Adolescent Problem Behavior: The Impact of Parents, Peers, and Perceptions

by

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Table of Contents

List of Tables

List of Figures

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Abstract

The relationship between negative parent-adolescent relationships and problem behavior, such as substance use and delinquency, has been validated through research in several ways, often citing increased peer influence and perceptions about peers' involvement in problem behavior as potential contributing factors. The current study examined perceived peer conduct and resistance to peer influence as moderators in the relationship between parent-adolescent relationship quality and delinquency. Twenty-nine participants were referred by school administrators as part of a substance use intervention program. Participants were given questionnaires to measure parent-adolescent relationship quality, delinquency, perceived peer conduct, and resistance to peer influence. Conditional process analysis was used to test the hypothesis that the relationship between parent-adolescent relationship quality and adolescent problem behavior would be moderated by susceptibility to peer influence and perceptions of peer conduct. The overall model was significant; however, there were no significant direct effects of parent-adolescent relationship quality on problem behavior, perceived peer behavior on problem behavior, or susceptibility to peer influence on problem behavior. Correlational analyses revealed a significant correlation between problem behavior and perceived peer behavior. Therefore, the lack of significant direct effects may be explained by the study being under powered. The model proposed in this study should be further researched with a larger number of participants. An implication of this research is that delinquency is associated with perceptions of peer delinquency, which is consistent with past research. This information should be considered in the development of treatment interventions in order to prevent or decrease negative outcomes for adolescents involved with delinquent peers.

Chapter One: Introduction

Adolescence is a time marked by considerable hormonal and physical alterations, as well as numerous cognitive, neurological, behavioral, psychological, emotional, and social changes. Adolescence is generally defined as the period between childhood and emerging adulthood while puberty is often considered to signify the beginning of this developmental milestone, as puberty tends to set the stage for most of the changes associated with this transition (Blakemore, Burnett, & Dahl, 2010; Wake et al., 2013). As children's bodies and brains mature, their minds also gradually shift toward greater self-reliance, independent decision-making, and the establishment of their personal identity; this striving for greater autonomy and independence is typically accompanied by changing social relationships as well (Hazel, Oppenheimer, Technow, Young, & Hankin, 2014; Koepke & Denissen, 2012). For example, adolescents' reliance on their parents for emotional support and decision-making tends to decrease in favor of friends and peers, and as adolescents spend increasingly more time with peers as opposed to family (Lam, McHale, & Crouter, 2014), they also experience less closeness and communication with parents as well as increased conflict (Keijsers & Poulin, 2013; Marceau, Ram, & Susman, 2015). The combination of a greater amount of time spent with peers, a stronger propensity for exploration and experimentation that drives identity development, and continuous developmental changes in various brain regions make adolescents particularly vulnerable to peer pressure, as well as involvement in risky and problematic activities, such as substance use and deviant behavior (Lam et al., 2014; Mercer, Keijsers, Crocetti, Branje, & Meeus, 2016; Sánchez-Queija, Oliva, Parra, & Camacho, 2016; Steinberg, 2015; Wake et al., 2013).

Recent reports indicate that both adolescent substance use and deviant behavior are prevalent issues. The Centers for Disease Control and Prevention's 2016 Youth Risk Behavior Surveillance System (YRBSS; Kann et al., 2016) tracks six general categories of health behaviors in teenagers and young adults and includes a national school-based Youth Risk Behavior Survey. According to the YRBSS (2016), 17% of high school students (grades 9 - 12) surveyed in 2015 reported drinking alcohol for the first time before age 13, while 33% reported having had at least one drink in within the past 30 days. Eighteen percent reported having engaged in binge drinking (five or more consecutive drinks within couple of hours for males, four for females) on at least one day in the past 30 days. While 32% of high school students reportedly had tried smoking a cigarette before, only 6% had smoked a whole cigarette before age 13; nevertheless, 11% had smoked a cigarette within the past 30 days. Forty-five percent of students reported having tried electronic vapor products (e.g., e-cigarettes, e-cigars, vape pens, e-hookahs, etc.), and 24% had used such products within the past 30 days. Furthermore, 39% of high school students reported having tried marijuana one or more times in their lives, while 7.5% trying marijuana for the first time before age 13, and 22% of students having used marijuana within the past 30 days. In regard to other drugs, 9% of high school students reported having used synthetic marijuana (e.g., "spice", "fake weed", "K2", etc.) at least once in their lives, 6% reported having tried hallucinogenic drugs (e.g., LSD, acid, PCP, angel dust, mescaline, or mushrooms), 5% had tried any form of cocaine (e.g., powder, crack), 5% had tried ecstasy or "MDMA", 3% had tried methamphetamines, 7% had tried inhalants (e.g., breathed in aerosol sprays, paints, glue, etc.), and 2% had tried heroin. Additionally, 17% of high school students reported having taken prescription medications

(e.g., Oxycontin, Percocet, Vicodin, codeine, Adderall, Ritalin, or Xanax) without having a doctor's prescription at least once in their lives, and 3.5% reported having tried steroid medications (pills or shots) without a doctor's prescription at least once (Kann et al., 2016). According to latest annual Monitoring the Future survey by the National Institute on Drug Abuse (Johnston et al., 2018), the lifetime prevalence of use of any illicit drug for eighth, tenth, and twelfth graders combined was 33.4%, while the annual prevalence of use of any illicit drug was 26.5%. In regard to lifetime use, alcohol and marijuana were found to be the most commonly reported drugs used among 8th graders (23.1% alcohol use, 13.5% marijuana use), 10th graders (42.2% alcohol use, 37% marijuana use), and 12th graders (61.5% alcohol use, 45% marijuana use). These findings are alarming, especially considering the negative consequences of substance use on various areas of life and functioning, such as greater involvement in other risky behaviors, diminished academic, social, and family functioning, increased risk of developing future substance use disorders (Bonomo et al., 2001; Luciana & Feldstein-Ewing, 2015), as well as a greater risk of acquiring other diseases (Bahorik, Satre, Kline-Simon, Weisner, & Campbell, 2017).

Furthermore, findings from the Centers for Disease Control's (CDC) survey also highlight other substance-related risk behaviors, such as driving under the influence; of the 61.4% of students surveyed nationwide who drove a car within the previous month, 7.8% had at least once driven a car (or other vehicle) when they had consumed alcohol (CDC, 2016). Driving under the influence is not only a risky and potentially deadly endeavor, but is also illegal. Although substance use and delinquency are related in some instances, adolescents may also engage in a variety of problem behaviors in the absence

of drug use, including both noncriminal, deviant acts as well as minor and major criminal offenses. According to the Federal Bureau of Investigation's most recent Uniform Crime Report (2017), persons under the age of 18 made up 8% of arrests for all crimes in 2016. Further, persons under the age of 18 accounted for 10.1% of total arrests for violent crime (e.g., murder, manslaughter, rape, aggravated assault, robbery, etc.), and 13.6% of arrests for property crime (e.g., burglary, embezzlement, larceny, theft, motor vehicle theft, vandalism, etc.). While these numbers may not appear overtly alarming compared to overall rates of crime, the fact that one out of ten individuals arrested for committing a violent crime is an adolescent should be concerning, especially considering the negative impact that involvement in the criminal justice system can have on an individual's future. Arrests and incarceration in adolescence were found to be associated with subsequent offending and incarceration (Gilman, Hill, & Hawkins, 2015; Liberman, Kirk, & Kim, 2014), a lower likelihood of high school graduation (Aizer & Doyle, 2015), reduced future career prospects, unemployment, greater socioeconomic disadvantages, and greater reliance on public assistance (Gilman et al., 2015; Lanctot, Cernkovich, & Giordano, 2007; Wiesner, Kim, & Capaldi, 2010). Furthermore, adolescent involvement in the criminal justice system was also found to increase the likelihood of future alcohol abuse and dependence, mental health and adjustment problems, and interpersonal difficulties (Lanctot et al., 2007; van der Molen et al., 2013).

Despite providing limited information about specific crimes committed against adolescents, the results of the most recent National Crime Victimization Survey (Morgan & Kena, 2017) suggest that in 2016 individuals between the ages of 12 and 17 fell victim to serious violent crime at the same rate as individuals between 18 and 34, and at a

significantly higher rate than individuals over the age of 35. The National Crime Victimization Survey does not provide data on perpetrators and thus does not offer any information about the rates of adolescent-on-adolescent crime; however, the CDC's 2016 YRBSS (Kann et al., 2016) does examine behaviors that contribute to aggression and violence in and outside of school. According to the CDC's findings, 16.2% of students surveyed in 2015 had carried a weapon (e.g., a gun, knife, or club) on at least one day within the past 30 days, and 4.1% had carried a weapon on school grounds; furthermore, 6.0% of students had been threatened or harmed with a weapon on school grounds one more times within the previous 12 months. Physical aggression not involving weapons was found to be even more prevalent; 22.6% of students reported having been in a physical fight within the previous 12 months, and 2.9% of students had to be treated by a doctor or nurse for injuries sustained in a physical fight. Moreover, 7.8% of students had been in a physical fight on school grounds, and 5.6% reported not having gone to school within the past year due to concerns about their safety. Bullying, defined as repeated physical, verbal, or psychological aggression toward another person, remains an issue among adolescents as 20.2% of students reported having been bullied at school within the past 12 months, and 15.5% of students experienced cyberbullying through e-mails, text messages, social media, or other internet-based means. Additionally, many adolescents, predominantly females, experience dating violence in their romantic relationships; physical dating violence (e.g., being hit, pushed, or injured with an object or weapon) within the past year was reported by 9.6% of students (11.7% of females vs. 7.4% of males), while 10.6% (15.5% of females vs. 5.4% of males) encountered sexual dating violence (e.g., being kissed, touched, or forced to into sexual activity, including

intercourse). Clearly, various types of problem behaviors are not uncommon among adolescents based on the numbers of individuals engaged in, as well as falling victim to crime, aggression, and violence.

The increasing influence of peers and their impact on adolescents' behavior, including substance use and deviant behavior, is highlighted in recent reports, as well; according to the CDC (Kann et al., 2016), 44% of high school students admitting to alcohol use reported that they usually obtain the alcohol from others, and 22% of high school students reported that they had been offered, sold, or given an illegal substance by someone on school property within the past 12 months. Moreover, according to data from the 2015 National Crime Victimization Survey, adolescents (age 12 to 18) were found to experience nonfatal victimizations (including theft and assault) at greater rates when among their peers at school (841,100 victimizations) than outside of school (545,100 victimizations). Further, 11% of students reported that gangs were present at their school. Interpersonal aggression was also found to be prevalent in 2015; 23% of female students and 19% of male students reported having been bullied at school during the school year, and 3% of female students reported having been threatened with harm compared to 5% of male students (National Center for Education Statistics, 2017).

It appears that the various changes associated with the transition from childhood to emerging adulthood make adolescents particularly vulnerable to negative peer influences and involvement in risky behaviors; in fact, much of the literature regards peer pressure to be one of the greatest contributors to adolescent substance use, delinquency, and other problem behavior (Monahan, Rhew, Hawkins, & Brown, 2014; Rankin Williams & Anthony, 2015; Santor, Messervey, & Kusumakar, 2000; Tomé, de Matos,

Simões, Camacho, & AlvesDiniz, 2012). As adolescents spend more time with peers, their own attitudes and behaviors, as well as their perceptions of social norms, tend to be increasingly shaped by observations and interactions with members of their peer group (Brechwald & Prinstein, 2011; McGloin, Sullivan, & Thomas, 2014; Neppl, Dhalewadikar, & Lohman, 2016; Simons-Morton & Farhat, 2010; Trucco, Colder, & Wieczorek, 2011); Perceived peer group norms that encourage substance use and problem behavior can thus reduce any fears or objections toward such behaviors previously held and make adolescents more likely to participate in problematic activities proposed by their peers (Mason, Mennis, Linker, Bares, & Zaharakis, 2014). Moreover, perceived peer group norms often result in adolescents overestimating their peers' actual involvement in substance and problem behavior; such inaccurate perceptions about their peers' behaviors can make adolescents underestimate any associated risks and result in a greater likelihood of following along with peers (Borsari & Carey, 2012; Simons-Morton & Farhat, 2010; Simons-Morton & Kuntsche, 2012). Despite the decreased influence of parents during adolescence (Brechwald & Prinstein, 2011; Keijsers & Poulin, 2013; Marceau, et al. 2015), certain parental factors, such as parenting style, communication and conflict patterns, and the quality of the relationship between parents and children, may help protect adolescents from involvement with problematic peers, substances, and overall troublesome behavior (Loke & Mak, 2013; Rankin Williams & Anthony, 2015; Sánchez-Queija, et al., 2016).

While the individual and combined effects of peer pressure, parenting, and perceived peer conduct on adolescent problem behavior have been studied extensively throughout the years, few studies examined how these different variables interact with

each other—and other demographic factors—to promote problem behavior. For example, numerous studies have identified parent-adolescent relationship quality, peer pressure, and adolescents' perceptions of their peers' behaviors as distinct variables that seem to predict the likelihood of adolescents engaging in problem behavior; Yet, there appears to be a lack of research regarding their combined impact on problematic conduct, as well as the relative power and influence of each one of the individual variables involved.

This study aimed to untangle these complexities and examine the relationship between the quality of the parent-adolescent relationship and adolescent problem behavior, as well as the extent to which susceptibility to peer pressure and perceptions of peer conduct affect this relationship. In addition, this study sought to clarify the influence of demographic and other factors, such as age, race, gender, and family structure, on the different variables involved.

Statement of the Problem

Adolescence is a period marked by an increased striving for autonomy, independence, and separation from parents, as well as greater reliance on other adolescents for support, guidance, and approval. As the influence of peers grows, so does their potential for negative influence, such as persuading adolescents to engage in problem behavior (Oman et al., 2004; Werner & Smith, 2001). Adolescents seldom take part in substance use, risky sexual behavior, and delinquency alone; they commonly have friends that engage in the same activities (Dishion, McCord, & Poulin, 1999; Farrell & White, 1998; Feldstein & Miller, 2006; Kosterman, Hawkins, Guo, Catalano, & Abbott, 2000; Mason & Spoth, 2012). The increasing involvement with peers tends to result in adolescents adopting the norms, values, and attitudes modeled and reinforced by the

members of their primary peer group, which may not only differ greatly from those of their family but may also encourage problematic behavior (Brechwald & Prinstein, 2011; McGloin et al., 2014; Trucco, et al., 2011). As a result, adolescents are more likely to engage in problem behaviors if they witness these behaviors within their peer group, and/or perceive them to be accepted, encouraged, or expected (Agnew, 1991; Andrews, & Patterson, 1996; Borsari & Carey, 2001; Brechwald & Prinstein, 2011; Dishion, Spracklen, Granic & Dishion, 2003; Swadi & Zeitlin, 1988). Perceptions of their peers' deviant conduct seem to greatly influence adolescents' own involvement in them; however, most adolescents were found to routinely overestimate the extent of their peers' involvement in such behaviors (Borsari & Carey, 2012; Prinstein & Wang, 2005; Simons-Morton & Kuntsche, 2012; Song, Smiler, Wagoner, & Wolfson, 2012).

Purpose of the Current Study

The purpose of this proposed study was to explore the relationship between the quality of the parent-adolescent relationship and adolescent problem behavior, as well as how this relationship is affected by adolescents' resistance to peer pressure and adolescents' perceptions of their peers' conduct. This study also sought to clarify the influence of demographic factors, such as age, gender, race/ethnicity, as well as family structure, on the variables mentioned.

Significance of the Current Study

This study aimed to contribute to the existing literature on adolescent problem behavior by clarifying the roles of the different variables found to be commonly implicated in adolescent problem behavior. Exploring the association between adolescent-parent relationship quality and adolescent problem behavior, as well as the

impact that resistance to peer pressure and perceptions of their peers' conduct might have on this association, was thought to provide valuable insight into the specific mechanisms by which adolescents get involved in such risky behaviors; consequently, the findings of this study may aid in the creation of effective prevention or intervention strategies or the development of programs aimed to strengthen family relationships through counseling, educational seminars, or other efforts. Similarly, this study may help justify the need for more education on the potential dangers of peer influence, as well as on ways to increase resistance to problematic peer influence if results indicate a strong relationship between susceptibility to peer pressure and problem behavior. Furthermore, findings from this study may also help guide interventions aimed at increasing awareness about the impact of perceived peer norms, as well as the dangers of incorrect assumptions regarding peer substance use and other risky behaviors. Finally, considering the influence of demographic and other individual factors on parent-adolescent relationship quality, susceptibility to peer pressure, and perceptions of peer conduct, as well as on problem behavior, could help identify adolescents that are particularly at risk for involvement in problem behavior and aid in devising appropriate, targeted strategies for intervention.

Research Questions

In order to examine the relationship between the parent-adolescent relationship and adolescent problem behavior, as well as the impact of resistance to peer pressure and perceptions of peer conduct on this relationship, the following research questions will be explored in this proposed study:

1. Will parent-adolescent relationship quality predict adolescent problem behavior? Specifically, will a high score on the Parent-Adolescent Relationship Scale (PARS) predict a lower delinquency score?
2. Will resistance to peer pressure predict adolescent problem behavior? Specifically, will higher resistance to peer pressure predict a lower delinquency score?
3. Will perceptions of peer conduct predict adolescent problem behavior? Specifically, will adolescents who perceive their peers to engage in more delinquent behavior have more delinquent behavior?
4. Will resistance to peer pressure moderate the relationship between parent-adolescent relationship quality and adolescent problem behavior?
5. Will perceptions of peer conduct moderate the relationship between parent-adolescent relationship quality and adolescent problem behavior?

Operational Definitions

For the purpose of this study, adolescents will include participants who are 13 to 18 years old who identify as substance users. Substance use is defined as the use of psychoactive substances, including alcohol, tobacco, marijuana, cocaine, heroin, inhalants, and any other substances that can be orally consumed, inhaled, injected, or otherwise absorbed into the body with possible detrimental effects; it also includes the misuse of prescription medication. Problem behavior is defined as deliberate actions that violate rules, laws, or social norms, often in ways that reflect disregard for others or others' rights. For the purposes of this study, problem behavior encompasses criminal, violent, reckless, offensive, and other socially unacceptable behavior, including behavior

that may commonly be referred to as delinquent or deviant. Parent-adolescent relationship quality is defined as the strength of the connection between a parent and their child and includes both identification with the parent and perceived supportiveness (Child Trends, Inc., 1999). Peer influence is defined as the extent to which an individual conforms to the ideas, suggestions, and behaviors of their peers (Steinberg & Monahan, 2009). For the purposes of this study, peer influence is considered synonymous with the term peer pressure, and thus, does not distinguish between reasons for conformity with peer behavior (e.g., peers expecting others in their peer group to behave in the same way they do vs. individuals behaving in the same way their peers do in order to be accepted). Perceptions of peer conduct are defined as assumptions that an individual makes about the behaviors of his or her peers without having knowledge or evidence that supports these assumptions (Child Trends, Inc., 1999); for the purpose of this study, these behaviors include delinquent behavior.

Literature Review

Adolescents undergo a number of physiological, neurological, cognitive, psychological, emotional, and social changes that render them particularly vulnerable to both negative influences from peers, as well as involvement in risky behaviors. This chapter provides a review of the literature concerning the association between the outcome variable (i.e., problem behavior), the predictor variable (i.e., parent-adolescent relationship quality), and the moderating variables (i.e., resistance to peer pressure and perceptions of peer conduct) that will be examined in this proposed study. In order to explain the relationship between the different variables, a theoretical framework is

presented first. The literature related to these variables and their underlying theories is vast, thus, efforts were made to include the most pertinent information.

Theoretical Framework

The theoretical framework for this proposed study is centered on several theories, including neurobehavioral disinhibition theory, attachment theory, social learning theory, differential association theory, and the social developmental model.

Neurobehavioral disinhibition theory. Neurobehavioral disinhibition theory suggests that a deficit in prefrontal cortex functioning during childhood and adolescence, particularly affecting executive cognitive functioning, may be predicative of later substance abuse and dependence (Tarter et al., 2003). Symptoms associated with prefrontal cortex dysfunction in individuals with neurobehavioral disinhibition include impulsivity, distractibility, negative emotionality, and externalizing behaviors; these are behaviors that are also often seen in attention deficit/hyperactivity disorder (ADHD) and conduct disorder, both of which are were found to be especially vulnerable to later substance use (Tarter et al., 2003). The risk of developing a substance use disorder is also further increased for adolescents with neurobehavioral disinhibition that have a family history of substance abuse and/or live in poor quality neighborhoods, especially if psychosocial problems are not addressed early (Kirisci, Vanyukov, & Tarter, 2005; Ridenour et al., 2013). Although neurobehavioral disinhibition refers to specific, abnormal deficits in cognitive functioning that can predispose individuals to substance use and conduct problems, similar deficits can also be observed in adolescents in general, although to a lesser extent. Overall, adolescents have a high risk for substance use and addiction due to the various cognitive changes during adolescence; for instance, changes

in the brains' motivation circuitry promote sensation-seeking, while the only partially developed prefrontal cortex is unable to fully inhibit impulses, solve complex problems, or engage in sustained logical thinking during adolescence. In addition, adolescents also undergo significant changes in nearly all their neurotransmitter systems, including the dopamine-related systems, which play an important role in the brain's reward system, especially regarding substance use (Chambers, Taylor, & Potenza, 2003; Schepis, Adinoff, & Rao, 2008). Some of the cognitive and neurological changes that occur during adolescence can increase adolescents' impulsivity, sensation-seeking, and irrational decision-making, while some of the social changes happening during adolescence (such as more time spent with peers) can provide more opportunities for exposure to substance use and problem behaviors. Naturally, the combined effects of these developmental, neurological, and social changes can make adolescents more vulnerable to peer pressure, as well as substance use and problem behavior (Schepis, Adinoff, & Rao, 2008).

Attachment Theory. Attachment theory, initially developed by John Bowlby (Bowlby, 1969, 1973, 1988) and expanded by Mary Ainsworth (Ainsworth & Bell, 1970; Ainsworth, Blehar, Waters, & Wall, 1978; Ainsworth & Wittig, 1969), centers on the idea that infants instinctually attempt to form a strong attachment to their primary caregiver, usually their mother, as an evolutionary function that ensures safety and survival for the child. According to Bowlby, the emotional bond formed between children and their caregivers during the first six months to two years of their life guides children's social, emotional, and psychological development throughout childhood and beyond. Children's early interactions with their caregivers, particularly the caregiver's responsiveness to the child's needs, determine not only the strength and type of

attachment they develop with their caregiver, but are also thought to shape children's beliefs, assumptions, and expectations (i.e., "inner working models") about social relationships, even into adulthood (Bowlby, 1980; Brown & Wright, 2001); if the caregiver consistently responds in a positive, comforting manner to their child's distress, the child likely learns to seek out support as a means of regulating emotional distress. Conversely, if the caregiver does not respond to the child's emotional distress, only does so inconsistently, or responds in a negative way, the child may learn to associate distress with unpleasant consequences, such as confusion, fear, and helplessness, may develop unhealthy coping strategies, and may avoid asking for help or seeking support from others when distressed (Brown & Wright, 2001). When considering attachment theory in the context of adolescent problem behavior, the emotional bond between children and their parents may play a crucial role in equipping adolescents with appropriate emotional responses to stressors, healthy coping skills, and the inclination to seek support from others when needed. Furthermore, a strong bond between parents and adolescents may also promote greater trust, honesty, and openness; this may, in turn, allow for greater parental monitoring due to effective communication, increase parents' influence on the development of their children's values, attitudes, and behaviors, encourage healthy peer relationships, and generally act as a protective factor against substance abuse and problem behavior during adolescence.

Social Learning Theory. Bandura's social learning theory posits that learning occurs through the observation and modeling of both behaviors and consequences of behaviors experienced within one's social environment (Bandura, 1969, 1977). Behaviors that individuals are exposed to frequently are more likely to be observed and imitated;

thus, once adolescents begin spending more time with peers (and less with parents), they are more likely to imitate the behaviors observed within their peer group. Behaviors that are observed and imitated are also more likely to continue if they are reinforced through positive outcomes (Bandura, 1971, 1977; Bandura & Walters, 1963). Both substance use and other problem behavior can be reinforced through immediate, positive outcomes, despite their long-term negative consequences; for example, the "high" experienced when using a substance can be perceived as a positive outcome of substance use, while the "thrill" of engaging in criminal behavior may reinforce deviant behavior. Furthermore, any positive reactions from peers, including praise, may also be perceived as a positive outcome by adolescents and can further reinforce the behavior.

Differential Association Theory. Sutherland's theory of differential association explains individual criminal behavior as a learned process based on communication within an intimate group (Sutherland, 1947). This learning process includes the acquisition of specific skills and knowledge necessary for committing crimes, which can range from simple shoplifting and pickpocketing techniques to skills required for stealing cars, breaking into houses, and even complex knowledge involved in crimes such as computer fraud and identity theft. Additionally, it includes the learning of definitions favorable and unfavorable to crime, such as motives, rationales, and expressions that justify or condemn crime. Expanding on differential association theory by integrating social learning principles, Akers (1996) proposed that criminal behavior is initially learned through modeling or direct imitation, and continues or ceases based on differential reinforcement, or the rewards or punishments following the behavior (both directly experienced and observed) (Matsueda, 2010). Thus, in the case of adolescent

substance use and problem behavior, adolescents may be exposed to definitions favorable to such behaviors, as well as to the skills needed to engage in them, by associating with deviant peers. Learning and imitation of such behaviors may then be reinforced by witnessing their peers' behaviors result in either positive consequences or the absence of negative consequences, especially over time; for example, adolescents may get involved with a group of peers that holds definitions favorable to substance use (e.g., "most people use drugs", "drugs are fun", "people who complain about drugs are boring and losers", etc.) and deviant behavior (e.g., "rules are meant to be broken", "it's acceptable to do something bad if you have a good reason to", "nobody cares about what you do as long as you don't seriously hurt anyone", etc.). In addition to constantly being exposed to these definitions, adolescents may also witness their friends engage in substance use and problem behaviors, as well as all the steps involved these activities; for instance, adolescents may watch their peers contact an individual known for selling illegal substances, meet that person in a certain place and exchange money for the desired substance, inspect and evaluate the quality or authenticity of the substance, gather any necessary paraphernalia and prepare the substance for consumption, and, finally, consume and experience the effects of the substance. Not only does observing their peers in this process provide adolescents with the knowledge and skills necessary to obtain and consume this substance themselves, any positive outcomes (e.g., pleasant feelings) following their peers' drug use, or the lack of negative outcomes (e.g., adverse reactions, trouble with parents or the law), may also increase their agreement with their peer groups' favorable definitions regarding substance use, and encourage them to imitate their peers' substance themselves. Any ensuing substance use may then be continuously

reinforced by positive outcomes (e.g., pleasant feelings, perceived stronger connection with peers, etc.) or the lack of negative outcomes (e.g., adverse reactions, trouble with parents or the law) experienced by the adolescents' themselves.

Social Development Model. Catalano and Hawkins' (1996) social development model is a developmental theory of antisocial behavior that emphasizes the roles and interactions of established risk and protective factors that appear to predict the likelihood of an individual becoming involved in antisocial behavior, including biological, psychological, and social factors across multiple domains. It draws on social control theory (Hirschi, 1969) to establish factors involved in the creation of both antisocial and conforming behavior, social learning theory (Bandura, 1977) to identify processes involved in the maintenance and extinction of behavior, and differential association theory (Sutherland & Cressey, 1970) to determine the specific causal paths for prosocial and antisocial behavior. According to the social development model, both prosocial and antisocial patterns of behavior are learned through socializing agents, such as family, school, religious and community institutions, as well as peers. Regardless of path, the socialization process creates a social bond between an individual and the socialization agent and involves the constructs of (a) perceived opportunities for pro- or antisocial behavior, (b) involvement with pro- or antisocial groups, (c) skills to successfully participate in these involvements, and (d) perceived rewards for interactions with pro- or antisocial groups. Each path is influenced by both individual characteristics (e.g., behavioral disinhibition or internalizing behavior) and one's position in the greater social structure (e.g., race, gender, socioeconomic status). The social developmental model further takes into account developmental differences in physical, cognitive, behavioral,

emotional, and social functioning across age groups, as well as the changing social contexts that accompany the transition from childhood to adolescence and beyond; it designates four submodels for specific periods in childhood and adolescence marked by significant changes in socializing contexts (i.e., the transition from the family to the preschool environment, from preschool to elementary school, etc.).

Parent-Adolescent Relationship Quality and Adolescent Problem Behavior

Parental monitoring appears to be closely related to a strong relationship between parents and adolescents, as well as reduced problem behavior, however, there appear to be directional effects in that problem behavior in turn may negatively affect the parent-adolescent relationship (Laird, Pettit, Dodge, & Bates, 2003). Parental monitoring generally refers to parents' knowledge about their children's whereabouts, activities, and social connections; it includes direct parental supervision through a parent's physical presence and observation of children's activities, as well as indirect parental supervision of activities occurring in the absence of parents' physical presence, which may be achieved through regular phone calls to children, conversations with other parents, teachers, or knowledgeable adults in children's lives, and through direct communication with children (Warr, 2005; Warr, 2007). Many studies (Cernkovich & Giordano, 1987; Laird et al., 2003; Otto & Atkinson, 1997; Stattin & Kerr, 2000) suggest that indirect supervision based on a strong, positive parent-child relationship, trust, and open communication, is a far superior method of parental monitoring than direct supervision based on active surveillance of children's activities. Positive parent-child relationships may not only increase parental monitoring due to parents and children spending more time together, children being more receptive to parents' concerns, and children's

voluntary disclosure of information to parents (Laird et al., 2003); a strong emotional bond with parents may also discourage delinquency, substance use, and affiliation with delinquent or substance abusing peers to avoid possibly jeopardizing the positive relationship with parents (Stattin & Kerr, 2000). Generally, parental monitoring, psychological control, and various aspects of parental support appear to be most strongly associated with differences in delinquency when analyzing the literature on parenting and delinquency in adolescents (Hoeve, et al., 2009).

Studies on the effectiveness of parent-adolescent communication in the prevention of substance use, both substance-use specific and general communication (i.e., conversations about various topics and events not related to any problem behavior), have yielded mixed results in the past (Doumas, Hausheer, & Esp, 2015); general communication between parents and teenagers on a regular basis appeared to be associated with lower rates of substance use in boys, but not in girls (Guilamo-Ramos, Turrisi, Jaccard, Wood, & Gonzalez, 2004; Luk, Farhat, Iannotti, & Simons-Morton, 2010). Parent-child attachment (Crawford & Novak, 2008), parental control, and emotional support (Choquet, Hassler, Morin, Falissard, & Chau, 2008), however, seemed to play a greater role in the prevention of girls' substance use than that of boys; building on these conclusions, gender-specific interventions focused on improving the relationship between mothers and their adolescents daughters were found to be effective in preventing adolescent girls' alcohol use, as well as other drug use (Schinke, Cole, & Fang, 2009; Schinke, Fang, & Cole, 2009). It appears that the extent to which the quality of the parent-adolescent relationship offers protection from substance use may, at least in part, depend on the adolescent's gender.

Parent-Adolescent Relationship Quality and Resistance to Peer Pressure

A study on parenting and adolescent aggression, often part of deviant behavior, found that parental involvement reduced the influence of school norms of aggression for adolescent girls, however, it did not appear to reduce the effects of delinquent peer associations for girls or boys; thus, according to this study, parents may be able to at least influence the extent to which their daughters are influenced by school norms surrounding aggression (Farrell, Henry, Mays, & Schoeny, 2011). It is important to note that some adolescents appear to be less susceptible to peer influence, namely those who report greater emotional bonding and closeness within their family, and who believe that their parents care about them, even when they are away at school (Rankin Williams & Anthony, 2015). According to Curtner-Smith & MacKinnon-Lewis (1994), parental factors often associated with weaker family bonds, specifically lower parental monitoring and greater negative discipline from fathers, as well as authoritarian parenting from mothers, appeared to make boys more susceptible to deviant peer pressure.

Peer Influence and Adolescent Problem Behavior

A large body of literature has consistently found an association between peer pressure and associating with troublesome peers and involvement in problem behaviors, including substance use (Barrett & Turner, 2005; Farrell & White, 1998; Mason & Spoth, 2012; Rankin Williams & Anthony, 2015) and delinquency (Rappaport & Thomas, 2004; Santor et al., 2000). Interviews with offenders (Cullingford & Morrison, 1997) suggest that for many of them, a combination of events that led them away from acceptable social norms also increased their reliance on alternative networks and supports, often delinquent peer groups. In addition, many of these offenders, due to being alienated from other,

healthy supports, seem to find it especially difficult to resist pressure from peers. Consistent with key elements of social learning theory (Bandura, 1969; Bandura, 1977), individuals who affiliate with peers who model substance use and deviant behavior are likely to imitate the behaviors they observe in their peer group, and the more positive reinforcement they receive for their engagement in these behaviors within their peer group, the greater the likelihood that they will continue the behaviors (Agnew, 1991; Borsari & Carey, 2001; Brechwald & Prinstein, 2011; Dishion et al., 1996; Granic & Dishion, 2003; Swadi & Zeitlin, 1988).

Brechwald and Prinstein (2011) offered a thorough review of advances in research surrounding the processes involved in peer influence and identified three main peer influence mechanisms aimed to explain why adolescents conform to their peers. One such mechanism involved in adolescents' conformity to their peers' behavior is reinforcement from peers; according to research on "deviancy training" (i.e., an interactional process that seems to foster deviant behavior and beliefs) (Dishion et al., 1996; Granic & Dishion, 2003), adolescents who repeatedly receive reinforcement from peers for voicing antisocial attitudes or talking about deviant acts may be at a higher risk for engaging in problematic behaviors. An increased risk for substance abuse and other health-risk behaviors, deviant behavior, and violence was found to be strongly related to the process of peer reinforcement in adolescent males at risk for antisocial outcomes (Dishion et al., 1996). Peer reinforcement of deviant behavior or beliefs was found to include smiling or laughing, but other positive affective behaviors that tend to convey approval may yield similar results. Another mechanism underlying peer conformity relates to adolescents' desire to fit in with a certain social group and subsequently

matching their own behaviors to fit the norms of this group. According to some research (Cillessen & Rose, 2005; Mayeux, Sandstrom, & Cillessen, 2008; Parkhurst & Hopmeyer, 1998), adolescents may be especially prone to modify their behaviors to conform to the norms of high status peers, however, this does not seem to be true for all; some adolescents, particularly those who experienced rejection from peers in the past and/or have a history of aggressive behavior, may actively reject norms associated with popular, high-status individuals or the overall peer context and instead be more likely to affiliate with deviant peers and embrace social norms that are more relevant to their own specific experiences and identity development (Dishion, Burraston, & Poulin, 2001; Monahan, Steinberg & Cauffman, 2009). The third peer influence mechanism described by Brechwald and Prinstein (2011) refers to the above-mentioned tendency of adolescents to engage in behaviors associated with high-status peers. Peer status is commonly based on reputation and considered an indicator of an individual's dominance and ranking in the social hierarchy, as well as the ability to compete for resources; many of the behaviors frequently linked to peer influence, such as deviant and health-risk behaviors, are associated with high status and popularity among peers (Mayeux et al., 2008). Deviant behavior norms and attitudes upheld by high-status peers can influence and increase the likelihood of other adolescents engaging in such behaviors or endorsing such attitudes (Cohen & Prinstein, 2006). For instance, Juvonen and Ho (2008) found that adolescents who associated aggression towards peers with high social status exhibited greater antisocial behavior over time, and the participation in aggressive behavior was found to also increase in adolescents who associated with high-status, popular peers and

were subjected to these peers' behavioral norms (Prinstein & Cillessen, 2003; Rose, Swenson, & Waller, 2004).

Perceptions of Peer Conduct and Adolescent Problem Behavior

Adolescents may be persuaded into problem behavior directly by their friends who not only condone such activities but also establish them as normative behavior through repeated involvement in them (Brechwald & Prinstein, 2011; Neppl et al., 2016). However, the extent to which adolescents decide to engage in these activities along with their peers may not only be influenced by the norms established by their friends' direct modeling of drug use and bad behavior, it may also be shaped by adolescents' perceptions about their peers' involvement in it (Borsari & Carey, 2012; Prinstein & Wang, 2005; Simons-Morton & Kuntsche, 2012; Song et al., 2012). For example, adolescents may have friends who occasionally smoke marijuana or steal from stores in their presence; the inclusion of these adolescents in such activities by their friends, as well as the recurring nature of these activities, imply that these behaviors are common and acceptable, and establish them as normative behavior for this group. Once such behavior has been established as normative; however, adolescents may overestimate their friends' involvement in such activities, assuming they engage in substance use or crime more frequently and use larger quantities of a substance or commit more or worse crimes than they really do. This, then, may provide an inaccurate standard by which adolescents measure their own substance use and delinquent behavior in relation to their peers, possibly leading them to perceive the risk involved in such activities to be lower than it truly is, encouraging further experimentation with drugs or criminal activity, and/or preventing them from recognizing problematic patterns in their own behavior.

Encountering substance use and delinquency as an ordinary, harmless activities among their group of friends may not only shape adolescents' perceptions about normative behavior within their specific peer group, but some adolescents may also assume that their friends' problem behavior is indicative of the social norms of all adolescents in general; this notion then not only affirms that such problem behavior is "normal", but may even add more pressure to "fit in" for adolescents that were hesitant to try substances or engage in delinquent acts before. The phenomenon of erroneously perceiving certain behaviors as socially normative is referred to as *pluralistic ignorance* (Katz, Allport, Jenness & Maxwell Graduate School of Citizenship and Public Affairs, 1931), while the tendency to overestimate the prevalence of such behaviors among the general population (as well as within specific subgroups) is called the *majority fallacy*; in the case of substance use, the overestimation of their peers' alcohol consumption by both drinkers and nondrinkers was found to support the concept of the majority fallacy (Henry, Kobus, & Schoeny, 2011; Segrist, Corcoran, Jordan-Fleming, & Rose, 2007). It should be noted that individuals' own behaviors may also affect their perceptions of their peers' behaviors; the *false consensus effect* (Ross, Greene, & House, 1977), also termed *normative fallacy*, refers to the concept of individuals perceiving others to have the same beliefs, opinions, values, and habits as they do even though they may not. Thus, as far as peer norms regarding substance use or delinquent acts are concerned, adolescents may generalize their perceived norms to apply to all (or most) adolescents their age (majority fallacy), or they may base their assumptions about their peers' substance use or delinquency on their own use and conduct (normative fallacy). Henry et al. (2011) found that adolescents' reports (and therefore perceptions) about their friends' substance use

were strongly influenced by their own use or nonuse; those using substances assumed that their friends were also using substances, while those not using substances believed that their friends also did not use substances. Thus, for adolescents already using substances, their use may be maintained through their belief that their peers' substance use is equal to theirs in frequency, quantity, and scope; the same likely is true for other problem behaviors, including delinquency.

Adolescents' involvement in problem behavior (including substance use and delinquency) is likely influenced by their perceptions of the prevalence, extent, and acceptance of problem behavior among their peers, regardless of whether these perceptions are, in fact, accurate (Borsari & Carey, 2012; Simons-Morton & Farhat, 2010; Simons-Morton & Kuntsche, 2012). In the absence of factual knowledge or evidence, individuals rely on estimates based on information available to them to make sense of complex situations, weigh decisions, and choose appropriate courses of action; perceived social norms, accurately or not, tend to both inform individuals' estimates of situations and guide their responses to them. Naturally, estimates are often biased and depend greatly on individuals' primary social environments, such as their peer group. Thus, perceived peer norms regarding substance use and delinquency, even if inaccurate, can still influence an individual's personal decisions about whether to engage in such activities and to what extent (Prinstein & Wang, 2005).

Contributing Factors

Age. Age plays a central role in the transition from childhood to adulthood; there are vast differences in the physiological, cognitive, social, and overall development of individuals between early and late adolescence, all of which play a role in adolescents'

relationships with parents and peers, perceptions of peers and peer behavior, susceptibility to peer pressure, as well as risk for problem behavior.

Relationships with parents and peers change dramatically during adolescence; time spent with parents was found to drop significantly between middle and late adolescence, while time spent with peers increased (Larson & Richards, 1991); reliance on parents for intimacy and emotional support was found to diminish as well, while dependence on peers grew (Moretti & Peled, 2004). Thus, it appears that parent-adolescent relationships may become weaker over time while bonds with peers grow more powerful; additionally, adolescents may develop a stronger adherence to peer norms, and may also be exposed to more opportunities for peer pressure. Fortunately, adolescents' susceptibility to peer pressure may decline over time, making them less vulnerable to negative influences; nevertheless, adolescents were found to be most susceptible to peer pressure between the ages of 10 and 14, after which their susceptibility steadily declined (Steinberg & Monahan, 2007). Further, adolescents' involvement with deviant peers, which was directly related to their own engagement in delinquent activities, was found to differ throughout adolescence; while adolescents were more likely to seek out (deviant) peers based on their own problematic behaviors in middle adolescence, the influence of deviant peers was found to be responsible for socializing adolescents for involvement in problem behavior in late adolescence (Monahan et al., 2009). Clearly, age may have an important impact on adolescents' relationships with their parents, as well as their susceptibility to peer pressure, and ultimately their likelihood of engaging in problem behavior. In addition, age likely influences adolescents' perceptions of their peers' behavior due to advances in their

cognitive development and ability to critically evaluate information throughout adolescence.

Gender. Research suggests that adolescent boys may be more vulnerable to peer pressure, less risk-averse, and thus more prone to problem behavior (Hoorn, Crone & Leijenhorst, 2017; Steinberg & Monahan, 2007; Sumter, Bokhorst, Steinberg, & Westenberg, 2009); in fact, substance use and delinquency were found to be correlated in boys in one study (Mason & Windle, 2002). Girls were found to be more likely to abstain from early substance use than boys but had a similar probability of later engaging in soft drug use as males (Dean, Cole, & Bauer, 2015), and were also found to be more resistant to peer influence than boys in several studies (Dekkers et al., 2017; Sumter et al.). Further, some research proposes that boys may be more vulnerable to be influenced by their parents' behavior; parental problem behavior was associated with an increased likelihood to associate with deviant friends in boys but not girls (Kretschmer et al., 2016).

Parenting practices also appear to have a different impact on problem behavior, such as substance use, in boys and girls; for example, parental monitoring was found to more strongly guard against heavy episodic drinking and alcohol-related consequences in girls, while parental disapproval of teenage alcohol use offered stronger protection against heavy episodic drinking in boys (Doumas et al., 2015). In regard to deviant behavior, parental monitoring was found to increase such behavior in boys but decrease it in girls (Slattery & Meyers, 2014). These discrepancies may be due to differences in independence granted by parents, differences in the propensity for deviant behavior, or differences in the way parental monitoring is perceived (i.e., indicative of being caring vs. being controlling).

Race and ethnicity. Rates and types of substance use among adolescents vary by race but Whites seem to consistently report higher rates of substance use than African American adolescents, as well as those from other racial and ethnic backgrounds, possibly due to earlier substance use initiation and greater income available to fund substance use (D'Amico et al., 2016; Rote & Taylor, 2014; Rowan, 2016). According to Khan, Cleland, Scheidell, & Berger (2014), Whites and Hispanics were found to be more likely than African Americans to have used alcohol in the previous year, with 52% of Whites and 50% of Hispanics reporting alcohol use vs. 35% of African Americans. Whites and Hispanics were also found to drink more frequently; with 20% of Whites and 18% of Hispanics drinking two to three times a month vs. 12% of African Americans. Furthermore, Whites and Hispanics were also more likely to drink a greater number of drinks per occasion, to get drunk, to experience physiological consequences, and to regret an action taken due to drinking. Finally, adolescent alcohol use was also found to be correlated with marijuana use both during adolescence and in adulthood across races/ethnicities (Khan et al., 2014), as well as greater involvement in delinquent behavior (D'Amico et al., 2016)

Parent-adolescent relationships and peer pressure appear to be important factors involved in substance use and problem behavior for adolescents across racial/ethnic categories. American Indian adolescents experience disproportionately high rates of substance use compared to other racial/ethnic groups; however, strong relationships with parents and prosocial peers were found to be associated with non-use (Sittner, 2016; Whitesell et al., 2014). Although the exact mechanisms are unclear, African American adolescents were found to be more resistant to peer pressure compared to White,

Hispanic, and Asian American adolescents (Steinberg & Monahan, 2007); nevertheless, susceptibility to peer pressure, substance use, and problem behavior in African American adolescents was also found to increase for those exposed to harsh or inconsistent parenting and who experience a lot of distress within their family (Murry, Simons, Simons, & Gibbons, 2013). In addition, greater negative influences from siblings were found to be more strongly associated with substance use in African American adolescents when compared to Caucasian adolescents (Rowan, 2016).

Cultural values found among certain racial/ethnic groups may serve as both risk and protective factors; for example, Asian-American adolescents were found to have a low resistance to peer pressure, which may be due to the tradition of honoring group values above personal preferences found among most Asian cultures (Steinberg & Monahan, 2007). Another study (Telzer, Gonzales, & Fuligni, 2014) found that certain cultural values may also offer protection from peer pressure and involvement in substance use in Mexican adolescents; those who reported greater family obligation values were found to be less likely to use cigarettes, alcohol, marijuana, and other illicit substances, likely due to family obligation values being associated with greater perceived parental support, greater disclosure of activities and concerns, and a lesser inclination of associating with deviant peers.

Family structure. Findings on the impact of family structure on peer pressure, substance use, and deviant behavior in adolescents vary. According to Curtner-Smith & MacKinnon-Lewis (1994), family structure (two-parent households vs. step-parent households) was not associated with greater susceptibility to peer influence, at least for boys; however, Farrell and White (1998) found a significantly stronger relationship

between peer pressure and drug use among adolescents living in homes without fathers or stepfathers when compared to adolescents living in homes with fathers or stepfathers. For those living in homes without fathers or stepfathers, mother-adolescent distress increased the strength of the relationship between peer pressure and substance use even further. Barrett & Turner (2006) also found a heightened risk for substance use among adolescents living in single-parent households, which they suggested may be explained by greater exposure to stress, as well as a lack of the protective presence of another relative to keep them from associating with deviant peers. Daire, Turk, Johnson, & Dominguez (2013) found an association between earlier onset of alcohol use and higher levels of care in adolescents living with single or remarried mothers; the authors hypothesized that the greater parental permissiveness experienced by these adolescents may be responsible for the earlier onset of drinking. Family structure was also found to be associated with an increased risk for other deviant behaviors; adolescents from single-parent homes reported significantly more instances of skipping school, fighting, and having been picked up or arrested before (Oman, Vesely, & Aspy, 2005).

Chapter Summary

Adolescents' relationships with their parents, their resistance to peer influence, as well as their perceptions of their peers' conduct all seem to be implicated in adolescent problem behavior. Relational factors associated with a strong, positive relationship between adolescents and their parents may protect adolescents from getting involved in drug use, delinquency, and other troublesome activities, while a weak or negative relationship with parents might make them more vulnerable to such endeavors. While a positive parent-adolescent relationship quality is likely associated with a lower likelihood

of involvement in problem behavior, this association may be influenced by adolescents' resistance to peer influence, as well as on their perceptions of their peers' conduct. A low resistance to peer influence, likely found among adolescents who strongly value their peers' opinions, desire approval from their peers, and find it difficult to resist their peers' ideas and suggestions, may lead such adolescents to be easily persuaded into engaging in problem behavior by their peers. The level of susceptibility to peer influence may also diminish the influence of parents and thereby weaken the protective effects of a positive parent-adolescent relationship on problem behavior. Adolescents' perceptions of their friends' or peers' behavior, including assumptions and estimations about their involvement in risky activities, may shape adolescents' ideas regarding socially acceptable and common behavior; thus, adolescents' perceptions of the frequency and extent of their peers' involvement in delinquent behavior may influence their own likelihood of engaging in such activities, as well as potentially reduce any protective effects that a positive parent-adolescent relationship may have on problem behavior.

Clearly, parent-adolescent relationship quality, susceptibility to peer pressure, and perceptions of peer behavior may play significant roles in adolescent problem behavior, which may be further affected by various individual factors, including age, gender, race/ethnicity, and family structure. Accordingly, I hypothesized that the parent-adolescent relationship quality will predict adolescents' involvement in delinquent behavior. The quality of the relationship between parents and their children plays a critical role in the healthy psychosocial development of adolescents, including their transition from relying primarily on parents for emotional support and moral guidance to becoming more self-reliant in their thinking and decision-making. As adolescents begin

to develop their own identity and strive for greater autonomy, their parents' influence overall decreases, while their reliance on friends and peers for comfort, advice, and direction steadily increases. The extent to which the transition from childhood to adulthood diminishes the influence of parents in adolescents' lives (and strengthens that of friends and peers) varies, as do the types of associations that adolescents form during this phase. Nevertheless, parenting style, communication, and especially the relationship between parents and their children, appear to influence the strength of the bond between parents and their children throughout the tumultuous time of adolescence; it also seems to strongly impact adolescents' compliance with rules and expectations, their vulnerability to peer pressure, their association with delinquent or otherwise problematic peers, as well as the likelihood of them engaging in substance use or problem behavior. Due to strong, positive bonds between parents and adolescents being considered significant protection against negative outcomes, I hypothesized that a positive parent-adolescent relationship will be associated with less delinquent behavior, while a negative parent-adolescent relationship will be associated with more delinquent behavior.

Resulting from the shift in influence from parents to peers, adolescents tend to increasingly look for acceptance, approval, and support from peers, which also makes them more vulnerable to negative influences from friends or peers. Thus, I hypothesized that resistance to peer influence will predict delinquent behavior; specifically, a low resistance to peer influence will be associated with more delinquent behavior, while a high resistance to peer influence will be associated with less delinquent behavior. I further hypothesized that resistance to peer influence will moderate the relationship between parent-adolescent relationship quality and problem behavior.

As adolescents begin to establish their own identity, they may question, reevaluate, and/or abandon values, rules, and expectations they learned within their family, and shift their focus toward norms and standards observed within their immediate peer group instead. Depending on their social environment, adolescents may encounter and adopt peer group norms that normalize or even encourage substance use and other problem behaviors, which then increases their risk of engaging in such behaviors. Consequently, I hypothesized that perceptions of peer conduct predict adolescent problem behavior; specifically, adolescents who perceive their peers to engage in more delinquent behavior will have more delinquent behavior themselves. I further hypothesized that perceptions of peer conduct will moderate the relationship between parent-adolescent relationship quality and problem behavior.

To summarize, this study aimed to analyze the roles of the parent-adolescent relationship quality, resistance to peer influence, and perceptions of peer conduct in adolescent problem behavior. I hypothesized that each one of the variables is associated with adolescent delinquent behavior in the following manner: a negative/low parent-adolescent relationship quality is associated with more delinquent behavior; a lower resistance to peer influence is associated with more delinquent problem behavior; and perceptions of peers engaging in more delinquent behavior are associated with more delinquent behavior. In addition, I suggested that both resistance to peer pressure and perceptions of peer conduct have moderating effects on the relationship between parent-adolescent relationship quality and problem behavior.

Hypotheses

Based on the literature and conceptual framework reviewed above, this study proposed the following hypotheses:

1. Parent-adolescent relationship quality will predict problem behavior. Specifically, adolescents who score higher on parent-adolescent relationship quality will have lower delinquency.
2. Adolescents who have lower resistance to peer pressure will have higher delinquency.
3. Adolescents who perceive their peers to engage in more delinquent behavior will have higher delinquency.
4. Resistance to peer pressure will moderate the relationship between parent-adolescent relationship quality and delinquent behavior.
5. Perceptions of peer conduct will moderate the relationship between parent-adolescent relationship quality and delinquent behavior.

Chapter Two: Methodology

The current study used a quantitative research design and survey methodology to explain the association between the variables of interest (parent-adolescent relationship quality, susceptibility to peer pressure, perceptions of peer conduct, and problem behavior). This chapter outlines the methods that were employed in this study.

Participants

Participants in this study consisted of 29 adolescents between the ages of 12 and 18 years old ($M = 15.97$, $SD = 1.40$) recruited through a school-based substance use intervention program in the greater Seattle area known as Project READY (Reducing the Effects of Alcohol and Drugs on Youth). Project READY utilizes principles of Motivational Interviewing (MI) to help adolescents reduce their use of drugs and/or alcohol. Adolescents participating in Project READY are referred by parents, teachers, friends, and school administrators. They can also refer themselves and participation is voluntary. Participants were included if they were over the age of 13. Participants were excluded if they did not use drugs. Gender demographics indicated 83% were male and 17% of the sample were female. Ethnic demographics indicated that 66% of participants self-identified as Caucasian or White, 17% Hispanic or Latino, 14% Biracial or Multiethnic, and 3% Asian/Pacific Islander. Self-report data indicated 41% of participants were raised in a nuclear family, 14% in a blended family, 35% by a single mother, 7% by a single father, and 3% by adoptive or foster parents.

A power analysis was conducted using G-POWER Version 3.1.2 (Faul, Erdfelder, Buchner & Lang, 2008) to determine a sufficient sample size; using an alpha of 0.05, a power of 0.85, and a modest effect size ($f^2 = 0.15$; Faul et al., 2008) for one predictor in

set A and five predictors in set B, the desired sample size was determined to be 103. Unfortunately, the desired sample size was not obtained.

Demographics and descriptive statistics are presented in Table 1.

Table 1

Demographic and descriptive statistics

Variable	% or *M*(SD)
Gender	
Male	83%
Female	17%
Race/Ethnicity	
Caucasian/White	66%
Hispanic or Latino	17%
Asian/Pacific Islander	3%
Biracial/Multiethnic	14%
Age	15.97 (1.40)
Family Structure	
Nuclear family	41%
Blended family	14%
Single mother	35
Single father	7%
Foster/adoptive family	3%

Measures

Participant individual and family background. To gather demographic data, participants were asked to fill out a questionnaire that included questions about their age, grade level, gender, and racial/ethnic background. Participants were also asked to provide information about their family background, such as their parents' current relationship or marital status, their current living situation, and the amount and frequency by which they see each one of their parents. These questions were intended to provide insight into the family structure of participants and into possible limitations to parental monitoring, as well as into opportunities for establishing relationships with parents. Both the demographic section and the family background section asked participants to choose the most fitting option from a list of items provided and also allowed them to provide their own answer if none of the provided options apply.

Participants were asked to provide information about their family structure by choosing whichever option most closely resembles their parents' current relationships from a list of descriptions provided (e.g., "married to each other or in a committed relationship with each other"). Responses were coded according to common types of family structures, including (a) nuclear family, (b) blended family, (c) single mother, (d) single father, (e) no parents, (f) foster/adoptive family, and (g) extended family/relatives. Participants' family dynamics were further be assessed by asking them to indicate which among several descriptions provided best describes their current living situation (e.g., "I live with both of my parents"). Participants were also asked to indicate the frequency by which they see or spend time with their mother, followed by the frequency by which they see or spend time with their father; possible responses included "every day", "a few times

a week", "a few times a month", "a few times a year", "never", and "other" (requiring participants to add their own answer). Responses about participants' living situations were coded as the options presented in the questionnaire. Please refer to Appendix A for the full questionnaire.

Perceived parent-adolescent relationship quality. The perceived quality of the relationship between parents and adolescents was assessed using the PARS (Hair et al., 2005). The PARS is a validated, 8-item measure that examines the quality of the parent-child relationship from the perspective of the child. Questions on the PARS were taken directly from the National Longitudinal Survey of Youth, 1997 Cohort (NLSY97), and measure to identification with the parent (e.g., "She is a person I want to be like") and perceived supportiveness of the parent ("How often does she praise you for doing well?"). The NLSY97 survey is sponsored and directed by the U.S. Bureau of Labor Statistics, and conducted by the National Opinion Research Center at the University of Chicago with assistance from the Center for Human Resource Research at The Ohio State University. An evaluation of two versions (a four-item version and an eight-item version) of this questionnaire found it to be a reliable measure of parent-adolescent relationship quality in general, as well as across demographic characteristics. Versions of the relationship with mother scale were found to have an acceptable level of internal consistency with a Cronbach's alpha ranging from 0.72 to 0.74, and internal consistency was high for the relationship with father scale, with a Cronbach's alpha of .82 (Hair et al., 2003). Participants were asked to fill out the PARS twice, once for each parent, as some participants may perceive their relationship with one parent to be more positive than the other. The resulting scores of both questionnaires were summed and used to measure

overall parent-adolescent relationship quality, with higher scores reflecting a better parent-adolescent relationship quality than lower ones. The full questionnaire can be found in Appendix B.

Resistance to peer influence. Resistance to peer influence was assessed using the Resistance to Peer Influence Scale (Steinberg & Monahan, 2007), a ten-item measure that contains two opposing statements for each item to assess individuals' susceptibility to peer influence across different domains. Examples of opposing statements include: "Some people think it's more important to be an individual than to fit in with the crowd BUT other people think it is more important to fit in with the crowd than to stand out as an individual" and "some people will not break the law just because their friends say that they would BUT other people would break the law if their friends said that they would break it". For each item, participants are asked to choose which one of the two opposing statements applies to them more, and to what degree ("really true" or "sort of true."). Item responses correspond to scores between one and four, with low scores indicating more susceptibility to peer influence, and high scores indicating less susceptibility to peer influence. Inter-questions reliability (Cronbach's α) of the Resistance to Peer Influence Scale has been evaluated and found adequate in studies with large samples of the following four populations: (a) predominantly impoverished and ethnic minority sample of 1,350 serious juvenile offenders (ages 14–18 years) in two U.S. cities ($\alpha = 0.73$), (b) a sample of ~700 individuals (ages 11–24 years) in juvenile detention or jail in four U.S. cities ($\alpha = 0.76$), (c) a predominantly poor and working-class sample of 700 individuals in the community in four U.S. cities living in the same neighborhoods as participants in sample 2) ($\alpha = 0.70$), and (d) a multiethnic working and middle class community sample

of 935 individuals (ages 10–30 years), from five U.S. regions ($\alpha = 0.74$; Steinberg & Monahan, 2007). The Resistance to Peer Influence Scale can be found in Appendix C.

Adolescent problem behavior. Problem behavior was evaluated using the Delinquency Index – Youth Report. The Delinquency Index -Youth Report is a 10-item self-report instrument used in the NLSY97 (Child Trends, Inc., 1999). Questions include, for example, "Have you ever run away, that is, left home and stayed away at least overnight without your parent's prior knowledge or permission?", "Have you ever attacked someone with the idea of seriously hurting them or have a situation end up in a serious fight or assault of some kind?", and "Have you ever sold or helped sell marijuana (pot, grass), hashish (hash) or other hard drugs such as heroin, cocaine or LSD?". According to Child Trends, Inc. (1999), no reliability tests were conducted because an index was used, not a scale, and "it is not assumed that the frequency of delinquent acts should be correlated with the frequency of another delinquent act" (p. 150). As drug use was assumed given that participants were recruited from a substance use intervention program, this author did not specifically include the extent of substance use in the problem behavior variable. For the full Delinquency Index – Youth Report questionnaire, please refer to Appendix D.

Perceptions of peer behavior. Perceptions of peer behavior were assessed using a modified version of the Delinquency Index – Youth Report (Child Trends, Inc., 1999), named here Delinquency Index – Peer Report, which included the same questions regarding illegal and defiant behavior in peers (i.e., "Have any of your friends ever run away, that is, left home and stayed away at least overnight without their parent's prior knowledge or permission?", "Have any of your friends ever attacked someone with the

idea of seriously hurting them or have a situation end up in a serious fight or assault of some kind?", and "Have any of your friends ever sold or helped sell marijuana (pot, grass), hashish (hash) or other hard drugs such as heroin, cocaine or LSD?"). As this questionnaire was based on the Delinquency Index – Youth Report (Child Trends, Inc., 1999), no reliability tests were conducted because the instrument is considered an index and not a scale, and there should be no correlations between the frequencies of delinquent acts. The Delinquency Index – Peer Report questionnaire can be found in Appendix E.

Procedure

Institutional approval was obtained from Northwest University's IRB, as well as any ethical review boards of the schools from which participants were recruited, prior to the administration of any measures or the collection of any data. Students were recruited through a school-based drug and alcohol intervention known as Project READY (Reducing the Effects of Alcohol and Drugs in Youth). Those enrolled in Project READY who agreed to participate in research were presented with a consent form which explained the nature, scope, purpose, and process of the research that they were agreeing to participate in, as well as their rights as participants and any potential risks related to their participation; a second consent form was provided to their parents since most participants were students under the age of 18 (see Appendix F). Once both consent forms were signed and collected and any questions or concerns were adequately addressed, students participating in Project READY were presented with the questionnaires that included the measures discussed above by interventionists involved with Project READY. All instruments used in this study (i.e., Delinquency Index – Youth Report, Delinquency Index – Peer Report, Resistance to Peer Influence Scale, and Parent-

Adolescent Relationship Scale) were administered via paper and pencil format, and administration took approximately one hour, although participants also completed other questionnaires pertaining to Project READY during this time. Participants' responses on these questionnaires were anonymous and they were given confidential participant numbers. Once questionnaires were completed, responses were reviewed, coded, and analyzed. All students were offered free and confidential drug and alcohol treatment as the result of completing the surveys.

Analytic Strategy

Conditional process analysis. A moderation analysis known as *conditional process modeling* (Preacher et al., 2007) was used to determine whether the relationship between parent-adolescent relationship quality and adolescent problem behavior was moderated by susceptibility to peer influence and perceptions of peer behavior. *Conditional processing* (Hayes, 2012) provides information about the contingent nature of the predictor variable's (parent-adolescent relationship quality) effect on the outcome variable (adolescent problem behavior) through the moderators (susceptibility to peer influence and perceptions of peer behavior). The reason for choosing this analysis over hierarchal multiple regression is because it allows for greater precision and parsimony in model specification, which has been found to enhance statistical power and decrease the probability of committing Type I errors (Preacher & Hayes, 2008).

To examine whether the relationship between parent-adolescent relationship quality and problem behavior is moderated by resistance to peer influence and perceptions of peer conduct, moderation model 2 (Preacher, Rucker, & Hayes, 2007) was

chosen, which includes one predictor variable, one outcome variable, and two moderator variables. The model is presented in Figure 1.

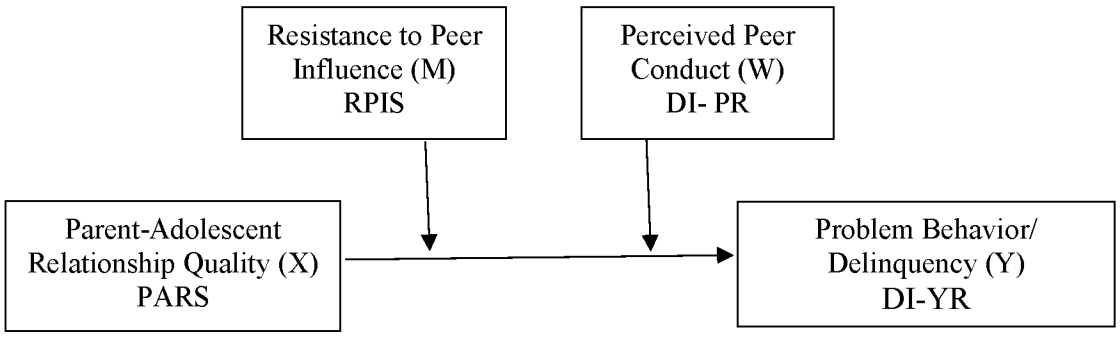


Figure 1. Moderation model 2 (Preacher, Rucker, & Hayes, 2007). Hypothesized model for the moderating effects of perceptions of peer conduct and resistance to peer influence on the relationship between parent-adolescent relationship quality and adolescent problem behavior/delinquency.

Chapter Three: Results

This chapter presents the data that was collected to examine the moderating effects of perceived peer behavior and resistance to peer influence on the relationship between parent-adolescent relationship and adolescent problem behavior; therefore, it also presents answers to the research questions initially posed in this study.

Descriptive Statistics

The descriptive statistics were calculated for average parent-adolescent relationship quality score, average problem behavior score, average resistance to peer influence score, and average perceived peer behavior score by gender. The average parent-adolescent relationship quality score for all participants (N= 29) was 39.45 (SD= 16.52), 41.25 for males (SD= 17.47), and 30.80 for females (SD=6.61). The average problem behavior/delinquency score was 3.35 (SD= 16.52) for all participants, 3.33 for males (SD= 2.69), and 3.4 (SD= 2.41) for females. A higher delinquency score indicates more delinquent behavior. For perceptions of peer conduct, the mean score for all participants was 5.28 (SD= 3.73), 6.8 for females (SD= 3.83), and 4.96 for males (SD= 3.71). Higher scores reflect greater perceived delinquency for peers. The average resistance to peer influence score was 2.98 for all participants (SD= 0.50), 2.95 for males (SD= 0.54), and 3.08 for females (SD= 0.36). A high resistance to peer influence score indicates greater resistance to peer influence.

In regard to delinquency, 48.3% of participants indicated that they have ran away or stayed away from home without their parents' permission before, 20.7% have carried a gun before, 10.3% have belonged to a gang, 44.8% have purposely destroyed property that was not their own, 75.9% have stolen something worth less than 50 dollars, 27.6%

have stolen something worth more than 50 dollars from a store, person or house, 17% have committed other property crimes, 24.1% have attacked or assaulted someone with the intent of seriously hurting them, 51.7% have helped sell drugs, and 7.4% have been arrested for something other than minor traffic offenses in the past. One hundred percent of participants reported having tried marijuana or marijuana products, 97% alcohol, 38% barbiturates, 31% hallucinogens, 21% amphetamines, 21% cocaine, 21% opiates, 14% inhalants, and 48% tried other substances (including nicotine products, other prescription drugs, and cough syrup) based on their responses on the CDDR.

Demographics and descriptive statistics for variables of interest are presented in Table 2.

Table 2

Demographic and descriptive statistics for variables of interest

Variable	Full Sample *M*(SD)	Male *M*(SD)	Female *M*(SD)
Parent-Adolescent Relationship Quality	39.49 (16.52)	41.25 (17.47)	30.80 (6.61)
Problem Behavior	3.35 (2.61)	3.33 (2.70)	3.4 (2.41)
Resistance to Peer Influence	2.98 (.50)	2.95 (.54)	3.08 (.36)
Perceived Peer Conduct	5.28 (3.73)	4.96 (3.71)	6.8 (3.83)

Moderation Analysis Procedures

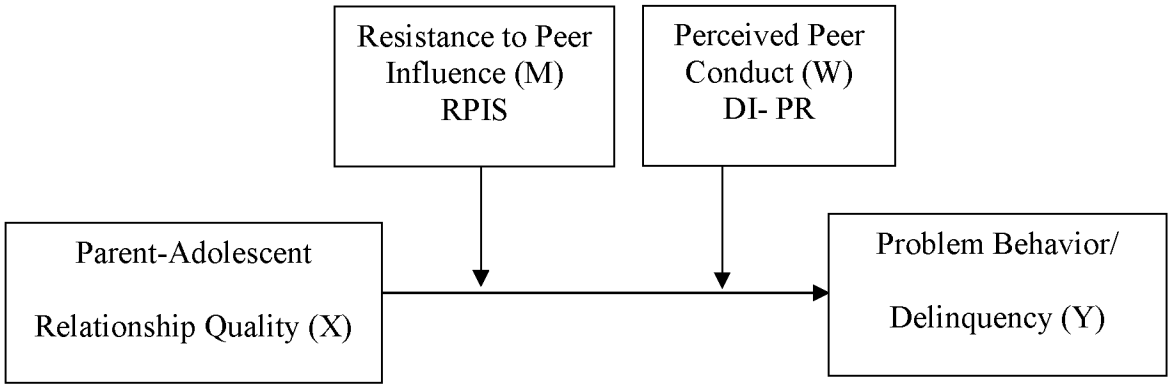
PROCESS. The data was analyzed using the Statistical Package for the Social Sciences (SPSS) macro PROCESS. PROCESS (Preacher & Hayes, 2008) is a computational tool for path-analysis based moderation, mediation, and conditional process analysis. It is accessible at no cost and easily implemented in SPSS. In addition to the common calculations related to regression analyses offered in SPSS and other programs, PROCESS allows for more complex computations, such as "the multiplication of regression coefficients when quantifying indirect effects, the derivation of simple slopes and standard errors in moderation analysis using the pick-a-points approach, the derivation of regions of significance", as well as "bootstrapping for the construction of asymmetric confidence intervals for indirect effects in simple, multiple, or moderated mediation models" (Hayes, 2012). In addition, a bootstrap estimate of the standard error of the conditional indirect effect is computed. Bootstrapping produces an empirical approximation of the sampling distribution through repeated random resampling of the available data and then uses this distribution to calculate p-values and construct superior and accelerated confidence intervals. 5,000 resamples were taken for these analyses (Preacher & Hayes, 2008).

Hypothesis Testing

Model 2 in PROCESS was used to test the hypothesis that the relationship between parent-adolescent relationship quality and adolescent problem behavior is moderated by susceptibility to peer influence and perceptions of peer conduct. This model assumes that there is a predictor variable X (i.e., parent-adolescent relationship

quality), two moderator variables M and W (i.e., resistance to peer influence and perceived peer conduct), and an outcome variable Y (i.e., problem behavior).

The overall model was significant, R^2= 0.630, F(5, 18)= 7.1625, p= 0.0008. The model summary is presented in Figure 2.



Model Summary

R	R-sq	MSE	F(HC3)	df1	df2	p
.7938	.6301	3.1226	7.1625	5.0000	18.0000	.0008

Figure 2. Model summary: A visual summary of the moderated relationship between parent-adolescent relationship quality, resistance to peer influence, perceived peer conduct, and problem behavior/delinquency. The overall model was significant, R^2= 0.630, F(5, 18)= 7.1625, p= 0.0008. This suggests that the relationship between parent-adolescent relationship quality and problem behavior is, in fact, moderated by resistance to peer influence and perceived peer conduct.

There was no significant effect of parent-adolescent relationship quality on problem behavior (r= -0.0764, p= 0.8941), although the correlation coefficient points toward a negative correlation between parent-adolescent relationship quality and delinquent behavior, (i.e., as the quality of the relationship between adolescents and their

parents decreases, their delinquent behavior increases). Thus, parent-adolescent relationship quality and problem behavior do appear to be associated, as predicted.

There was no significant effect of perceived peer behavior on problem behavior (r= 0.7177, p= 0.0658) and no significant effect of susceptibility to peer influence on problem behavior (r= -0.2266, p= 0.9701). While no significant interactions were found between parent-adolescent relationship quality and perceived peer behavior (p= 0.69) or parent-adolescent relationship quality and susceptibility to peer influence (p= 0.87), this is likely due to being underpowered based on the low number of participants in this study. Correlation analyses revealed a significant correlation between problem behavior and perceived peer behavior (r= 0.691, $p < 0.001$). The bivariate correlations between parent-adolescent relationship quality, problem behavior/delinquency, resistance to peer influence, and perceptions of peer conduct are presented in Figure 3 and Table 3. Table 4 presents the regression results.

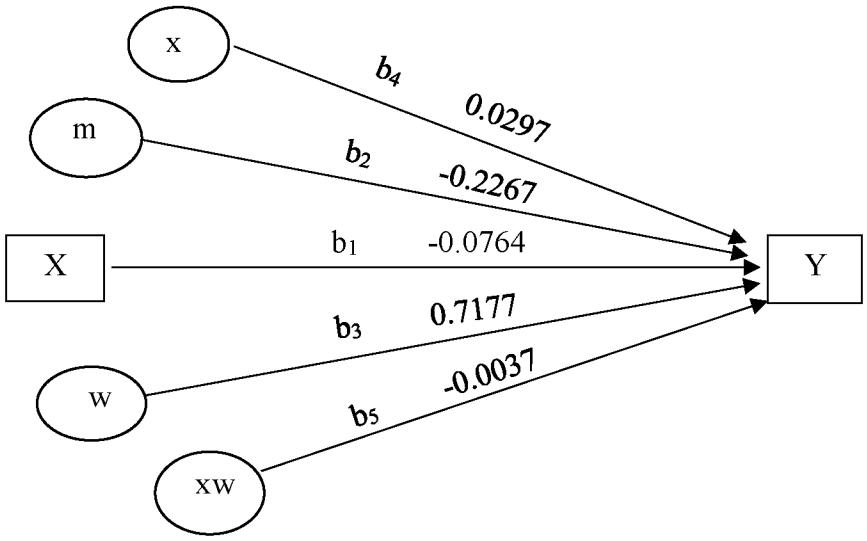


Figure 3. Research design and procedure for the moderation model.

Note. X= parent-adolescent relationship quality, Y= problem behavior/delinquency, m= resistance to peer influence, w= perceived peer conduct, xm= the product of parent-adolescent relationship quality and resistance to peer influence, xw= the product of parent-adolescent relationship quality and perceived peer conduct; b_1= the effect of X on Y, b_2= the effect of m on Y, b_3= the effect of w on Y, b_4= the effect of xm on Y, b_5= the effect of xw on Y.

Table 3

Bivariate correlations between variables of interest

	Parent-Adolescent Relationship Quality (PARS)	Problem Behavior/ Delinquency (DI-YR)	Perceptions of Peer Conduct (DI-PR)	Resistance to Peer Influence (RPIS)
Parent-Adolescent Relationship Quality (PARS)	____	-0.149	0.003	0.319
Problem Behavior/ Delinquency (DI-YR)	-0.149	____	0.691**	-0.121
Perceptions of Peer Conduct (DI-PR)	0.003	0.691**	____	-0.285

Note. ** Correlation is significant at the 0.01 level (2-tailed).

Table 4

Model coefficients for parent-adolescent relationship quality and problem behavior study

		Consequent									
		M (Resistance to Peer Influence)			W (Perceptions of Peer Delinquency)			Y (Problem Behavior/ Delinquency)			
ATCD		COEF	SE	p	COEF	SE	p		COEF	SE	p
X	B_4	0.029	0.179	0.870	B_5 -0.003	0.009	0.692	B_1	-0.076	0.565	0.894
M		—	—	—	—	—	—	B_2	-0.226	0.593	0.970
W		—	—	—	—	—	—	B_3	0.717	0.366	0.065
CONS	i_2	95.79	5.04	< 0.01	i_1 -18.67	6.70	< 0.01				
		R^2=0.0019 F(1, 18)=0.0274, p=0.8704			R^2=0.0027 F(1, 18) = 0.1613, p=0.6927						

Note. ANTC= Antecedent, CONS= Constant, COEF= Coefficient, X= Parent-Adolescent Relationship Quality, M= Resistance to Peer Influence, W= Perceptions of Peer Delinquency.

The following section applies the findings of this study to the specific hypotheses it sought to accept or reject.

Parent-adolescent Relationship Quality and Problem Behavior (H_1)

It was hypothesized that parent-adolescent relationship quality would predict problem behavior. Specifically, that adolescents who score higher on parent-adolescent relationship quality would have lower delinquency. While there was no significant effect of parent-adolescent relationship quality on problem behavior (r= -0.0764, p= 0.8941), the correlation coefficient points toward a negative correlation between parent-adolescent relationship quality and delinquent behavior, (i.e., as the quality of the relationship between adolescents and their parents decreases, their delinquent behavior increases).

Resistance to Peer Pressure and Problem Behavior (H_2)

It was hypothesized that adolescents who have lower resistance to peer pressure would have higher delinquency. There was no significant effect of resistance to peer influence on problem behavior (r= 0.7177, p= 0.0658), suggesting that adolescents who identified as more susceptible to peer influence did not engage in more problem behavior.

Perceptions of Peer Conduct and Problem Behavior (H_3)

The third hypothesis stated that adolescents who perceive their peers to engage in more delinquent behavior would have higher delinquency. Correlation analyses revealed a significant correlation between problem behavior and perceived peer behavior (r= 0.691, p< 0.001), which suggest that adolescents who perceive their peers to be involved in more delinquent behavior will engage in more delinquent behavior themselves.

Resistance to Peer Influence as a Moderator (H_4)

It was hypothesized that resistance to peer pressure will moderate the relationship between parent-adolescent relationship quality and delinquent behavior, i.e., a higher resistance to peer influence would strengthen the protective nature of a positive parent-adolescent relationship against problem behavior. There was no significant effect of resistance to peer pressure on the relationship between parent-adolescent relationship quality and problem behavior (r= 0.0297, p= 0.8704), suggesting that a higher resistance to peer influence does not significantly impact the connection between parent-adolescent relationship quality and problem behavior.

Perceptions of Peer Conduct as a Moderator (H_5)

It was hypothesized that perceptions of peer conduct will moderate the relationship between parent-adolescent relationship quality and delinquent behavior, i.e., less perceived problem behavior by peers would strengthen the protective effect of a positive parent-adolescent relationship against individual problem behavior; however, there was no significant effect of perceived peer conduct on the relationship between parent-adolescent relationship quality and problem behavior (r= 0-.0037, p= 0.6927).

Chapter Four: Discussion

The current study aimed to investigate five research questions. In this section the research questions, hypotheses, results, and theoretical and clinical implications are discussed, and it concludes with the limitations and strengths of the study.

Parent-adolescent Relationship Quality and Problem Behavior

To establish a foundation for the subsequent research questions, the first research questions posed was whether the quality of the parent-adolescent relationship influences adolescents' likelihood of engaging in problem behavior. Thus, it was hypothesized that there would be a negative correlation between parent-adolescent relationship quality and problem behavior. Although significance was not met to fully support this hypothesis, the regression coefficients did point toward a negative correlation between parent-adolescent relationship quality and delinquent behavior, (i.e., as the quality of the relationship between adolescents and their parents increases, their delinquent behavior decreases). This is consistent with research (Catalano & Hawkins, 1996; Hoeve et al., 2009; Stattin & Kerr, 2000), which suggests that positive, supportive relationships with parents act as a protective factor against problem behavior, such as delinquency and substance use. Positive parent-adolescent relationships are characterized by effective parental monitoring, adequate psychological control, and parental supportiveness, all of which make adolescents more likely to confide in parents about problems, seek help when needed, and accept their parents' values and rules as beneficial and important (Cernkovich & Giordano, 1987 ;Laird et al., 2003; Otto & Atkinson, 1997; Stattin & Kerr, 2000). Research further posits that a strong emotional bond with parents may discourage delinquency due to fear of jeopardizing the relationship with parents (Stattin

& Kerr, 2000). In this study, parent-adolescent relationship quality was assessed based on identification with the parent and perceived supportiveness, both of which can be considered crucial in the formation of a strong bond between parents and their children. Although the specific mechanisms underlying the protective nature of a positive parent-adolescent relationship against delinquency were not explored in this study, its results suggest that a secure bond with parents (based on a strong identification with parents, as well as a high perceived parental supportiveness) is likely associated with less problem behavior. This is consistent with the literature and can help inform delinquency prevention and intervention efforts in schools, communities, and other settings.

Resistance to Peer Influence and Problem Behavior

The second research question aimed to investigate whether problem behavior is associated with resistance to peer influence; thus, it was hypothesized that adolescents who report lower resistance to peer pressure would report more problem behavior. The results did not support this hypothesis. This is not consistent with research that suggests peer pressure is associated with substance use (Barrett & Turner, 2005; Farrell & White, 1998; Mason & Spoth, 2012; Rankin Williams & Anthony, 2015) and delinquency (Rappaport & Thomas, 2004; Santor et al., 2000). Research on peer pressure and delinquency posits that adolescents are often socialized to engage in delinquent acts through positive reinforcement from their peer group, which encourages and rewards involvement in or positive attitudes toward delinquency (Dishion et al., 1996; Granic & Dishion, 2003). A desire to fit in with a certain social group, particularly if popular or respected among other adolescents, can also lead adolescents to copy behaviors and attitudes common to this group, including delinquency (Parkhurst & Hopmeyer, 1998;

Mayeux, et al., 2008; Cillessen & Rose, 2005). There are several possible reasons why the findings of this study did not support the association between peer pressure and delinquency previously found. First, it is possible that the participants were already part of their desired peer group and thus did not feel the need to match their behavior to any other peer group; second, the amount of problem behavior that participants endorsed was already on par with that of their peer group, eliminating the need for peer pressure to socialize them to delinquent behavior; and lastly, the participants' desired peer group did not encourage or reward delinquent attitudes or behaviors.

Perceptions of Peer Conduct and Problem Behavior

The third research question posed in this study was whether perceptions of peer conduct influence problem behavior. Results of this current study suggest that there is a significant interaction between adolescent problem behavior and perceived peer problem behavior, which is consistent with the literature on the impact of delinquent peers on individual delinquency (Borsari & Carey, 2012; Prinstein & Wang, 2005; Simons-Morton & Kuntsche, 2012; Song et al., 2012). Such research has suggested that perceived, whether accurately or inaccurately, peer involvement in problem behavior is related to adolescents' own involvement in such behaviors; however, other factors, such as peer selection, differences between family and friend norms regarding behavior, as well as social rank within the peer group are all important aspects to consider that further complicate the relationship between peer behavior and individual behavior (Brechwald & Prinstein, 2011; Dishion, et al. 2001; Monahan, et al., 2009). While knowing the specific mechanisms by which peer delinquency impacts individual delinquency could provide valuable insight, knowledge of the relationship between peer and individual delinquency

in itself may help parents, teachers, and other individuals involved in adolescents' lives devise strategies for intervention or protection.

Perceptions of Peer Conduct and Resistance to Peer Influence as Moderators

The fourth and fifth research questions investigated in this study explored perceptions of peer conduct and resistance to peer influence as potential moderators in the relationship between parent-adolescent relationship quality and problem behavior. With research considering both peer influence (Brechwald & Prinstein, 2011; Catalano & Hawkins, 1996; Keijsers & Poulin, 2013; Marceau, et al., 2015) and peer delinquency (Borsari & Carey, 2012; Prinstein & Wang, 2005; Simons-Morton & Kuntsche, 2012; Song et al., 2012) risk factors for adolescent problem behavior, it was hypothesized that the strength of the protective nature of a positive parent-adolescent relationship against problem behavior would be impacted by how resistant adolescents are against peer influence and to what extent they perceive their peers to be involved in problem behavior.

Although the model itself met significance, the relationship between parent-adolescent relationship quality and adolescent problem behavior was not significant, which is likely due to being underpowered based on the low number of participants in this study. Due to being underpowered, it is unclear to what extent this relationship is moderated by resistance to peer influence and perceived peer conduct. Ideally, this study should be repeated with a larger sample to clarify the roles of each of these variables. While it is known that the influence of peers increases throughout adolescence the influence of parents often decreases (Brechwald & Prinstein, 2011; Keijsers & Poulin, 2013; Marceau, et al., 2015), it is not clear at which point and for which adolescents peer

influence overpowers parental influence to the point of participation in clearly dangerous, immoral, or illegal activities.

Other Considerations

The potential impact of substance use. It is important to note that all participants in this study were already engaged in problem behavior (substance abuse), with 100% of participants endorsing marijuana use and 97% endorsing alcohol use at least once in their lifetime. These participants' decision-making regarding delinquent behavior may vary from that of non-substance using adolescents based on patterns and extent of substance use and its effect on brain development; further, many of them may have engaged in delinquent behavior while under the influence but would not have had they been sober. The extent of these participants' substance use may further have affected their perceived relationships with parents, given that their parents were aware of it and allowed them to enroll in Project READY. Adolescents that were unwilling but expected by parents to get treatment for their substance abuse may consequently view their relationship more negatively than others who perceived their parents' concern as a sign of caring and support.

The potential impact of the intervention program. Considering that participants were recruited from an intervention program, it may be possible that some adolescents enrolled in Project READY already adjusted their perceptions of their peers' conduct or increased their resistance to peer influence due to the effectiveness of the intervention program, which may partially explain why perceived peer conduct and resistance to peer influence did not significantly moderate the relationship between parent-adolescent relationship quality and delinquency as predicted. Although all

participants were asked to fill out the questionnaires for this study at the onset of their participation in Project READY, many of them may have seen their friends successfully change their substance use patterns after participating in Project READY, which in turn could have affected their own attitudes toward substance use and resulted in their decision to join the intervention.

The potential impact of parental consent. Lastly, since parental consent was required for participation in this study, some participants may have underreported the extent of either their substance use or their involvement in delinquent behavior for fear of repercussions from parents. Moreover, given that participants had already been referred to an intervention program for substance use, some may have worried about their parents or school finding out about delinquent acts or may have worried about having to go to another intervention program as a result. Underreported delinquency could further explain why associations were not as strong as predicted.

Theoretical Implications

In this study, neurobehavioral disinhibition theory (Tarter et al., 2003), attachment theory (Bowlby, 1969, 1973, 1988), social learning theory (Bandura, 1977), differential association theory (Sutherland, 1947), and the social developmental model (Catalano & Hawkins, 1996) were used to conceptualize the associations between parent-adolescent relationship quality, resistance to peer influence, perceptions of peer behavior, and problem behavior. Some of this study's results did not follow the predictions from the aforementioned theories or perspectives. Although no significant moderation effect was found for perceived peer conduct and resistance to peer influence on the relationship between parent-adolescent relationship quality and problem behavior, the model itself

was significant. This lends support to the idea that peer influence and perceptions of peer conduct cultivate problem behavior, as proposed by social learning theory (Bandura, 1977), differential association theory (Sutherland, 1947), and the social developmental model (Catalano & Hawkins, 1996). Despite no statistically significant relationship, parent-adolescent relationship quality did appear to be associated with problem behavior, as suggested by previous research (Hoeve et al., 2009; Stattin & Kerr, 2000) and the social developmental model (Catalano & Hawkins, 1996). Future research including other covariates may be able to determine under which circumstances specifically parent-adolescent relationship quality and problem behavior are moderated by resistance to peer influence and perceptions of peer conduct.

Clinical Implications

The results of this study can assist clinicians working with adolescents involved in substance use and problem behavior, such as mental health and family therapists, social workers, and counselors. Based on the association between parent-adolescent relationship quality and problem behavior, clinicians may want to include parents in treatment and utilize interventions aimed at strengthening family relationships. Research suggests that open and honest communication can help parents establish stronger emotional connections with their children and have greater influence over their decision-making (Laird et al., 2003). Thus, interventions may include improving communication between parents and their children by focusing on ways to effectively and appropriately express concerns, criticisms, as well as praise. Interventions aimed at increasing perceived supportiveness and connectedness may further help build stronger bonds between

adolescents and their parents and increase the influence parents have on their children's decisions.

The findings of this study suggest that perceived peer problem behavior is associated with individual problem behavior, which aligns with previous research on the impact of delinquent peers (Borsari & Carey, 2012; Prinstein & Wang, 2005; Simons-Morton & Kuntsche, 2012; Song et al., 2012). Thus, clinicians working with adolescents involved in problem behavior should consider examining the beliefs adolescents hold about themselves and their own conduct, their peers and their peers' conduct, as well as social expectations in general. Cognitive-behavioral therapy (Beck, 2011) considers thoughts, emotions, and actions to be connected, and stresses that individuals' reactions to their environment are based on how they interpret their environment, even if these interpretations are inaccurate or unhelpful. Cognitive-behavioral techniques could be helpful for challenging and replacing incorrect beliefs adolescents hold about their peers' conduct.

Motivational interviewing, a client-centered, directive approach used to elicit behavior change by helping an individual find motivation to make changes was found to be effective for adolescents with substance use problems but is thought to also have promise for other concerns (Naar-King, 2011). Motivational interviewing could be used to help adolescents make better choices by weighing the benefits and costs of their behavior and coming up with better alternatives based on their goals and values.

Finally, clinicians may consider teaching assertiveness skills, which can help adolescents resist peer pressure by using refusal and negotiation skills when pushed to

participate in unwanted or problematic activities (Wolfe, Crooks, Chiodo, Hughes & Ellis, 2011).

It is important to note cultural differences both when investigating and when working with individuals in a clinical setting. This study defined problem behavior as socially unacceptable or illegal behavior. Considering that the social acceptability of behavior depends on the specific social environment in which one operates, definitions of problem behavior may vary widely across social groups. Clinicians working with individuals whom are a part of a different social group should therefore refrain from pathologizing behaviors that they may consider problematic from their own perspective and take into account the individual's cultural and social context when deciding on treatment interventions.

Strengths

There were several strengths in this study. First, it gathered data on various areas of problem behavior by assessing both substance use and delinquency. Second, all the participants were already enrolled in an intervention program, ensuring that they would receive the support they needed to address both substance use and other problem behavior. Third, all the research assistants were trained together to ensure systematic implementation of interview procedures and streamlined gathering of questionnaire information. Finally, Project READY utilizes motivational interviewing, a very client-centered and unbiased approach to helping individuals change their behavior (Naar-King, 2011). The non-judgmental attitude associated with motivational interviewing and utilized by the research assistants in this study may have increased truthful responding among participants.

Limitations

There were several limitations to this study. The most crucial one being the low number of participants despite extensive recruitment efforts. The small sample size is both a threat to statistical conclusion validity and external validity, limiting the power to detect a true relationship between the predictor and outcome variables if, in fact, a true relationship exists. It also limits the generalizability of study conclusions across participants and settings. To be more specific, participants were all recruited from the same substance use intervention program in the greater Seattle area, thus, generalizability to adolescents in other schools, communities, and regions may be limited, as well as generalizability to non-substance using adolescents. Socioeconomic status was also not examined as a demographic variable, which may be a confounding variable. Another limitation was that eighty-three percent of the sample were male participants, which may affect the generalizability to females. Similarly, none of the participants identified exclusively as African American or Black, which also limits generalizability to African American or Black adolescents.

Another limitation was that a school-based setting was used to gather information about an at-risk group of adolescents, as adolescents that do not attend school regularly or at all are more likely to engage in problem behavior and delinquency (Russell & Matthews, 2011). This may explain the low numbers of participants reporting criminal or delinquent behaviors.

Having to obtain parental consent for participation in both this study and Project READY might have limited participation and potentially truthfulness, as participants may not have wanted their parents to know about their substance use and delinquent behavior

or were unsure of the amount of information that may be shared with parents if they did decide to participate (Bruce, Berg, & McGuire, 2009; Duncan, Drew, Hodgson & Sawyer, 2009; Rojas et al., 2008).

Finally, the data was collected by use of self-report surveys, so accuracy and truthfulness of the data reported cannot be verified. This is always a limitation when using self-report surveys and may be particularly of concern when asking questions about sensitive subjects or admitting to participating in socially undesirable behaviors (Chan, 2009).

Future Directions

This research aimed to examine the moderating effects of perceived peer conduct and resistance to peer influence on the relationship between parent-adolescent relationship quality and delinquency in substance abusing adolescents. Since the overall model used does suggest that parent-adolescent relationship quality may predict problem behavior and that this relationship is moderated by perceived peer conduct and resistance to peer influence, future research should investigate this model further on a larger scale than was possible in this study. With peer delinquency being a significant predictor of individual delinquency, it may also be useful to look at how these variables interact in a sample of adolescents not specifically involved in substance use treatment. Further, research should try to distinguish how peer delinquency gives rise to individual delinquency. Factors suggested in previous studies (Brechwald & Prinstein, 2011; Dishion, et al., 2001; Monahan, et al., 2009), such as peer group norms, reinforcement of delinquent behavior, social status within the peer group, and exertion of peer pressure should be further investigated.

Important demographic variables such as gender, race/ethnicity, and socioeconomic status should also be further studied in regard to the model proposed by this current study. Future research should focus on developing interventions that can shield adolescents with delinquent friends from engaging in delinquent acts themselves by helping them identify factors involved in their decision-making. Studying practical ways to strengthen relationships between adolescents and their parents may help professionals develop interventions to help adolescents at risk for delinquent behavior and their families.

Conclusion

Not only are adolescents developmentally at a higher risk for poor decision-making, the social changes accompanying adolescence also reduce influence exerted on decisions by parents in favor of peers. Greater time spent with peers and greater identification with individuals their own age are among the factors responsible for increasing adolescents' dependence on their friends' opinions and direction regarding decisions. Negative relationships with parental figures often strengthen reliance on peers for guidance further, predisposing adolescents to involvement in problem behavior, particularly if peers are also involved in such behavior. Whether due to perceived group norms, peer pressure, or positive reinforcement of behavior by friends, adolescents often engage in problematic behavior if their peers do, including substance use and delinquency. While this study was unable to show how perceived peer conduct and resistance to peer influence moderate the relationship between parent-adolescent relationship quality and problem behavior, it was able to confirm that perceived peer involvement in delinquent acts is related to increased involvement in delinquency in

substance using adolescents, and thereby lends further support to previous studies (Borsari & Carey, 2012; Prinstein & Wang, 2005; Simons-Morton & Kuntsche, 2012; Song et al., 2012) on the association between peer delinquency and individual delinquency. Based on this finding, efforts should be made to develop prevention and intervention programs aimed at helping adolescents abstain from problematic behaviors that their peers may engage in.

References

Agnew, R. (1991). Interactive effects of peer variables on delinquency. *Criminology, 29*(1), 47–72. doi:10.1111/j.1745-9125.1991.tb01058.x

Ainsworth, M. D. S. & Wittig, B. A. (1969). Attachment and exploratory behavior of one-year-olds in a strange situation. In B. M. Foss (Ed.), *Determinants of infant behavior* (Vol. 4, pp. 111-136). London, England: Methuen.

Ainsworth, M. D. S., & Bell, S. M. (1970). Attachment, exploration, and separation: Illustrated by the behavior of one-year-olds in a strange situation. *Child Development, 41*, 49-67. https://doi.org/10.2307/1127388

Ainsworth, M. D. S., Blehar, M. C., Waters, E., & Wall, S. (1978). *Patterns of attachment: A psychological study of the strange situation*. Hillsdale, NJ: Erlbaum.

Aizer, A. & Doyle, J. J. (2015). Juvenile incarceration, human capital and future crime: Evidence from randomly-assigned judges. *The Quarterly Journal of Economics, 130*(2), 759-803. https://doi.org/10.1093/qje/qjv003

Akers, R. L. (1996). Is differential association/social learning cultural deviance theory? *Criminology, 34*(2), 229.

Bahorik, A. L., Satre, D. D., Kline-Simon, A. H., Weisner, C. M., & Campbell, C. I. (2017). Alcohol, Cannabis, and Opioid Use Disorders, and Disease Burden in an Integrated Health Care System. *Journal of addiction medicine*, *11*(1), 3–9. doi:10.1097/ADM.0000000000000260

Bandura, A. & Walters, R. (1963). *Social learning and personality development.* New York City, NY: Holt, Rinehart & Winston.

Bandura, A. (1969). *Principles of behavior modification*. New York City, NY: Holt, Rinehart & Winston.

Bandura, A. (1973). *Aggression: A social learning analysis*. Englewood Cliffs, NJ: Prentice-Hall.

Bandura, A. (1977). *Social learning theory*. New York City, NY: General Learning Press.

Barrett, A., & Turner, R. (2006). Family structure and substance use problems in adolescence and early adulthood: Examining explanations for the relationship. *Addiction, 101*(1), 109-120. doi:10.1111/j.1360-0443.2005.01296.x

Beck, J. S. (2011). *Cognitive behavior therapy: Basics and beyond* (2nd ed.). New York, NY: Guilford Press.

Blakemore, S. J., Burnett, S., & Dahl, R. E. (2010). The role of puberty in the developing adolescent brain. *Human Brain Mapping*, *31*(6), 926–933. http://doi.org/10.1002/hbm.21052

Bonomo, Y., Coffey, C., Wolfe, R., Lynskey, M., Bowes, G., & Patton, G. (2001). Adverse outcomes of alcohol use in adolescents. *Addiction, 96*(1), 1485-1496

Borsari, B., & Carey, K. B. (2001). Peer influences on college drinking: A review of the research. *Journal of Substance Abuse, 13*(4), 391-424. http://dx.doi.org/10.1016/S0899-3289(01)00098-0

Borsari, B., & Carey, K. B. (2012). Overestimation of peer substance use: Additional perspectives. *Addiction*, *107*(5), 886-888. doi:10.1111/j.1360-0443.2012.03773.x

Bowlby J. (1969). *Attachment and Loss, Vol. 1: Attachment*. London, England: Penguin Publishing Group.

Bowlby J. (1977). The making and breaking of affectional bonds. *British Journal of Psychiatry, 130*(1), 201–210. https://doi.org/10.1192/bjp.130.3.201

Bowlby J. (1980). *Loss, Vol 3: Sadness and Depression*. London, England: Penguin Publishing Group.

Bowlby, J. (1988). *A secure base: Clinical applications of attachment theory*. London, England: Routledge.

Brechwald, W. A., & Prinstein, M. J. (2011). Beyond homophily: A decade of advances in understanding peer influence processes. *Journal of Research on Adolescence (Wiley-Blackwell), 21*(1), 166-179. doi:10.1111/j.1532-7795.2010.00721.x

Brown, L. S., & Wright, J. (2001). Attachment theory in adolescence and its relevance to developmental psychopathology. *Clinical Psychology & Psychotherapy, 8*(1), 15-32. https://doi.org/10.1002/cpp.274

Bruce, C. R., Berg, S. L., & McGuire, A. L. (2009). Please don't call my mom: Pediatric consent and confidentiality. *Clinical Pediatrics, 48*(30), 243-246. https://doi.org/10.1177/0009922808328542

Bureau of Labor Statistics, U.S. Department of Labor. National Longitudinal Survey of Youth 1997 cohort, 1997-2003 (rounds 1-7) [computer file]. Produced by the National Opinion Research Center, the University of Chicago and distributed by the Center for Human Resource Research, The Ohio State University. Columbus, OH: 2005.

Bureau of Labor Statistics, U.S. Department of Labor. National Longitudinal Survey of Youth 1997 cohort, 1997-2013 (rounds 1-16) [computer file]. Produced by the National Opinion Research Center, the University of Chicago and distributed by the Center for Human Resource Research, The Ohio State University. Columbus, OH: 2015.

Catalano, R. F. & Hawkins, J. D. (1996). The social development model: A theory of antisocial behavior. In J. D. Hawkins (Ed.), *Delinquency and crime: Current theories* (pp. 149-197). New York City, NY: Cambridge University Press.

Centers for Disease Control and Prevention. (2016). *1991-2015 High School Youth Risk Behavior Survey data*. Retrieved 2016, June 30, from http://nccd.cdc.gov/YouthOnline/App/Default.aspx

Cernkovich, S. A., & Giordano, P. C. (1987). Family relationships and delinquency. *Criminology, 24*, 295-321. https://doi.org/10.1111/j.1745-9125.1987.tb00799.x

Chambers, R. A., Taylor, J. R., & Potenza, M. N. (2003). Developmental neurocircuitry of motivation in adolescence: A critical period of addiction vulnerability. *The American Journal of Psychiatry, 160*(6), 1041-1052. https://doi.org/10.1176/appi.ajp.160.6.1041

Chan, D. (2009). So why ask me? Are self-report data really that bad? In C. E. Lance & R. J. Vandenberg (Eds.), *Statistical and methodological myths and urban legends* (pp. 309-336). New York, NY: Routledge.

Child Trends, Inc. (1999). *NLSY97 codebook supplement main file round 1: Family process and adolescent outcome measures* (Appendix No. 9). Washington, DC: US Department of Labor. Retrieved from http://www.nber.org/nlsy97/appendix9.pdf

Choquet, M., Hassler, C., Morin, D., Falissard, B., & Chau, N. (2008). Perceived parenting styles and tobacco, alcohol and cannabis use among French adolescents: Sex and family structure differentials. *Alcohol and Alcoholism, 43*, 73-80. https://doi.org/10.1093/alcalc/agm060

Cillessen, A. H. N., & Rose, A. J. (2005). Understanding popularity in the peer system. *Current Directions in Psychological Science, 14*, 102-105. http://dx.doi.org/10.1111/j.0963-7214.2005.00343.x

Cohen, G. L., & Prinstein, M. J. (2006). Peer contagion of aggression and health-risk behavior among adolescent males: An experimental investigation of effects on public conduct and private attitudes. *Child Development, 77*, 967-983. https://doi.org/10.1111/j.1467-8624.2006.00913.x

Crawford, L. A., & Novak, K. B. (2008). Parental and peer influences on adolescent drinking: The relative impact of attachment and opportunity. *Journal of Child and Adolescent Substance Abuse, 12*(1), 1-36. http://dx.doi.org/10.1300/J029v12n01_01

Cullingford, C., & Morrison, J. (1997). Peer group pressure within and outside school. *British Educational Research Journal, 23*(1), 61-80. https://doi.org/10.1080/0141192970230106

Curtner-Smith, M., & MacKinnon-Lewis, C. (1994). Family process effects on adolescent males' susceptibility to antisocial peer pressure. *Family Relations, 43*(4), 462-68. https://doi.org/10.2307/585379

Daire, A., Turk, J., Johnson, J., & Dominguez, V. (2013). Parental bonding and its effect on adolescent substance use and sexual debut. *Adultspan Journal, 12*(1), 54-64. doi:10.1002/j.2161-0029.2013.00015.x

D'Amico, E., Tucker, J., Miles, J., Ewing, B., Shih, R., & Pedersen, E. (2016). Alcohol and marijuana use trajectories in a diverse longitudinal sample of adolescents: Examining use patterns from age 11 to 17 years. *Addiction, 111*(10), 1825-1835. doi:10.1111/add.13442

Dean, D., Cole, V., & Bauer, D. (2015). Delineating prototypical patterns of substance use initiations over time. *Addiction, 110*(4), 585-594. doi:10.1111/add.12816

Dekkers, L., Bexkens, A., Hofman, A., Boeck, P., Collot d'Escury, A., & Huizenga, H. (2017). Formal modeling of the resistance to peer influence questionnaire: A comparison of adolescent boys and girls with and without mild-to-Borderline intellectual disability. *Assessment*, *43*, 1-17. doi:10.1177/1073191117698754

Dishion, T. J., Spracklen, K. M., Andrews, D. W., & Patterson, G. R. (1996). Deviancy training in male adolescent friendships. *Behavior Therapy, 27*, 373-390. https://doi.org/10.1016/S0005-7894(96)80023-2

Dishion, T. J., McCord, J., & Poulin, F. (1999). When interventions harm: Peer groups and problem behavior. *American Psychologist, 54*(1), 755-764. http://dx.doi.org/10.1037/0003-066X.54.9.755

Dishion, T. J., Burraston, B., & Poulin, F. (2001). Peer group dynamics associated with iatrogenic effects in group interventions with high-risk young adolescents. In C. Erdley, & D. W. Nangle (Eds.), *The role of friendship in psychological adjustment* (pp. 79-92). San Francisco, CA: Jossey-Bass Publishers.

Doumas, D., Hausheer, R., & Esp, S. (2015). Heavy episodic drinking and alcohol-related consequences: Sex-specific differences in parental influences among ninth-grade students. *Journal of Child & Adolescent Substance Abuse, 24*(6), 405-414. https://doi.org/10.1080/1067828X.2013.872067

Duncan, R. E., Drew, S. E., Hodgson, J., & Sawyer, S. M. (2009). Is my mum going to hear this? Methodological and ethical challenges in qualitative health research with young people. *Social Science and Medicine, 69*, 1691-1699. .https://doi.org/10.1016/j.socscimed.2009.09.001

Farrell, A. D., & White, K. S. (1998). Peer influences and drug use among urban adolescents: Family structure and parent–adolescent relationship as protective factors. *Journal of Consulting and Clinical Psychology*, *66*(2), 248-258. doi:10.1037/0022-006X.66.2.248

Farrell, A. D., Henry, D. B., Mays, S. A. & Schoeny, M. E. (2011). Parents as moderators of the impact of school norms and peer influences on aggression in middle school students. *Child Development, 82*(1), 146-161. https://doi.org/10.1111/j.1467-8624.2010.01546.x

Faul, F., Erdfelder, E., Buchner, A., & Lang, A.-G. (2008). G*Power (Version 3.1.2) [computer software]. Kiel, Germany: Universität Kiel. Available from http://www.psycho.uni-duesseldorf.de/abteilungen/aap/gpower3/download-and-register

Federal Bureau of Investigation. (2017). *Crime in the United States 2016. Uniform Crime Reports.* Washington, DC: U.S. Department of Justice. Retrieved from https://ucr.fbi.gov/crime-in-the-u.s/2016/crime-in-the-u.s.-2016/tables/table-20

Feldstein, S., & Miller, W. (2006). Substance use and risk-taking among adolescents. *Journal of Mental Health, 15*(6), 633-643. https://doi.org/10.1080/09638230600998896

Gilman, A., Hill, K., & Hawkins, J. (2015). When is a youth's debt to society paid? Examining the long-term consequences of juvenile incarceration for adult functioning. *Journal of Developmental and Life-Course Criminology, 1*(1), 33-47. doi:10.1007/s40865-015-0002-5

Granic, I., & Dishion, T. J. (2003). Deviant talk in adolescent friendships: A step toward measuring a pathogenic attractor process. *Social Development, 12*, 314-334. http://dx.doi.org/10.1111/1467-9507.00236

Guilamo-Ramos, V., Turrisi, R., Jaccard, J., Wood, E., & Gonzalez, B. (2004). Progression from light experimentation to heavy episodic drinking in early and middle adolescence. *Journal of Studies on Alcohol, 65*, 494-500. https://doi.org/10.15288/jsa.2004.65.494

Hair, E. C., Moore, K. A., Garrett, S. B., Kinukawa, A., Lippman, L., & Michelson, E. (2005). The parent–adolescent relationship scale. In K. A. Moore & L. Lippman (Eds.), *Conceptualizing and measuring indicators of positive development: What do children need to flourish?* (pp. 183-202). New York City, NY: Kluwer Academic/Plenum Publishers.

Hayes, A. F. (2012). PROCESS: A versatile computational tool for observed variable mediation, moderation, and conditional process modeling [White paper]. Retrieved from http://www.afhayes.com/public/process2012.pdf

Hayes, A. F. (2013). PROCESS (Version 3.4) [computer software]. Available from https://processmacro.org/download.html

Hazel, N., Oppenheimer, C., Technow, J., Young, J., & Hankin, B. (2014). Parent relationship quality buffers against the effect of peer stressors on depressive symptoms from middle childhood to adolescence. *Developmental Psychology, 50*(8), 2115-2123. http://dx.doi.org/10.1037/a0037192

Henry, D. B., Kobus, K., & Schoeny, M. E. (2011). Accuracy and bias in adolescents' perceptions of friends' substance use. *Psychology of Addictive Behaviors*, *25*(1), 80-89. doi:10.1037/a0021874

Hoeve, M., Dubas, J. S., Eichelsheim, V. I., van der Laan, P. H., Smeenk, W., & Gerris, J. R. (2009). The relationship between parenting and delinquency: a meta-analysis. *Journal of Abnormal Child Psychology*, *37*(6), 749-775. doi:10.1007/s10802-009-9310-8

Hoorn, J., Crone, E. A., & Leijenhorst, L. (2017). Hanging out with the right crowd: Peer Influence on risk-taking behavior in adolescence. *Journal of Research on Adolescence, 27*(1), 189-200. doi:10.1111/jora.12265

Johnston, L. D., Miech, R. A., O'Malley, P. M., Bachman, J. G., Schulenberg, J. E., & Patrick, M. E. (2018). *Monitoring the Future national survey results on drug use: 1975-2017: Overview, key findings on adolescent drug use.* Ann Arbor, MI: Institute for Social Research, The University of Michigan.

Juvonen, J., & Ho, A. Y. (2008). Social motives underlying antisocial behavior across middle school grades. *Journal of Youth and Adolescence, 37*, 747-756. http://dx.doi.org/10.1007/s10964-008-9272-0

Khan, M. R., Cleland, C. M., Scheidell, J. D., & Berger, A. T. (2014). Gender and racial/ethnic differences in patterns of adolescent alcohol use and associations with adolescent and adult illicit drug use. *American Journal of Drug & Alcohol Abuse*, *40*(3), 213-224. doi:10.3109/00952990.2014.892950

Kann, L., McManus, T., Harris, W. A., Shanklin, S. L., Flint, K. H., Hawkins, J., … Zaza, S. (2016). Youth risk behavior surveillance — United States, 2015. *MMWR Surveillance Summaries*, 65(6), 1–174. doi:10.15585/mmwr.ss6506a1

Katz, D., Allport, F. H., Jenness, M. B., & Maxwell Graduate School of Citizenship and Public Affairs. (1931). *Students' attitudes: A report of the Syracuse university reaction study*. Syracuse, N.Y: The Craftsman Press, Inc.

Keijsers, L., & Poulin, F. (2013). Developmental changes in parent-child communication throughout adolescence. *Developmental Psychology, 49*(12), 2301-2308. http://dx.doi.org/10.1037/a0032217

Kirisci, L., Vanyukov, M., & Tarter, R. (2005). Detection of youth at high risk for substance use disorders: A longitudinal study. *Psychology of Addictive Behaviors*, *19*(3), 243-252. doi:10.1037/0893-164X.19.3.243

Koepke, S., & Denissen, J. J. A. (2012). Dynamics of identity development and separation-individuation in parent–child relationships during adolescence and emerging adulthood–a conceptual integration. *Developmental Review, 32*, 67-88. doi:10.1016/j.dr.2012.01.001

Kosterman, R., Hawkins, J. D., Guo, J., Catalano, R. F., & Abbott, R. D. (2000). The dynamics of alcohol and marijuana initiation: patterns and predictors of first use in adolescence. *American journal of public health*, *90*(3), 360–366. doi:10.2105/ajph.90.3.360

Kretschmer, T., Oldehinkel, A. J., Sentse, M., Meeus, W., Verhulst, F. C., & Veenstra, R. (2016). Configurations of adolescents' peer experiences: Associations with parent-child relationship quality and parental problem behavior. *Journal of Research on Adolescence, 26*(3), 474-491. doi:10.1111/jora.12206

Laird, R. D., Pettit, G. S., Dodge, K. A., & Bates, J. E. (2003). Change in parents' monitoring knowledge: Links with parenting, relationship quality, adolescent beliefs, and antisocial behavior. *Social development (Oxford, England)*, *12*(3), 401–419. doi:10.1111/1467-9507.00240

Lam, C. B., McHale, S. M., & Crouter, A. C. (2014). Time with peers from middle childhood to late adolescence: Developmental course and adjustment correlates. *Child Development*, *85*(4), 1677-1693. http://doi.org/10.1111/cdev.12235

Lanctot, N., Cernkovich, S., & Giordano, P. (2007). Delinquent behavior, official delinquency, and gender: Consequences for adulthood functioning and well-being. *Criminology, 45*(1), 131-158. https://doi.org/10.1111/j.1745-9125.2007.00074.x

Larson, R., & Richards, M. H. (1991). Daily companionship in late childhood and early adolescence: Changing developmental contexts. *Child Development*, *62*(2), 284. doi:10.1111/1467-8624.ep9104222720

Liberman, A., Kirk, D., & Kim, K. (2014). Labeling effects of first juvenile arrests: Secondary deviance and secondary sanctioning. *Criminology, 52*(3), 345-370. doi:10.1111/1745-9125.12039

Loke, A., & Mak, Y. (2013). Family process and peer influences on substance use by adolescents. *International Journal of Environmental Research and Public Health, 10*(9), 3868-3885. doi:10.3390/ijerph10093868

Luciana, M., & Feldstein Ewing, S. (2015). Introduction to the special issue: Substance use and the adolescent brain: Developmental impacts, interventions, and longitudinal outcomes. *Developmental Cognitive Neuroscience, 16*, 1-4. doi:10.1016/j.dcn.2015.10.005

Luk, J. W., Farhat, T., Iannotti, R. J., & Simons-Morton, B. G. (2010). Parent-child communication and substance use among adolescents: Do father and mother communication play a different role for sons and daughters? *Addictive Behaviors, 35*, 426-431. https://doi.org/10.1016/j.addbeh.2009.12.009

Marceau, K., Ram, N., & Susman, E. (2015). Development and lability in the parent-child relationship during adolescence: Associations with pubertal timing and tempo. *Journal of Research on Adolescence, 25*(3), 474-489. doi:10.1111/jora.12139

Mason, W. A., & Windle, M. (2002). Reciprocal relations between adolescent substance use and delinquency: A longitudinal latent variable analysis. *Journal of Abnormal Psychology, 111*(1), 63-76. doi:10.1037/0021-843X.111.1.63

Mason, M., Mennis, J., Linker, J., Bares, C., & Zaharakis, N. (2014). Peer attitudes effects on adolescent substance use: The moderating role of race and gender. *Prevention Science, 15*(1), 56-64. doi:10.1007/s11121-012-0353-7

Mason, M. J., Mennis, J., & Schmidt, C. D. (2011). A social operational model of urban adolescents' tobacco and substance use: A mediational analysis. *Journal of Adolescence, 34*(5), 1055-1063. http://doi.org/10.1016/j.adolescence.2010.11.002

Mason, W. A., & Spoth, R. L. (2012). Sequence of alcohol involvement from early onset to young adult alcohol abuse: differential predictors and moderation by family-focused preventive intervention. *Addiction, 107*(12), 2137-2148. doi:10.1111/j.1360-0443.2012.03987.x

Matsueda, R. L. (2010). Sutherland, Edwin H.: Differential association theory and differential social organization. In F. T. Cullen & P. Wilcox (Eds.), *Encyclopedia of criminological theory* (Vol. 2, pp. 899-906). Thousand Oaks, CA: SAGE Publishing.

Mayeux, L., Sandstrom, M. J., & Cillessen, A. N. (2008). Is being popular a risky proposition?. *Journal of Research on Adolescence, 18*(1), 49-74. doi:10.1111/j.1532-7795.2008.00550.x

McGloin, J., Sullivan, C., & Thomas, K. (2014). Peer influence and context: The interdependence of friendship groups, schoolmates and network density in predicting substance use. *Journal of Youth and Adolescence, 43*(9), 1436-1452. doi:10.1007/s10964-014-0126-7

Mercer, N., Keijsers, L., Crocetti, E., Branje, S., & Meeus, W. (2016). Adolescent abstention from delinquency: Examining the mediating role of time spent with (delinquent) peers. *Journal of Research on Adolescence, 26*(4), 947-962. doi:10.1111/jora.12246

Monahan, K. C., Steinberg, L., & Cauffman, E. (2009). Affiliation with antisocial peers, susceptibility to peer influence, and antisocial behavior during the transition to adulthood. *Developmental Psychology*, *45*(6), 1520-1530. doi:10.1037/a0017417

Monahan, K. C., Rhew, I. C., Hawkins, J. D., & Brown, E. C. (2014). Adolescent pathways to co-occurring problem behavior: The effects of peer delinquency and peer substance use. *Journal of Research on Adolescence, 24*(4), 630-645. doi:10.1111/jora.12053

Morgan, R. & Kena, G. (2017). *Criminal victimization 2016.* Washington, DC: NCJRS.

Moretti, M. M., & Peled, M. (2004). Adolescent-parent attachment: Bonds that support healthy development. *Paediatrics & Child Health*, *9*(8), 551–555. https://doi.org/10.1093/pch/9.8.551

Murry, V., Simons, R., Simons, L., & Gibbons, F. (2013). Contributions of family environment and parenting processes to sexual risk and substance use of rural African American males: A 4-year longitudinal analysis. *American Journal of Orthopsychiatry, 83*(2), 299-309. doi:10.1111/ajop.12035

Naar-King, S. (2011). Motivational interviewing in adolescent treatment. *The Canadian Journal of Psychiatry*, *56*(11), 651-657. https://doi.org/10.1177/070674371105601103

National Center for Education Statistics. (2017*). Indicators of school crime and safety: 2016* (Publication No. NCES 2017064). Retrieved from https://nces.ed.gov/pubs2017/2017064.pdf

Neppl, T. K., Dhalewadikar, J., & Lohman, B. J. (2016). Harsh parenting, deviant peers, adolescent risky behavior: Understanding the meditational effect of attitudes and intentions. *Journal of Research on Adolescence, 26*(3), 538-551. doi:10.1111/jora.12212

Oman, R. F., Vesely, S., Aspy, C. B., McLeroy, K. R., Rodine, S., & Marshall, L. (2004). The potential protective effect of youth assets on adolescent alcohol and drug use. *American journal of public health*, *94*(8), 1425–1430. doi:10.2105/ajph.94.8.1425

Oman, R., Vesely, S., & Aspy, C. (2005). Youth assets, aggression, and delinquency within the context of family structure. *American Journal of Health Behavior*, *29*(6), 557-568. https://doi.org/10.5993/AJHB.29.6.10

Otto, L. B., & Atkinson, M. P. (1997). Parental involvement and adolescent development. *Journal of Adolescent Research, 12*(1), 68-89. http://dx.doi.org/10.1177/0743554897121005

Parkhurst, J. T., & Hopmeyer, A. (1998). Sociometric popularity and peer-perceived popularity: Two distinct dimensions of peer status. *The Journal of Early Adolescence, 18*(2), 125-144. http://dx.doi.org/10.1177/0272431698018002001

Preacher, K. J., Rucker, D. D., & Hayes, A. F. (2007). Assessing moderated mediation hypotheses: Theory, methods, and prescriptions. *Multivariate Behavioral Research, 42,* 185-227. https://doi.org/10.1080/00273170701341316

Preacher, K. J., & Hayes, A. F. (2008). Asymptotic and resampling strategies for assessing and comparing indirect effects in multiple mediator models. *Behavior Research Methods, 40*(3), 879-891. doi:10.3758/BRM.40.3.879

Prinstein, M. J., & Cillessen, A. H. N. (2003). Forms and functions of adolescent peer aggression associated with high levels of peer status. *Merrill-Palmer Quarterly, 49*(3), 310-342. http://dx.doi.org/10.1353/mpq.2003.0015

Prinstein, M. J., & Wang, S. S. (2005). False consensus and adolescent peer contagion: Examining discrepancies between perceptions and actual reported levels of friends' deviant and health risk behaviors. *Journal of Abnormal Child Psychology, 33*(3), 293-306. http://dx.doi.org.nu.idm.oclc.org/10.1007/s10802-005-3566-4

Prinstein, M. J., Brechwald, W. A., & Cohen, G. L. (2011). Susceptibility to peer influence: Using a performance-based measure to identify adolescent males at heightened risk for deviant peer socialization. *Developmental Psychology, 47*(4), 1167-1172. doi:10.1037/a0023274

Rankin Williams, L. & Anthony, E. K. (2015). A model of positive family and peer relationships on adolescent functioning. *Journal of Child and Family Studies, 24*(3), 658-667. doi:10.1007/s10826-013-9876-1

Rappaport, N., & Thomas, C. (2004). Recent research findings on aggressive and violent behavior in youth: Implications for clinical assessment and intervention. *Journal of Adolescent Health, 35*, 260-277. https://doi.org/10.1016/j.jadohealth.2003.10.009

Ridenour, T. A., Reynolds, M., Ahlqvist, O., Zhai, Z. W., Kirisci, L., Vanyukov, M. M., & Tarter, R. E. (2013). High and low neurobehavior disinhibition clusters within locales: Implications for community efforts to prevent substance use disorder. *American Journal of Drug & Alcohol Abuse*, *39*(3), 194-203. doi:10.3109/00952990.2013.764884

Rojas, N. L., Sherrit, L., Harris, S., & Knight, J. R. (2008). The role of parental consent in adolescent substance use research. *Journal of Adolescent Health, 42,* 192-197. https://doi.org/10.1016/j.jadohealth.2007.07.011

Rose, A. J., Swenson, L. P., & Waller, E. M. (2004). Overt and relational aggression and perceived popularity: Developmental differences in concurrent and prospective relations. *Developmental Psychology, 40*, 378-387. http://dx.doi.org/10.1037/0012-1649.40.3.378

Ross, L., Greene, D., & House, P. (1977). The false consensus effect: An egocentric bias in social perception and attribution processes. *Journal of Experimental Social Psychology, 13,* 279-301. http://dx.doi.org/10.1016/0022-1031(77)90049-X

Rote, S., & Taylor, J. (2014). Black/White differences in adolescent drug use: A test of six hypotheses. *Journal of Child & Adolescent Substance Abuse, 23*(5), 282-290. doi:10.1080/1067828X.2013.869133

Rowan, Z. (2016). Social risk factors of black and white adolescents' substance use: The differential role of siblings and best friends. *Journal of Youth and Adolescence: A Multidisciplinary Research Publication, 45*(7), 1482-1496. doi:10.1007/s10964-016-0473-7

Russell, S. T. & Matthews, E. (2011). Using secondary data to study adolescence and adolescent development. In K. H. Trzesniewski, M.B. Donnellan, & R. E. Lucas *Secondary data analysis*, (pp. 163-176). Washington, DC: American Psychological Association.

Sánchez-Queija, I., Oliva, A., Parra, Á., & Camacho, C. (2016). Longitudinal analysis of the role of family functioning in substance use. *Journal of Child & Family Studies*, *25*(1), 232-240. doi:10.1007/s10826-015-0212-9

Santor, D., Messervey, D., & Kusumakar, V. (2000). Measuring peer pressure, popularity, and conformity in adolescent boys and girls: Predicting school performance, sexual attitudes, and substance abuse. *Journal of Youth and Adolescence, 29*(2), 163-182. doi:10.1023/A:1005152515264

Schepis, T. S., Adinoff, B., & Rao, U. (2008). Neurobiological processes in adolescent addictive disorders. *American Journal on Addictions*, *17*(1), 6-23. doi:10.1080/10550490701756146

Schinke, S. P., Cole, K. C., & Fang, L. (2009). Gender-specific intervention to reduce underage drinking among early adolescent girls: A test of a computer-mediated, mother-daughter program. *Journal of Studies on Alcohol and Drugs, 70*, 70-77. https://doi.org/10.15288/jsad.2009.70.70

Schinke, S. P., Fang, L., & Cole, K. C. (2009). Preventing substance use among adolescent girls: 1-Year outcomes of a computerized, mother-daughter program. *Addictive Behaviors, 34*, 1060-1064. https://doi.org/10.1016/j.addbeh.2009.06.007

Segrist, D. J., Corcoran, K. J., Jordan-Fleming, M. K., & Rose, P. (2007). Yeah, I drink . . . but not as much as other guys: The majority fallacy among male adolescents. *North American Journal of Psychology, 9*(2), 307-320. Retrieved from http://najp.us/

Simons-Morton, B., & Farhat, T. (2010). Recent findings on peer group influences on adolescent substance use. *The Journal of Primary Prevention*, *31*(4), 191–208. http://doi.org/10.1007/s10935-010-0220-x

Simons-Morton, B., & Kuntsche, E. (2012). Adolescent estimation of peer substance use: Why it matters. *Addiction*, *107*(5), 885-886. doi:10.1111/j.1360-0443.2011.03744.x

Sittner, K. (2016). Trajectories of substance use: Onset and adverse outcomes among North American Indigenous adolescents. *Journal of Research on Adolescence, 26*(4), 830-844. doi:10.1111/jora.12233

Slattery, T., & Meyers, S. (2014). Contextual predictors of adolescent antisocial behavior: The developmental influence of family, peer, and neighborhood factors. *Child & Adolescent Social Work Journal*, *31*(1), 39-59. doi:10.1007/s10560-013-0309-1

Song, E., Smiler, A. P., Wagoner, K. G., & Wolfson, M. (2012). Everyone says it's ok: Adolescents' perceptions of peer, parent, and community alcohol norms, alcohol consumption, and alcohol-related consequences. *Substance Use & Misuse*, *47*(1), 86-98. doi:10.3109/10826084.2011.629704

Stattin, H., & Kerr, M. (2000). Parental monitoring: A reinterpretation. *Child Development, 71*(4), 1072-1085. http://dx.doi.org/10.1111/1467-8624.00210

Steinberg, L., & Monahan, K. C. (2007). Age differences in resistance to peer influence. *Developmental Psychology*, *43*(6), 1531-1543. doi:10.1037/0012-1649.43.6.1531

Steinberg, L. (2015). The neural underpinnings of adolescent risk-taking: The roles of reward-seeking, impulse control, and peers. In G. Oettingen, & P. M. Gollwitzer (Eds.), *Self-regulation in adolescence* (pp. 173-192). Cambridge, England: Cambridge University Press.

Sumter, S., Bokhorst, C., Steinberg, L., & Westenberg, P. (2009). The developmental pattern of resistance to peer influence in adolescence: Will the teenager ever be able to resist? *Journal of Adolescence, 32*(4), 1009-1021. doi:10.1016/j.adolescence.2008.08.010

Sutherland, E. H. (1947). *Principles of criminology* (4th ed.). Oxford, England: J. B. Lippincott.

Swadi, H., & Zeitlin, H. (1988). Peer influence and adolescent substance abuse: A promising side?. *British Journal of Addiction*, *83*(2), 153-157. https://doi.org/10.1111/j.1360-0443.1988.tb03976.x

Tarter, R. E., Kirisci, L., Mezzich, A., Cornelius, J. R., Pajer, K., Vanyukov, M., Gardner, W., Blackson, T., & Clark, D. (2003). Neurobehavioral disinhibition in childhood predicts early age at onset of substance use disorder. *The American Journal of Psychiatry, 160*(6), 1078-85. https://doi.org/10.1176/appi.ajp.160.6.1078

Telzer, E. H., Gonzales, N., & Fuligni, A. J. (2014). Family obligation values and family assistance behaviors: Protective and risk factors for Mexican American adolescents' substance use. *Journal of Youth and Adolescence, 43*(2), 270-83. http://dx.doi.org.nu.idm.oclc.org/10.1007/s10964-013-9941-5

Tomé, G., de Matos, M. G., Simões, C., Camacho, I., & AlvesDiniz, J. (2012). How can peer group influence the behavior of adolescents: Explanatory model. *Global Journal of Health Science*, *4*(2), 26-35. http://doi.org/10.5539/gjhs.v4n2p26

Trucco, E. M., Colder, C. R., & Wieczorek, W. F. (2011). Vulnerability to peer influence: A moderated mediation study of early adolescent alcohol use initiation. *Addictive Behaviors, 36*, 729-736. doi:10.1016/j.addbeh.2011.02.008

van der Molen, E., Vermeiren, R., Krabbendam, A., Beekman, A., Doreleijers, T., & Jansen, L. (2013). Detained adolescent females' multiple mental health and adjustment problem outcomes in young adulthood. *Journal of Child Psychology & Psychiatry*, *54*(9), 950-957. doi:10.1111/jcpp.12044

Wake, M., Bayer, J., Viner, R., Allen, N., Olsson, C., Simmons, J., . . . Patton, G. (2013). Study protocol: The childhood to adolescence transition study (CATS). *BMC Pediatrics, 13*(1), 1-13. doi:10.1186/1471-2431-13-160

Warr, M. (2005). Making delinquent friends: Adult supervision and children's affiliations. *Criminology, 43*(1), 77-106. http://dx.doi.org/10.1111/j.0011-1348.2005.00003.x

Warr, M. (2007). The tangled web: Delinquency, deception, and parental attachment. *Journal of Youth and Adolescence, 36*(5), 607-622. http://dx.doi.org.nu.idm.oclc.org/10.1007/s10964-006-9148-0

Werner, E. E., & Smith, R. S. (2001). *Journeys from childhood to midlife: Risk, resilience, and recovery*. Ithaca, NY: Cornell University Press.

Whitesell, N., Asdigian, N., Kaufman, C., Big Crow, C., Shangreau, C., Keane, E., . . . Mitchell, C. (2014). Trajectories of substance use among young American Indian adolescents: Patterns and predictors. *Journal of Youth and Adolescence: A Multidisciplinary Research Publication, 43*(3), 437-453. doi:10.1007/s10964-013-0026-2

Wiesner, M., Kim, H. K., & Capaldi, D. M. (2010). History of juvenile arrests and vocational career outcomes for at-risk young men. *Journal of Research in Crime and Delinquency, 47*(1), 91-117. https://doi.org/10.1177/0022427809348906

Wolfe, D.A., Crooks, C.V., Chiodo, D., Hughes, R.E., & Ellis, W.L. (2011). Observations of adolescent peer resistance skills following a classroom-based healthy relationship program: A post-intervention comparison. *Prevention Science, 13*, 196-205. https://doi.org/10.1007/s11121-011-0256-z

Appendix A

Demographics and Family Structure Questionnaire

Demographics and Family Structure Questionnaire

Which of the following best describes your parents' current relationship?

○ my parents are married or in a committed relationship with each other

○ my parents were never married or in a relationship with each other

○ my parents are separated or divorced from each other

○ one of my parents is married or in a relationship with a new partner

○ both of my parents are married or in relationships with new partners

○ one of my parents passed away

○ both of my parents passed away

○ other: _____

Which of the following best describes your current living situation?

○ I live with both of my parents

○ I live with only my mother

○ I live with only my father

○ I live with my mother and my stepfather (or mother's boyfriend)

○ I live with my father and my stepmother (or father's girlfriend)

○ I live with my mother and other relatives

○ I live with my father and other relatives

○ I live with my grandparents or other relatives

○ I live with foster parents or other non-relative adults

○ I live with friends

○ other: _____

○ prefer not to answer

How often do you typically see and/or spend time with your mother?

○ every day

○ a few times a week

○ a few times a month

○ a few times a year

○ never

○ other: _____

How often do you typically see and/or spend time with your father?

○ every day

○ a few times a week

○ a few times a month

○ a few times a year

○ never

○ other: _____

Appendix B

Parent-Adolescent Relationship Scale (Hair et al., 2005)

Parent-Adolescent Relationship Scale (Hair et al., 2005)

Relationship with mother

	Please tell me whether you strongly agree, agree, neither agree nor disagree, disagree, or strongly disagree with the following statements about your **mother**	Strongly disagree	Disagree	Neither agree nor disagree	Agree	Strongly agree
1	I think highly of her	○	○	○	○	○
2	She is a person I want to be like	○	○	○	○	○
3	I really enjoy spending time with her	○	○	○	○	○
	How often does your **mother**…	Never	Rarely	Sometimes	Usually	Always
4	How often does she praise you for doing well?	○	○	○	○	○

5	How often does she criticize you or your ideas?	○	○	○	○	○
6	How often does she help you do things that are important to you?	○	○	○	○	○
7	How often does she blame you for her problems?	○	○	○	○	○
8	How often does she make plans with you and cancel for no good reason?	○	○	○	○	○

Relationship with father

	Please tell me whether you strongly agree, agree, neither agree nor disagree, disagree, or strongly disagree with the following statements about your **father**	Strongly disagree	Disagree	Neither agree nor disagree	Agree	Strongly agree
1	I think highly of him	○	○	○	○	○

2	He is a person I want to be like	○	○	○	○	○
3	I really enjoy spending time with him	○	○	○	○	○
	How often does your **father**…	Never	Rarely	Sometimes	Usually	Always
4	How often does he praise you for doing well?	○	○	○	○	○
5	How often does he criticize you or your ideas?	○	○	○	○	○
6	How often does he help you do things that are important to you?	○	○	○	○	○
7	How often does he blame you for him problems?	○	○	○	○	○
8	How often does he make plans with you and cancel for no good reason?	○	○	○	○	○

Appendix C

Resistance to Peer Influence Scale (Steinberg & Monahan, 2007)

Resistance to Peer Influence Scale (Steinberg & Monahan, 2007)

Resistance to Peer Influence Scale

For each question, decide which sort of person you are most like — the one described on the right or the one described on the left. Then decide if that is "sort of true" or "really true" for you, and mark that choice. For each line mark only ONE of the four choices.

Really True for Me	Sort of True for Me				Sort of True for Me	Really True for Me
❑	❑	Some people go along with their friends just to keep their friends happy.	BUT	Other people refuse to go along with their friends want to do, even though they know it will make their friends unhappy.	❑	❑
❑	❑	Some people think it's more important to be an individual than to fit in with the crowd.	BUT	Other people think it is more important to fit in with the crowd than to stand out as an individual.	❑	❑
❑	❑	For some people, it's pretty easy for their friends to get them to change their mind.	BUT	For other people, it's pretty hard for their friends to get them to change their mind.	❑	❑
❑	❑	Some people would do something that they knew was wrong just to stay on their friends' good side.	BUT	Other people would not do something they knew was wrong just to stay on their friends' good side.	❑	❑
❑	❑	Some people hide their true opinion from their friends if they think their friends will make fun of them because of it.	BUT	Other people will say their true opinion in front of their friends, even if they know their friends will make fun of them because of it.	❑	❑
❑	❑	Some people will not break the law just because their friends say that they would.	BUT	Other people would break the law if their friends said that they would break it.	❑	❑
❑	❑	Some people change the way they act so much when they are with their friends that they wonder who they "really are".	BUT	Other people act the same way when they are alone as they do when they are with their friends.	❑	❑
❑	❑	Some people take more risks when they are with their friends than they do when they are alone.	BUT	Other people act just as risky when they are alone as when they are with their friends.	❑	❑
❑	❑	Some people say things they don't really believe because they think it will make their friends respect them more.	BUT	Other people would not say things they didn't really believe just to get their friends to respect them more.	❑	❑
❑	❑	Some people think it's better to be an individual even if people will be angry at you for going against the crowd.	BUT	Other people think it's better to go along with the crowd than to make people angry at you.	❑	❑

Scoring instructions: Score each item from 1 to 4 (reading left to right on the instrument). Reverse-score items 2, 6, and 10. Sum the scores for valid responses and divide by the number of valid items. It is recommended that at least 7 items have valid responses.

Appendix D

Delinquency Index – Youth Report (Child Trends, Inc., 1999)

Delinquency Index–Youth Report (Child Trends, Inc., 1999)

1. Have you ever run away, that is, left home and stayed away at least overnight without your parent's prior knowledge or permission?

o No

o Yes

2. Have you ever carried a hand gun? When we say hand gun, we mean any firearm other than a rifle or shotgun.

o No

o Yes

3. Have you ever belonged to a gang?

o No

o Yes

4. Have you ever purposely damaged or destroyed property that did not belong to you?

o No

o Yes

5. Have you ever stolen something from a store or something that did not belong to you worth less than 50 dollars?

o No

o Yes

6. Have you ever stolen something from a store, person or house, or something that did not belong to you worth 50 dollars or more including stealing a car?

o No

o Yes

7. Have you ever committed other property crimes such as fencing, receiving, possessing or selling stolen property, or cheated someone by selling them something that was worthless or worth much less than what you said it was?

o No

o Yes

8. Have you ever attacked someone with the idea of seriously hurting them or have a situation end up in a serious fight or assault of some kind?

o No

o Yes

9. Have you ever sold or helped sell marijuana (pot, grass), hashish (hash) or other hard drugs such as heroin, cocaine or LSD?

o No

o Yes

10. Have you ever been arrested by the police or taken into custody for an illegal or delinquent offense (do not include arrests for minor traffic violations)?

o No

o Yes

Appendix E

Delinquency Index – Peer Report (adapted from Child Trends, Inc., 1999)

Delinquency Index – Peers (adapted from Child Trends, Inc., 1999)

1. Have any of your friends ever run away, that is, left home and stayed away at least overnight without their parents' prior knowledge or permission?

o No

o Yes

2. Have any of your friends ever carried a hand gun? When we say hand gun, we mean any firearm other than a rifle or shotgun.

o No

o Yes

3. Have any of your friends ever belonged to a gang?

o No

o Yes

4. Have any of your friends ever purposely damaged or destroyed property that did not belong to them?

o No

o Yes

5. Have any of your friends ever stolen something from a store or something that did not belong to them worth less than 50 dollars?

o No

o Yes

6. Have any of your friends ever stolen something from a store, person or house, or something that did not belong to them worth 50 dollars or more including stealing a car?

o No

o Yes

7. Have any of your friends ever committed other property crimes such as fencing, receiving, possessing or selling stolen property, or cheated someone by selling them something that was worthless or worth much less than what they said it was?

o No

o Yes

8. Have any of your friends ever attacked someone with the idea of seriously hurting them or have a situation end up in a serious fight or assault of some kind?

o No

o Yes

9. Have any of your friends ever sold or helped sell marijuana (pot, grass), hashish (hash) or other hard drugs such as heroin, cocaine or LSD?

o No

o Yes

10. Have any of your friends ever been arrested by the police or taken into custody for an illegal or delinquent offense (do not include arrests for minor traffic violations)?

o No

o Yes

Appendix F

Parent Consent Form for Participation

Adolescent Problem Behavior: The Impact of Parents, Peers, and Perceptions

Parent Consent Form

Lina A. Kurlis, MA

PURPOSE

Your son or daughter has been invited to take part in a study because he/she is involved in a substance use intervention program. We are doing this study to understand more about how teens' relationships, social influences, and personal perceptions contribute to substance use and other problem behavior, such as delinquency.

PROCEDURES

If your teen and you agree to participate, we will use information we are collecting during the intervention in the study. Your teen will complete an assessment of drug and alcohol use, as well as assessments of thoughts, feelings, and other behaviors. Your teen will also complete questionnaires about his relationship with you- his or her parents- as well as about the influence that his or her friends have on his or her attitudes and behaviors. Lastly, your teen will report on his or her own involvement in a variety of problematic behaviors or activities and provide estimates of his or her friends' involvement in these same behaviors or activities.

The questionnaires used in this study take about 45 to 60 minutes to complete.

RISKS AND DISCOMFORTS

There is not much risk to this project. Teens who participate in the research will answer our questions whereas teens who do not choose to participate will not. Sometimes people become uncomfortable or upset while answering questions about problems. In this case, staff administering the questionnaires will provide support and make referrals for any students who need additional help. Responses to some questions about teens' behavior or the behavior of their friends may not be positively received by others. We do not share teens' responses with anyone, and we discourage teens who participate in the research from sharing their responses with others.

BENEFITS

There is no direct benefit of participating in the research to the teen. All teens receive help with their drug and alcohol problems whether they participate in the study or not. This research benefits society by helping us understand how certain variables are involved in adolescent problem behavior.

PARTICIPATION AND ALTERNATIVES TO PARTICIPATION

Your teen's participation in this study is voluntary. Your teen may quit this study without consequences. If your teen decides to participate, your teen may withdraw from the study at any time. If your teen withdraws from the study, we will destroy their data. Likewise, the researcher may end participation at any time. If your teen does not agree to participate in the study, they will still receive the treatment.

CONFIDENTIALITY

We will ask your teen about substance use; however, this information will not be connected back to them and no one will find out about their drug or alcohol use. There is a federal law that protects all Drug and Alcohol Records, CFR 42, part 2. We must follow this law. We will also ask your teen about involvement in delinquent activities, however, possible responses only indicate whether or not he or she was involved and do not ask about any details. None of this information will be connected back to them or shared with anyone.

To make sure their information stays private, they will get a project number once they agree to participate. All of the papers they fill out for the research will only have that number and will only be seen by members of the research team. At no point will anyone in the teens' school see the results of their substance use tests or their responses to the other questionnaires. They can give us written permission to let someone else see the papers from this study but otherwise no one can see them. The research papers will be handled by the research team and safely stored. The study records will be kept private. We will not write or say anything in reports could link your teen to the study. Grouped data from the research, not identifying the participants, may be used in future research, presentations, or for teaching purposes.

PARTICIPANTS RIGHTS

Lina Kurlis is in charge of this study under the supervision of Dr. Jennifer Harris. You can call or email her if you have questions at any time about how the study is working. You should also call or email her if you feel bad or something negative happens to you because of the study. Lina Kurlis can be reached at lina.kurlis14@northwestu.edu (253) 439-9076, and Dr. Harris can be reached at jenny.harris@northwestu.edu, and (509) 723-7757. You may also contact the Chair of the Northwest University IRB, Dr. Molly Quick, at molly.quick@northwestu.edu or (425) 889-5327.

Thank you for your consideration of this request.

CONSENT

Your signature on this form indicates that you have understood to your satisfaction the information regarding participation in this research project and agree to allow your teen to participate as a participant. In no way does this waive your legal rights nor release the investigators, sponsors, or involved institutions from their legal and professional responsibilities.

I have read the above information and agree to allow my teen to participate in this study. I have received a copy of this form.

I give, Youth's Name:_____ permission to participate in the current study: YES NO

Parent or Guardian's Name (print)	**Researcher's Name (print)**

Parent or Guardian's Signature	**Researcher's Signature**
Date	**Date**

Copies to:
Participant
Principal Investigator

Appendix G

Participant Consent Form

Adolescent Problem Behavior: The Impact of Parents, Peers, And Perceptions

Student Consent Form

Lina A. Kurlis, MA

PURPOSE

You are invited to take part in a study because you are involved in a substance use intervention. We are doing this study to understand more about how teens' relationships, social influences, and personal perceptions contribute to substance use and other problem behavior, such as delinquency.

PROCEDURES

If you agree to participate, we will use information we are collecting during the intervention in the study. You will complete an assessment of drug and alcohol use, as well as assessments of thoughts, feelings, and other behaviors. You will also complete questionnaires about your relationship with your parents and about the influence that your friends have on your attitudes and behaviors. Lastly, you will tell us about some problematic behaviors or activities you have been involved in and provide an estimate of how many of your friends have been involved in the same behaviors or activities. The questionnaires used in this study take about 45 to 60 minutes to complete.

RISKS AND DISCOMFORTS

There is not much risk to this project. Teens who participate in the research will answer our questions whereas teens who do not choose to participate will not. Sometimes people become uncomfortable or upset while answering questions about problems. In this case, staff administering the questionnaires will provide support and make referrals for any students who need additional help. Responses to some questions about teens' behavior or the behavior of their friends may not be positively received by others. We do not share teens' responses with anyone, and we discourage teens who participate in the research from sharing their responses with others.

PARTICIPATION AND ALTERNATIVES TO PARTICIPATION

Your participation in this study is voluntary. You may quit this study without consequences. If you decide to participate, you may withdraw from the study at any time. If you withdraw from the study we will destroy your data. Likewise, the researcher may end participation at any time. If you do not agree to participate in the study, you will still receive the treatment.

CONFIDENTIALITY

We will ask you about substance use, however this information will not be connected back to you and no one will find out about your drug or alcohol use. There is a federal law that protects all Drug and Alcohol Records, CFR 42, part 2. We must follow this law. We will also ask you about your involvement in delinquent activities, however, possible responses only indicate whether or not you have ever been involved in them and do not ask about any details. None of this information will be connected back to you or shared with anyone. To make sure your information stays private you will get a project number once you agree to participate. All of the papers you fill out for the research will only have that number and will only be seen by members of the research team. At no point will anyone in your school see the results of your substance use tests. You can give

us written permission to let someone else see the papers from this study but otherwise no one can see them. The research papers will be handled by the research team and safely stored. The study records will be kept private. We will not write or say anything in reports could link you to the study. Grouped data from the study, not identifying the participants may be used in future research, presentations, or for teaching purposes.

PARTICIPANTS RIGHTS

Lina Kurlis is in charge of this study under the supervision of Dr. Jennifer Harris. You can call or email her if you have questions at any time about how the study is working. You should also call or email her if you feel bad or something negative happens to you because of the study. Lina Kurlis can be reached at lina.kurlis14@northwestu.edu (253) 439-9076, and Dr. Harris can be reached at jenny.harris@northwestu.edu, and (509)723-7757. You may also contact the Chair of the Northwest University IRB, Dr. Molly Quick, at molly.quick@northwestu.edu or (425) 889-5327.

Thank you for your consideration of this request.

Consent

Your signature on this form indicates that you have understood to your satisfaction the information regarding participation in this research project and agree to participate as a participant. In no way does this waive your legal rights nor release the investigators, sponsors, or involved institutions from their legal and professional responsibilities.

I give my permission for the researchers to contact my parent or guardian and inform them of my participation in this project and additionally ask their permission. I understand that no additional information from my participation will be released to my parent/guardian without my permission.

Name of parent _____
Address _____
Phone _____ Alt Phone _____
Email address _____

This consent for release of information will automatically expire the date on which my treatment is complete.

I have read the above information and agree to participate in this study. I have received a copy of this form.

Participant's Name (print)	**Researcher's Name (print)**
Participant's Signature	**Researcher's Signature**

Date	**Date**

Copies to:
Participant
Principal Investigator

Appendix I

IRB Approval

Northwest University

5520 108th Ave. NE

Kirkland, WA 98033

Date 5 July 2018

Primary Investigator Lina Kurlis

Study Proposal Title ADOLESCENT PROBLEM BEHAVIOR: THE IMPACT OF PARENTS, PEERS, AND PERCEPTIONS

Effective Date 5 July 2018

Expiration Date 3 July 2019

Dear Ms. Kurlis,

The Northwest University (NU) Institutional Review Board (IRB) has **fully approved your proposed research**

study ADOLESCENT PROBLEM BEHAVIOR: THE IMPACT OF PARENTS, PEERS, AND PERCEPTIONS.

Thank you for your careful consideration of the participants in your work; may your results be fruitful.

This letter serves as permission from the NU IRB to begin collecting data. The IRB permission will lapse in one year's time; if at that time you are still collecting data, please plan to update the committee before 3 July 2019 Similarly, if details of your study change significantly, please alert the NU IRB before implementing those changes.

If you have any questions, please contact me at molly.quick@northwestu.edu or irb@northwestu.edu.

Sincerely,

Molly Quick, Ph.D.

Associate Professor | College of Education

Chair | Institutional Review Board

office 425-889-5327