instrument Parental Control and Autonomy was referred to as “Making Decisions,” and its set of questions were adapted from Eccles’ Prince George’s County study to make it appropriate for adolescents to respond to, based on the work of Brody, Moore & Glei (1994). The same form was used both at Phase III and Phase IV. The wording for parent versions was changed appropriately from the child/adolescent version to facilitate parent responses. The raw scores for the Child Autonomy Score (Child) ranged from 8 to 40, and resulted in a “modest” internal validity based on the raw scores of the test times (8 items, Cronbach’s alpha = 0.68) (NICHD- SECCYD, 2008). It was noted that removing item 8 (a question about choosing to partake in religious education training or education) would increase Cronbach’s alpha to a .70 since it had a low correlation to the total. However, it was retained for the purposes of this study. The Child Autonomy Score (parent version)’s resulted in a “moderate” internal reliability (eight items, Cronbach’s alpha .76 mother; .79 father) (NICHD- SECCYD, 2008).

Depression Measure

Children’s Depression Inventory (CDI) (SECC name: How I Sometimes Feel), a self-report measure, was administered in Phase III (Sixth Grade at Lab) and again in Phase IV (at age 15 at Lab). The short form comprised of 10 questions and was chosen as a “brief screening measure of depressive symptoms in children, and its correlation to the original 27-question long form is .98 (NICHD- SECCYD, 2005; 2008). Students were asked ten questions with three response choices that best described how they felt over the last two weeks. For example, students were asked to choose between three statements: “1=I am sad once in a while,” “2=I am sad many times,” or “3=I am sad all the time,” where 1-3 were recoded to 0-2, wherein 0 indicated “normal behavior” and 2 indicated “depressive symptoms.” (NICHD- SECCYD, 2005;

2008). This short-form brief screener assessed for depressed mood, anhedonia, and low self-esteem (NICHD- SECCYD, 2005; 2008). The internal reliability of the short form was reported to be moderate (10 items, Cronbach's alpha = .80) (Kovacs, 1992).

Deviant Behavior Measure

“Things I do” Risky Behavior Questionnaire was administered to student participants during Phase III (fifth and sixth grade) and also during Phase IV at age 15 in Phase IV to assess adolescent risky behavior (NICHD- SECCYD, 2008). The adolescents were asked 61 questions (including a two-part question on #60) on 55 types of risky behavior, using a 0-2 scale, where 0 meant “Not at all,” 1 indicated “Once or twice,” and 2 meant “More than twice” (NICHD- SECCYD, 2008). The higher the score, the riskier the adolescent risk-taking. The Age 15 questionnaire included new items on the following that were not included in the Phase III questionnaire: explicit sexual behavior (including questions regarding tobacco use, adolescents' safety, and violence-related behaviors). The last two items #54 and #55 addressing sexual experience (“number of partners in the adolescents' entire life and in the last 30 days”) was reported to have a moderate internal reliability (Cronbach's alpha = .73). The reported internal reliability (Cronbach's alpha) on the first 53 items was high at .89.

Analysis

The research questions will be analyzed using multiple regression analyses. For the first question, background and independent variables will include Sex, SES, previous achievement, and the independent variable (autonomy). The dependent variable will be depression. Curvilinear effect will be checked for by centering the variables and looking for an interaction between the two.

For the second question, background variables will include sex, SES, and previous achievement, which will be checked for correlation. The dependent variable (adolescent behavior at age fifteen) will be regressed on the mediating variable (early depression at sixth grade). Earlier deviant behavior at sixth grade will be a control variable. Background variables will include SES, sex, and previous achievement. The mediating variable (earlier depression at sixth grade) will then become the new dependent variable and will be regressed on earlier deviant behavior and other background variables. A Sobel test will be conducted to determine the significance of indirect effect.

For the third research question, the interaction effect will be examined by adding the race variable as a moderator to the same analysis modeled in the second question by creating a cross product term with centered early depression variable and recoded ethnicity variable (where 0=white/majority; 1=non-white ethnic minority).

For the fourth research question (first part), background variables will include SES, sex, race, previous achievement, parent warmth/support, and peer influences/relationships, which will be checked for correlation. The dependent variable (depression at age fifteen) will be regressed on the independent variable (autonomy at sixth grade) while controlling for background variables (sex, SES, ethnicity, parent attachment, peer resistance, WJR broad reading and math scores). To answer the second part of the fourth question, the dependent variable (later deviant behavior at age fifteen) will be regressed on the mediating variable (depression at age fifteen), while controlling for autonomy at sixth grade and other background variables of the first part of the research question. The mediating variable will then become the new dependent variable and will be regressed on depression at age fifteen. A Sobel test will be used to determine whether or not the indirect effect is significant.

Model comparisons will be evaluated using change (Δ) in the R^2 , and standardized coefficients (β values) will be reported. IBM SPSS program will be used to analyze data.

CHAPTER 4: RESULTS

The variables used from the NICHD Database set and the resulting sample size with the mean (*M*) and standard deviation (*SD*) are reported here.

Table 1
Descriptive Statistics for All Variables

	Number (<i>N</i>)	Mean (<i>M</i>)	Standard Deviation (<i>SD</i>)
Sex (1=Male; 2=Female)	1364	1.48	.500
Ethnicity*	1364	3.87	.508
Income-to-Needs Ratio 1mo	1274	2.7626	2.66368
WJR Broad Reading Standard Score	993	107.88	13.920
WJR Broad Math Standard Score	993	110.66	17.349
Child Depression Score @ G6	1011	1.4077	2.15449
Autonomy Score @ G6	1000	25.77	5.626
Resistance to Peer Pressure @ G6	1008	29.37	3.691
Parent #1 Warmth/Support @ G6	1012	31.6514	4.39073
Any Risk-Taking @ G6	1011	2.2876	1.97945
Child Depression Score @ X5	957	2.0051	2.63612
Any Risk-Taking @ X5	954	6.1589	5.67139
Valid N (Listwise)	793		

Research Question 1: What Is the Relation Between Autonomy and Depression in Adolescents When SES, Sex, and Previous Achievement Are Accounted for?

To answer this first question, the outcome variable (Child Depression Score at Age 15) was regressed on the influence of the independent variable (Autonomy Score at Age 15) while controlling for the background variables: Income-to-Needs Ratio, Sex (1=Male; 2=Female) and Previous Achievement (WJR Broad Reading Score and WJR Broad Math Score). While the overall simultaneous multiple regression was statistically significant ($R^2 = .055$, $F[5, 815] = 9.529$, $p = .000$), the only variables that were statistically significant were two of the background variables: Child's Gender (Sex; $b = 1.156$, $B = .217$, $p = .000$) and WJR Broad Reading Standardized

Score (Previous Achievement-Reading; $b=.018$, $B=.089$, $p=.042$). Child Autonomy Score at Age 15 did not have a statistically significant effect on Child Depression Score at Age 15 ($b = -.002$, $B=-.004$, $p=.917$). Contrary to the initial hypothesis (#1), the results indicated that the child's depression score was more correlated with two of the background variables, child's sex and previous achievement in reading (which have been established well in previous research), than with child autonomy score at age fifteen.

Research Question #1a: Is the Above Relation Curvilinear?

An analysis for the curvilinearity was not run due to the fact that the previous analysis yielded non-significant results.

Research Question 2: Does Earlier Depression (at Sixth Grade) Mediate the Effect of Earlier Deviant Behaviors (at Sixth Grade) on Later Deviant Behaviors in Adolescents (at Age Fifteen)?

The outcome variable (adolescent deviant behavior at age fifteen) was regressed on the mediating variable (early depression at sixth grade) with earlier deviant behavior at sixth grade as a control variable. SES, sex, and previous achievement were controlled for as background variables. The overall simultaneous regression was statistically significant ($R^2=.284$, $F[6, 827]=54.647$, $p=.000$). Among the background variables, sex ($\beta = -.097$, $p = .001$) and income-to-needs ratio ($\beta = .067$, $p = .018$) had a statistically significant effect on the outcome variable (any risk-taking at age fifteen: adolescent deviant behavior).

The mediating variable from the previous analysis became the new dependent variable and was regressed on earlier deviant behavior and other background variables ($R^2=.083$, $F[5, 885]=16.071$, $p=.000$). Previous deviant behavior had a statistically significant effect on child's depression score at age fifteen. A Sobel test was used to determine whether the indirect effect

was significant. Based on the Sobel test, earlier depression at sixth grade was found not to be a significant mediating variable ($t= 1.0286$, $SE= .0254$, $p= .3036$). In other words, more depressed adolescents were not necessarily more deviant as adolescents, but early deviant behaviors at sixth grade predicted their continued adolescent deviant behaviors.

Table 2
Unstandardized (b) and Standardized (β) Coefficients

Variable/Values	Unstandardized coefficient <i>b</i>	Standardized coefficient <i>B</i>
Sex (1=Male, 2=Female)	-1.074**	-.097**
Income-to-Needs Ratio @ 1 Month	-.160*	-.074*
WJR Broad Reading STD score @ G5	-.018	-.043
WJR Broad Math STD score, at G5	-.010	-.030
Any Risk-taking by SC @ G6	1.422***	.463***
Child Depression Score @ G6	.083	.032

* $P < .05$, ** $p < .01$, *** $p < .001$

Research Question 3: Does Cultural Background/Race Moderate the Effect of Depression On Deviant Behaviors in Adolescence?

To answer this question, the ethnicity variable was recoded to 0=white/majority and 1=non-white ethnicity. A cross product term (centered_early_depression_x_ethnicity) was added to the model (following the above analysis) to test the possible interaction between early depression scores and ethnicity (recoded). The early depression score variable was centered. The results indicated that the interaction was not statistically significant ($R^2=.300$, $\Delta F[8, 825]=.011$, $p=.916$). In other words, the effect of depression on deviant behaviors in adolescence

was not moderated by ethnicity variable and therefore did not differ depending on whether the student was from an ethnic minority group or not.

Research Question 4a: When SES, Sex, Race, Previous Achievement, Parental Attachment, And Peer Influences/Relationships Are Controlled for, Does Autonomy in Earlier Years Predict Depression in Later Adolescence?

To answer this question, the outcome (depression at age fifteen) variable was regressed on the influence/independent variable (autonomy at G6) while controlling for background variables (sex, income-to-needs ratio, ethnicity, parent attachment, peer resistance, WJR broad reading and math scores). The overall simultaneous multiple regression was statistically significant ($R^2=.087$, $F[8, 819]=9.760$, $p=.000$). Among the background variables, sex, parent warmth/support, and resistance to peer pressure were statistically significant (cf., Table 3). The Child Autonomy Score at sixth grade was statistically significant ($b=-.033$, $\beta =-.069$, $p=.040$), indicating that with every unit increase in child autonomy score, the student's later deviant behavior at age fifteen was reported to decrease .069 units. The more a child reported to feel autonomous, the less the child reported to feel depressed at age fifteen. Child Autonomy at sixth grade did indeed predict depression at adolescence.

Table 3
Unstandardized (b) and Standardized (β) Coefficients for Background and Influence Variables

	Unstandardized coefficient <i>b</i>	Standardized coefficient β
Sex (1=Male; 2=Female)	1.234	.230***
Ethnicity (0=White; 1=non-White)	.135	.019
Income-to-Needs Ratio @ 1Month	-.004	-.004
WJR Broad Reading STD Score @ G5	.017	.083
WJR Broad Math STD Score @ G5	-.001	-.009
Parent #1 Warmth/Support SC @ G6	-.081	-.133***
Resistance to Peer Pressure Score (SC) @ G6	-.061	-.085*
Child Autonomy Score (SC)@ G6	-.033	-.069*

* $P < .05$, ** $p < .01$, *** $p < .001$

Table 4
Correlation Matrix of Background Variables

Variable	1	2	3	4	5	6	7	8
1. Autonomy @ G6	---	---	---	---	---	---	---	---
2. Parent #1 Warmth/Support @ G6	.002	---	---	---	---	---	---	---
3. WJR Broad Math @ G5	-.005	.017	---	---	---	---	---	---
4. Sex	.038	-.044	.025	---	---	---	---	---
5. Ethnicity	.034	.007	.099	.001	---	---	---	---
6. Income-to-Needs Ratio	-.092	-.085	-.128	-.009	.185	---	---	---
7. Resistance to peer pressure @ G6	.087	-.316	-.059	-.099	-.011	-.014	---	---
8. WJR Broad Reading @ G5	-.004	.094	-.558	-.045	.086	-.110	-.091	---

Research Question 4b: Does Depression Mediate the Effect of Autonomy on Deviant Behaviors?

To answer this question, the outcome variable/dependent variable (Any Risk-Taking by Study Child at age Fifteen: Deviant Behavior at Age Fifteen) was regressed on the mediating variable (Child Depression Score at Age Fifteen), while controlling for autonomy at sixth grade and other background variables similar to research question #4. The overall regression was statistically significant ($R^2=.179$, $F[9, 816]= 19.730$, $p < .0001$), indicating that child depression at age fifteen did indeed predict deviant behaviors at age fifteen. The child depression score at age fifteen was statistically significant ($b=.414$, $\beta =.202$, $p<.0001$). The child autonomy score at sixth grade was statistically significant ($b=.097$, $\beta=.032$, $p=.002$). The resistance to peer pressure at sixth grade was statistically significant ($b=-.179$, $\beta =-.120$, $p<.0001$). Background variables were allowed to covary (cf., Table 4). Among the background variables, however, only sex, ethnicity, and income to needs ratio were found to be statistically significant.

To check if depression mediated the effect of autonomy on deviant behaviors, the mediating variable from the previous analysis became the new dependent variable and was regressed on child depression score at age fifteen ($R^2= .317$, $F[10, 814]= 37.843$, $p<.0001$). A Sobel test was used to determine whether the indirect effect was significant. According to the Sobel test, the mediating variable (child depression score at age fifteen) was found to be a significant mediator ($t= -2.1046$, $SE= .005625$, $p= .03689$). The effect of early autonomy on later deviant behavior was significantly mediated by the level of adolescent depression.

Figure 1 illustrates the path diagram for significant paths. Early deviancy was added as a background variable, and the resulting coefficients were reported in the diagram may slightly differ from those reported above.

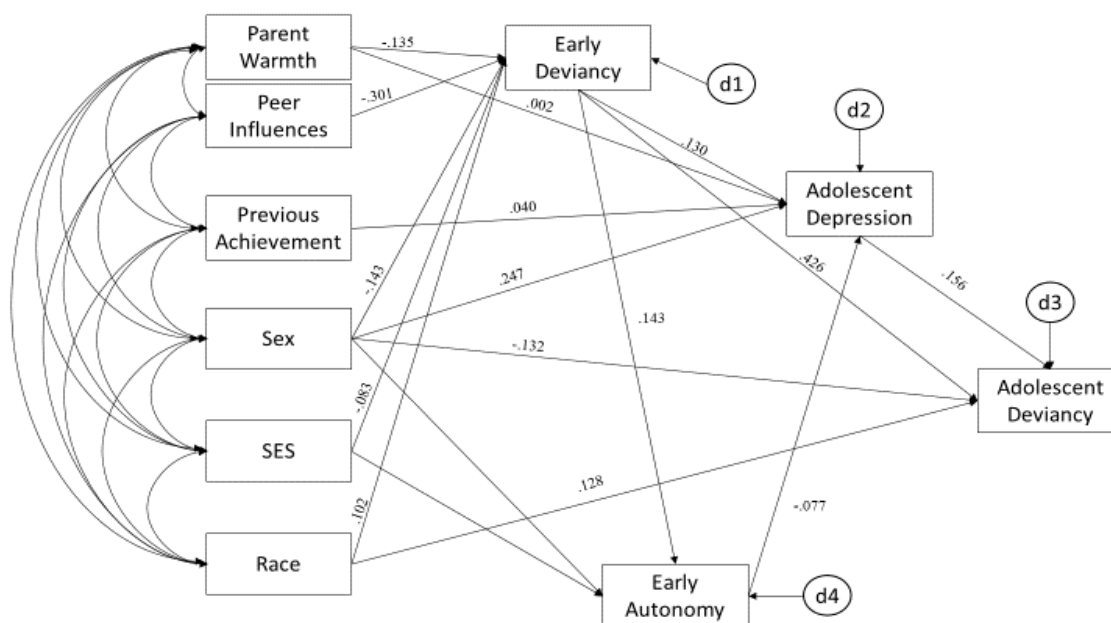


Figure 1. Path diagram with β coefficients (Non-significant paths excluded); Early deviancy as a background variable was added in this analysis.

CHAPTER 5: DISCUSSION

The aim of this study was to synthesize a relation between what we already know whether implicitly or explicitly and to bridge the gap in the literature regarding adolescent autonomy, depression, and deviant behavior. Given the fact that much more is known about the neural workings of the teenage brain development and social and educational research about the predictors of adolescent autonomy as well as their relation to deviant behaviors, there appears to be a clearer link to establish between these relations. Much research has found a link between deviant behaviors with depression especially among older adolescents in addition to their link to parental attachment history and parental relationships with teens as children (Low & Webster, 2015; Davis, Votruba-Drzal, & Silk, 2015). Literature also supports findings that indicate that the strength of parent-child relationships predicts adolescent' ability to navigate and maintain autonomy among peers (Allen & Loeb, 2015; Schlegel & Barry, 1991). However, too much autonomy has been linked with deviant behaviors (Allen & Loeb, 2015; McElhaney et al., 2001). Deviant behaviors may also be a result of adolescents' longing to assert their own autonomy by seeking peers who seem similar to them (Dishion & Medici, 2000). Existent literature shows that adolescents between eleven and sixteen years of age in general tend to need more opportunities for autonomous decision making for healthier adjustment (Fuligni & Eccles, 1993; Brody et al., 1994). Smetana et al. (2004) found that while there was not a direct effect of autonomy on later adolescent deviant behavior, there was an effect of autonomy on later depressed mood (greater self-reported autonomy over "multi-faceted issues" significantly associated with more depressed mood). The main question this research set out to answer was, what, specifically, are the underlying factors related to deviant behavior in adolescence, and how

are they related to adolescent need for autonomy, and, finally, does depression mediate this relation?

Autonomy and Depression in Adolescents

The current study showed that when SES, sex, and previous achievement are accounted for, being more autonomous in decision making (the tendency to rely on self more than on the parents to make their decisions) as an adolescent was not correlated with depression in adolescence. Smetana et al. (2004) had found that earlier autonomy had an effect on later depressed mood in their longitudinal analysis for African-American youth, indicating that African-American youths who made decisions alone on personal matters at age thirteen (early adolescence) tended to have more negative adjustment outcomes at age eighteen (late adolescence), including depressed mood. Their findings were interpreted with caution as they did not control for earlier depressed mood (depression only measured at time three in their longitudinal analysis) (Smetana et al., 2004). They concluded that depressed mood could have been affected by the “changes in decision making or preexisting differences in depression (Collins et al., 2000; Smetana et al., 2004). The current study differed from their longitudinal analysis in that the current study analyzed the concurrent effect of autonomy on depression at adolescence.

Early Depression and Later Deviant Behaviors

Consistent with the findings by Smetana et al. (2004), who found that autonomy had no direct effect on later deviance, results of the current study showed that that earlier depression (at sixth grade) was not a significant mediator of the effect of earlier deviant behaviors (at sixth grade) on later deviant behaviors as adolescents (at age fifteen). These studies have found that the age of onset for depression was most frequently associated with adolescence (Christie et al.,

1989; Powell et al., 1995) or mid-adolescence, “normatively” speaking (Jessor & Jessor, 1977; Mason et al.; 1996; Smetana et al., 2004). It is also possible that given the sample population of the NICHD database, which is made up of typically developing children that deviance may be harder to detect in such a population.

Autonomy, Depression and Deviant Behaviors: Significantly Related

Consistent with previous findings (Smetana et al., 2004), this study showed that when SES, sex, race, previous achievement, parental warmth/support, and peer influences/relationships were controlled for, autonomy in earlier years (at sixth grade) did indeed predict decreased depression in later adolescence (at age fifteen). The results also showed that the more a child reported to feel autonomous at sixth grade (early adolescence), the less the child reported to feel depressed at age fifteen. While Smetana et al. (2004) did not find a direct effect of autonomy on later deviance, the results of this study showed that depression at age fifteen turned out to be a significant mediator of the effect of early autonomy on later deviant behaviors. For typically developing children, feeling more autonomous in their decision-making tended to make a difference in whether or not they reported ascribing to deviant behaviors in later adolescence indirectly through whether or not they tended to report feeling depressed. It is possible that by sixth grade, entering into early adolescence (ten to fourteen years of age), they may be expressing their developmental need for expressing autonomy in decision-making. In that sense, the current findings are consistent with those of Smetana et al. (2004) that found that the more autonomy with regard to “multi-faceted” issues (complex issues that they may not necessarily be ready to handle on their own without guidance or boundaries from parents) adolescents reported to have, they tended to report more depressed mood when they were five years older (Smetana et al., 2004). Adolescents tended to be better adjusted if they had been less autonomous in earlier

years but given more autonomy as they got older (Smetana et al., 2004). It is possible that at sixth grade, this need may already be emerging in their self-reports. This finding is consistent with the previous research that found that the age of onset for depression was most pronounced during adolescence (Christie et al., 1989; Powell et al., 1995) and more “normatively” so during mid-adolescence (Jessor & Jessor, 1977; Mason et al.; 1996; Smetana et al., 2004). So, consistent with the literature, more autonomous decision-making opportunities for youth (students in the sixth grade in this study) in the family may pave the way for healthier adjustment as older adolescents (at age fifteen in this study) (Fulgini & Eccles, 1993; Brody et al., 1994; Smetana et al., 2004).

The results showed that too much autonomy as a child may indicate movement in the direction of increased risk-taking per self-report indirectly through self-reported depression. However, adolescent depression decreased incrementally as child autonomy increased, and this was consistent with previous research that established autonomy’s effect on later depressed mood (Smetana et al., 2004). While autonomy may buffer the feeling of depression in adolescence, the fact that too much autonomy may result indirectly in increased risk-taking indicates a need for helping teens attain a balance of parent and student collaboration on decision-making processes so that adolescents have appropriate skills to make appropriate decisions. For example, a “goal-corrected partnership” (the “ability to maintain relatedness while discussing a disagreement [as adolescents try to establish autonomy]” (Allen et al., 2003; Allen & Land, 1999; Bowlby, 1969/1982; Hazan & Zeifman, 1999) has been found to be predicted from “infant strange-situation security” and was found to predict the sense of “attachment security” as late as twenty-five years of age (Allen et al., 2003); Allen & Hauser, 1996; Becker-Stoll & Fremmer-Bombik, 1997). These skills intervention programs can be

introduced to parents and students at earlier ages to help parents foster skill-building in children as they continued to maintain connection and allow children to establish autonomy in personal matters through collaboration and positive discussion (Allen et al., 2003). Giving parents opportunities to build parent-child relationships that offer a secure base of trust (Bowlby, 1969) while allowing their child to participate in making decisions, may help them foster the gradual growth of autonomous decision making skills for their adolescents. Helping parents view parenting itself as an opportunity to grow with the child, as the child grows and as their needs change may also be beneficial in these parenting intervention efforts. Intervention efforts for increasing child autonomy appropriately (e.g., by teaching them the tools for self-reflection, self-monitoring, and executive functioning/goal-oriented planning skills, decision-making skills, tools for communicating better with parents and other supporting adults like teachers) as well as for addressing mental health needs of adolescents and teaching them appropriate coping skills are much needed.

Also, given the findings of previous studies that established that girls are twice as likely as boys to experience depression and that their experience of depression tended to continue into adulthood (Weissman & Klerman, 1977), it may be interesting to explore if the intervention efforts that work for girls, i.e., such as interpersonal and family psychotherapy (Powell et al., 1995) also work for boys, as they learn to collaborate with their parents (both mothers and fathers) and if those skills of fostering dyadic relationships between mothers and daughters also may translate to mother-son and father-daughter relationships, especially in pursuit of fostering increased autonomy in adolescents.

Limitations of This Research and Directions for Future Studies

The limitations of this study include the fact that it used a pre-existing dataset with its pre-collected variables in a non-experimental study as other researchers of similar studies have pointed out (Low & Webster, 2015). While the choice of variables depended on what was already available, due to the large sample size, the generalizability of this nonexperimental study appears reliable. Also, the fact that self-report measures were utilized for measuring depression, autonomy, and any-risk-taking tendencies also may pose a limitation and should probably not be the sole measure of understanding these variables. Unlike Smetana et al. (2004), whose studies have been able to substantiate the self-report data with the parent-report data, another limitation of this study would be that it did not include an additional layer of data to support the self-report of adolescents' risk-taking behaviors, therefore sacrificing the "accuracy" of data (Smetana et al., 2004). However, self-report data in and of themselves, may not invalidate the results since they may also be considered a way of illustrating "youth phenomenology" or a way of understanding "youth perceptions" (Magaro & Weisz, 2006). Additionally, the use of self-report in itself for adolescents may encourage children and adolescents to self-reflect and self-monitor, which are important executive functioning skills for developing adolescents.

Despite the limitations of this study, the results of this study point those working with children and adolescents in the direction of helping build autonomy and address their mental health needs. Developing interventions that address encouraging child autonomy and guiding them to increase skills in the decision-making process may be an essential way of helping adolescents make appropriate choices so as to choose adaptive behaviors in place of behaviors that are risky not only for their not-yet-fully-developed pre-frontal cortex but also for their imminent future. Furthermore, given the mediating role of depression in the way autonomy affects later deviant behaviors, an increased effort to screen and address mental health needs of

pre-teens and teens, especially in a multi-tiered framework of intervention services would be one important way to apply the results from this study. Future studies may explore further the role of autonomy in executive functioning skills development as well as the effect of intervention programs involving executive functioning skills on decreasing adolescent depression and deviant behaviors.

Conclusions

Adolescents continue to need to exercise autonomy in their lives. The results of this study showed that, consistent with previous research, autonomy in earlier years did predict depression in later adolescence, a volatile period when the adolescents tend to be more vulnerable to being influenced by many forces in their lives. Parent education programs that teach the skills involved in a goal-corrected partnership (Allen et al., 2003) between parents and children can pave the way for adolescents' behavior choices that are not associated with delinquency or depression. Relatedly, it may be beneficial to further study the cultural differences that may operate in parenting practices and beliefs and how they may impact autonomy experiences of adolescents. Also, much research has established the role of locus of control on predicting depression in adolescents (Powell et al., 1995), and deviant behavior among older adolescents has also been found to be related to negative personal control, especially for girls at age fourteen (Adalbjarnardottier et al., 2001). While relation between terms such as autonomy, locus of control, self-efficacy, or perceived control have not been established, a sense of autonomy indicates some type of exercise of control over matters that adolescents can make decisions about. Adolescents with a growing sense of age-appropriate autonomy may fare better than those may either have too much at an earlier age or too little at an older age, depending on their age of development, parental attachment history, and peer relations. This

theoretical relation between these psychological terms may be further explored in future studies, thus further clarifying our understanding of these terminology. Especially given the fact that parental practices influence the social skills development of children, as Henry et al. (2001) found that “coercive parenting” practices were linked with increased deviant behavioral outcomes in children, helping parents have a clear understanding of the needs of adolescents for autonomy and helping them choose parenting practices that lead to better adjustment outcome may be vital in ensuring a healthier trajectory for adolescents.

The results of this study showed that when background variables such as SES, sex, race, previous achievement, parental warmth/support, and peer influences/relationships were controlled for, the more depressed an older adolescent felt, the more likely for them to be influenced by how autonomous they were when younger when confronted with choosing deviant behavior. Consistent with literature, providing younger tweens with opportunities to exercise autonomy would be beneficial for parents wanting to ensure a healthier outcome for their adolescents while still maintaining positive parenting practices and connection with the adolescents. The findings of this research help paint a clearer picture of the relations between autonomy, depression, and deviant behaviors in adolescence.

REFERENCES

- Adalbjarnardottir, S., & Rafnsson, F. D. (2001). Perceived control in adolescent substance use: Concurrent and longitudinal analyses. *Psychology of Addictive Behaviors, 15*(1), 25-32.
- Allen, J. P. & Hauser, S.T. (1996). Autonomy and relatedness in adolescent-family interactions as predictors of young adults' states of mind regarding attachment. *Development & Psychopathology, 8*, 793-809.
- Allen, J. P., Marsh, P., McFarland, C., McElhaney, K. B., Land, D. J., Jodl, K. M., & Peck, S. (2002). Attachment and autonomy as predictors of the development of social skills and delinquency during midadolescence. *Journal of consulting and clinical psychology, 70*(1), 56.
- Allen, J. P., McElhaney, K. B., Land, D. J., Kuperminc, G. P., Moore, C. W., O-Berine-Kelly, H., & Kilmer, S. L. (2003). A secure base in adolescence: Markers of attachment security in the mother-adolescent relationship. *Child Development, 74*(1), 292-307.
- Allen, J. P., & Land, D. Attachment in adolescence. In: Cassidy, J., Shaver, PR., editors. *Handbook of attachment: Theory, research, and clinical applications*. New York: Guilford Press; 1999. P. 319-335.
- Allen, J. P., & Loeb, E. L. (2015). The autonomy-connection challenge in adolescent-peer relationships. *Child development perspectives, 9*(2), 101-105.
- Bai, S., Zeledon, L., D'Amico, E. J., Shoptaw, S., Avina, C., LaBorde, A. P., Anderson, M., Fitzpatrick, O. M., & Asarnow, J. R. (2018). Reducing health risk behaviors and

- improving depression in adolescents: A randomized controlled trial in primary care clinics. *Journal of Pediatric Psychology*, 43(9), 1004-1016.
- Bandura, A., & Walters, R. H. (1977). *Social learning theory* (Vol. 1). Englewood Cliffs, NJ: Prentice-hall.
- Bandura, A. (1989). Human agency in social cognitive theory. *American psychologist*, 44(9), 1175.2
- Becker-Stoll, F. & Fremmer-Bombik, E. Adolescent-mother interaction and attachment: A longitudinal study. Paper presented at the biennial meetings of the Society for Research in Child Development; Washington, DC. 1997 Apr.
- Bitsko R. H., Holbrook, J. R., Ghandour R. M., Blumberg, S. J., Visser, S. N., Perou, R., & Walkup, J. Epidemiology and impact of healthcare provider diagnosed anxiety and depression among US children. *Journal of Developmental and Behavioral Pediatrics*. Published online before print April 24, 2018.
- Bowlby, J. (1982). *Attachment and loss. Vol. 1*. New York: Basic Books. (Original work published 1969).
- Brody, G. H., Moore, K., & Gleib, D. (1994). Family processes during adolescence as predictors of parent-young adult attitude similarity. *Family Relations*, 43, 369-373.
- Burnett, A. J., Sabato, T. M., Wagner, L., & Smith, A. (2014). The influence of attributional style on substance use and risky sexual behavior among college students. *College Student Journal*, 48(2), 325-336.

- Castonguay, L. G., & Oltmanns, T. F. (Eds.). (2013). *Psychopathology: From science to clinical practice*. New York, NY: The Guilford Press.
- Cheng, C., Cheung, S., Chio, J. H., & Chan, M. S. (2013). Cultural meaning of perceived control: A meta-analysis of locus of control and psychological symptoms across 18 cultural regions. *Psychological Bulletin, 139*(1), 152-188.
- Christie, K. A., Burke, J. D., Regier, D. A., Rae, D. S., Boyd, J. H., & Locke, B. Z. (1989). Epidemiologic evidence for early onset of mental disorders and higher risk of drug abuse in young adults. *American Journal of Psychiatry, 145*, 971-975.
- Conger, R. D., & Wallace, L., Sun, Y., McLoyd, V., & Brody, G. (2002). Economic pressure in African American families: A replication and extension of the family stress model. *Developmental Psychology, 38*, 179-193.
- Conoley, J.C., & Impara, J.C. (1995). The Woodcock-Johnson Psycho-educational Battery—Revised. In Conoley, J.C., & Impara, J.C. (Eds.), *The twelfth mental measurements yearbook*. Lincoln, NE: Buros Institute of Mental Measurements.
- Costello, D. M., Dierker, L. C., Jones, B. L., & Rose, J. S. (2008). Trajectories of smoking from adolescence to early adulthood and their psychosocial risk factors. *Health Psychology, 27*(6), 811-818.
- Czeisler, M. É., Lane, R. I., Petrosky, E., Wiley, J. F., Christensen, A., Njai, R., & Czeisler, C. A. (2020). Mental health, substance use, and suicidal ideation during the COVID-19 pandemic—United States, June 24–30, 2020. *Morbidity and Mortality Weekly Report, 69*(32), 1049. doi: 10.15585/mmwr.mm6932a1

- Davis, S., Votruba-Drzal, E., & Silk, J. S. (2015). Trajectories of internalizing symptoms from early childhood to adolescence: Associations with temperament and parenting. *Social Development, 24*(3), 501-520.
- Dishion, T. J., Poulin, F., & Medici Skaggs, N. (2000). The ecology of premature autonomy in adolescence: Biological and social influences. *Family and peers: Linking two social worlds, 27-45*.
- Duan, L., Shao, X., Wang, Y., Huang, Y., Miao, J., Yang, X., & Zhu, G. (2020). An investigation of mental health status of children and adolescents in china during the outbreak of COVID-19. *Journal of affective disorders, 275*, 112–118.
<https://doi.org/10.1016/j.jad.2020.06.029>
- Fulgini, A. J., & Eccles, J. S. (1993). Perceived parent-child relationships and early adolescents' orientation toward peers. *Developmental psychology, 29*(4), 622.
- Halfron, N., Labelle, R., Cohen, D., Guilé, J. & Breton, J. (2013). Juvenile bipolar disorder and suicidality: A review of the last 10 years of literature. *European Child & Adolescent Psychiatry, 22*, 139-151.
- Hampson, S. E., Andrews, J. A., & Barckley, M. (2008). Childhood predictors of adolescent marijuana use: Early sensation seeking, deviant peer affiliation, and social images. *Addictive Behavior, 33*(9), 1140-1147.
- Hazan, C. & Zeifman, D. Pair bonds as attachments: Evaluating the evidence. In: Cassidy, J., Shaver, PR., editors. *Handbook of attachment: Theory, research, and clinical applications*. New York: Guilford Press; 1999, P. 336-354.

- Henry, D. B., Tolan, P. H., & Gorman-Smith, D. (2001). Longitudinal family and peer group effects on violence and nonviolent delinquency. *Journal of clinical child psychology, 30*(2), 172-186.
- Ingram, R. E., Nelson, T., Steidtmann, D. K., & Bistricky, S. L. (2007). Comparative data on child and adolescent cognitive measures associated with depression. *Journal of Consulting and Clinical Psychology, 75*(3), 390-403.
- Jensen, F. E., & Nutt, A. E. (2015). *The Teenage Brain*. New York, NY: Harper Collins Publishers.
- Jessor, R., & Jessor, S. L. (1977). *Problem behavior and psychosocial development: a longitudinal study of youth*. New York: Academic Press.
- Kaya, A. (2007). Sociometric status, depression, and locus of control among Turkish early adolescents. *Behavior and Personality, 35*(10), 1405-1414.
- Kazdin, A. E. (1989). Childhood depression. In E. J. Mash & R. A. Barkley (Eds.), *Treatment of childhood disorders* (pp. 135-166). New York: Guilford Press.
- Lee, J., Kim, T. H., Min, S., Kim, M., Park, K. C., Moon, J. S., & Ahn, J. (2018). Depressive symptoms and suicidal behaviours in adolescent non-daily smokers compared to daily smokers and never-smokers in Korea: National cross-sectional study. *PLOS ONE 13*(11), 1-15. <https://doi.org/10.1371/journal.pone.0207182>
- Low, J., & Keith, T. (2014). The influence of auditory short-term memory on behavior problem development. *International Journal of Behavioral Development, 39*(2), 105-112.

- Lyons, A. L., Carlson, G. A., Thurm, A. E., Grant, K. E., & Gipson, P. Y. (2006). Gender differences in early risk factors for adolescent depression among low-income urban children. *Cultural Diversity and Ethnic Minority Psychology, 12*(4), 644-657.
- Magaro, M. M., & Weisz, J. R. (2006). Perceived control mediates the relation between parental rejection and youth depression. *Journal of Abnormal Child Psychology, 34*, 867-876.
- Martin, G., Bergen, H. A., Richardson, A. S., & Roeger, S. A. (2004). Correlates of firesetting in a community sample of young adolescents. *Australian and New Zealand Journal of Psychiatry, 38*, 148-154.
- Mason, C. A., Cauce, A.N., Gonzales, N., & Hiraga, Y. (1996). Neither too sweet nor too sour: Problem peers, maternal control, and problem behavior in African American adolescents. *Child Development, 67*, 2115-2130.
- McElhaney, K. B., & Allen, J. P. (2001). Autonomy and adolescent social functioning: The moderating effect of risk. *Child Development, 72*, 220-231.
- McGrew (1993). The relationship between the Woodcock-Johnson Psycho-Educational Battery – Revised Gf-Gc cognitive clusters and reading achievement across the life-span. *Journal of Psychoeducational Assessment, WJ-R Monograph*.
- McGrew, K. S., & Knopik, S. N. (1993). The relationship between the WJ-R Gf-Gc cognitive clusters and writing achievement across the life-span. *School Psychology Review, 22*, 687-695.
- Mellick, W., Hatkevich, C., Venta, A., Hill, R. M., Kaimi, I., Elhai, J. D., & Sharp, C. (2019). Brief report: Measurement invariance of depression symptom ratings across African

- American, Hispanic/Latino, and Caucasian adolescent psychiatric inpatients. *Psychological Assessment*, 31(6), 833-838.
- Mufson, L., Moreau, D., Weissman, M., & Klerman, G. (1993). *Interpersonal psychotherapy for depressed adolescents*. New York: Guildford Press.
- NICHD-SECCYD (2005). Phase III instrument document. *Phase III – 2nd to 6th grade data and documentation* [CD ROM]. Research Triangle Park, NC: RTI International.
- NICHD-SECCYD (2008). Phase IV instrument document. *Phase IV – 7th grade to Age 15 data and documentation* [CD ROM]. Research Triangle Park, NC: RTI International.
- Nolen-Hoeksema, S., & Girgus, J. S. (1994). The emergence of gender differences in depression during adolescence. *Psychological bulletin*, 115(3), 424.
- Petratis, J., Flay, B. R., & Miller, T. Q. (1995). Reviewing theories of adolescent substance use: Organizing pieces in the puzzle. *Psychological Bulletin*, 117(1), 67-86.
- Philibert, R., Gunter, H. M., & Kolassa, I. (2014). The search for peripheral biomarkers for major depression: Benefiting from successes in the biology of smoking. *American Journal of Medical Genetics Part B: Neuropsychiatric Genetics* 165B: 230-234.
- Post, P. (1999). Impact of child-centered play therapy on the self-esteem, locus of control, and anxiety of at-risk 4th, 5th, and 6th grade students. *International Journal of Play Therapy*, 8(2), 1-18.
- Powell, J. W., Denton, R., & Mattison, A. (1995). Adolescent depression: Effects of mutuality in the mother-adolescent dyad and locus of control. *American Journal of Orthopsychiatry*, 65(2), 263-273.

- Rotter, J. B. (1966). Generalized expectancies for internal versus external control of reinforcement. *Psychological Monographs*, 80(1, Whole No 609).
- Schlegel, A., & Barry, H. (1991). *Adolescence: An anthropological inquiry*. New York, NY: Free Press.
- Scott, B. G., & Weems, C. F. (2010). Patterns of actual and perceived control: Are control profiles differentially related to internalizing and externalizing problems in youth? *Anxiety, Stress, & Coping*, 23(5), 515-528.
- Seeley, J., Rohde, P., Lewinsohn, P., & Clarke, G. (2002). Depression in youth: Epidemiology, identification, and intervention. In M. Shinn, H. Walker, & G. Stoner (Eds.), *Interventions for academic and behavior problems II: Preventive and remedial approaches* (pp. 885–912). Bethesda, MD: National Association of School Psychologists. ISBN: 0- 932955-87-8
- Shifrer, D. (2019). The contributions of parental, academic, school, and peer factors to differences by socioeconomic status in adolescents' locus of control. *Mental Health*, 9(3), 74-94.
- Skinner, E. A. (1996). A guide to constructs of control. *Journal of Personality and Social Psychology*, 71, 549-570.
- Smetana, J. G., Campione-Barr, N., & Daddis, C. (2004). Longitudinal development of family decision making: Defining healthy behavioral autonomy for middle-class African American adolescents. *Child development*, 75(5), 1418-1434.

- Snyder, J., Stoolmiller, M., Patterson, G. R., Schrepferman, L., Oesser, J., Johnson, K., & Soetaert, D. (2004). The application of response allocation matching to understanding risk mechanisms in development: The case of young children's deviant talk and play, and risk for early-onset antisocial behavior. *The Behavior Analyst Today*, 4(4), 335-345.
- Steinberg, L. (1990). Independency in the family: Autonomy, conflict, and harmony in the parent-adolescent relationship. In S. S. Feldman, & G.R> Elliot (Eds.), *At the threshold: The developing adolescent* (pp. 255-276). Cambridge, MA: Harvard University Press.
- Steinberg, L. (2002). Resistance to Peer Influence (RPI) Scale. Unpublished measure, Temple University, Philadelphia.
- Weissman, M.M., & Klerman, G.L. (1977). Sex differences and the epidemiology of depression. *Archives of General Psychiatry*, 34, 98-111.
- Woodcock, R. W., & Johnson, M. B. (1989). *Woodcock-Johnson Psycho-Educational Battery—Revised*. Allen, TX: DLM.
- Woodcock, R. W. (199). Theoretical foundations of the WJ-R measures of cognitive ability. *Journal of Psychoeducational Assessment*, 8, 231-258.
- Zimmer-Gembeck, M. J., & Collins, W. A. (2003). Autonomy development during adolescence. In G. R. Adams & M. Berzonsky (Eds.), *Blackwell handbook of adolescence* (pp. 175-204). Oxford, England: Blackwell