

Decreasing Social Crisis Behaviour Over Time:
The Impact of Substance Use Treatment and Family Functioning

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Abstract

Research has identified that one of the more serious consequences related to adolescent substance use and abuse is increased involvement with crime and delinquent behaviour. Research has also shown that treatment for substance use and addiction can be an effective approach to reducing other problematic behaviours such as crime. The purpose of this study was to determine if social crises decrease pre- to post-treatment. Additionally, the current study investigated how improvements in family functioning and substance use (alcohol and marijuana) may contribute to decreases in delinquent behaviour three-months post-treatment. A total of 74 parent-reported responses were included for adolescents attending an addiction treatment centre in Toronto (56.8% male, 43.2% female, $M = 17.64$ years old, $SD = 1.39$). Parents completed measures assessing adolescent social crisis (running away, crime, and hospital visits), overall family functioning, and adolescent substance use (alcohol and marijuana) at various points before, during, and after treatment. Results found that treatment for substance use effectively reduced the occurrence of social crises pre- and post-treatment. In addition, results suggest that improvements in family functioning and substance use positively impacted reductions in social crisis three-months post-treatment. The study provides insight into the cyclic nature of adolescent substance use and crime and the effect of family-based addiction treatment programs in reducing deviant behaviours over time.

Keywords: Adolescent, substance use, delinquency, crime, runaway, hospital visits, family functioning

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Overview

The transition from childhood to adolescence is characterized by significant changes in social, cognitive, and biological domains. For instance, adolescents may be entering their last year of high school, exploring romantic relationships, and striving for greater independence (Richter, 2006). Adolescence can also be a time of experimentation, which results in increased risk-taking and delinquent behaviours. For instance, over 33% of youth between 12 and 14 years, and over 40% of adolescents between 15 and 19 years of age have engaged in high risk, binge drinking (Paglia-Boak & Adlaf, 2007; The Chief Public Health Officer's Report [CPHO], 2018). Although risk-taking and experimentation are thought to be a fairly normal part of adolescent development, the initiation of substance use early during this developmental period has been linked to several detrimental and potentially long-term consequences (Abbey et al., 2006). Perhaps one of the more serious consequences related to adolescent substance use and abuse is increased involvement with crime and delinquent behaviour. For instance, although marijuana and alcohol are commonly used substances among the general adolescent population, justice system-involved youth are more likely to engage in higher rates of substance use (Aalsma et al., 2019). Young offenders are four to nine times more likely to consume alcohol and 14 times more likely to use marijuana compared to non-offenders (Hawkins et al., 1988). Moreover, justice system-involved youth are at greater risk of becoming illicit drug users. For example, approximately 50% of serious juvenile offenders (reporting three or more offenses in the past year) are also illicit drug users (e.g., cocaine, heroin, narcotics; Hawkins, et al., 1988). Common examples of criminal activity seen in adolescent's who abuse substances include panhandling,

shoplifting, drug trafficking, robbery, and burglary (Dembo et al., 1992; Kim et al., 2009). It is likely that young juvenile offenders will continue their delinquent behaviour into adulthood; consequently, minor crimes committed during adolescence turn into more serious offenses in adulthood (Chassin, 2008).

Although trouble with the law may be common for adolescents who experience addiction, not all youth who abuse substances disobey the law. Many adolescents use both illegal (e.g., cocaine, opiates, heroin) and legal (e.g., alcohol, over-the counter prescriptions, inhalants) substances which are commonly obtained from their parents or peers (the American Academy of Child and Adolescent Psychiatry [AACAP], 2021). It is important to distinguish the adolescents most at risk for trouble. One variable that might help us to better understand the relationship between adolescent substance abuse and crime, is family functioning. For instance, youth with less parental supervision, limited family or parental support, and exposure to parental risky behaviours may be more likely to abuse substances in the first place, and to experience trouble with the law. Moreover, while research has confirmed the relationship between substance use and trouble with the law (Chassin, 2008; Dembo et al., 1992; Hawkins et al., 1988; Kandel et al., 1976), there is limited knowledge regarding whether in-patient addiction treatment services decrease corresponding crime and deviancy issues.

The current study will therefore examine the relationship between substance abuse and trouble with the law. Specifically, we will determine how trouble with the law and other crises change (e.g., increase or decrease) pre-treatment to post-treatment. Additionally, the current study will examine what variables (e.g., family functioning) might be associated with a decrease in social crisis.

Adolescence and Substance Abuse

One of the major characteristics of the adolescent transition is increased risk-taking and sensation seeking. From a developmental perspective, there are several reasons why this occurs. First, adolescence is a time when social influence and fear of rejection play a critical role in a youth's sense of self and their decision-making process. For instance, researchers have found a strong association between fear of social rejection and the initiation of substance abuse (Reed & Rountree, 1997). Moreover, when adolescents do experiment with substances, they are most likely to do so in social groups, with the expectation that they will get intoxicated (Reed & Rountree, 1997).

Another reason for an increase in substance use during this time is related to development of the adolescent brain (Bonnie & Scott, 2013). Specifically, the staggered timing of development across different regions of the brain, is known to contribute to the heightened vulnerability to risk-taking behaviours and poor judgement during adolescence (Bonnie & Scott, 2013). The prefrontal cortex is the brain region that controls executive functions (e.g., controlling impulses, making decisions, and weighing consequences) and matures throughout the duration of adolescence (Bonnie & Scott, 2013). Due to the length of time it takes for the prefrontal cortex to mature, adolescents are unlikely to fully control their impulses and regulate their emotions until early adulthood (Bonnie & Scott, 2013). Therefore, immaturity of the prefrontal cortex is one explanation for the impulsivity exhibited during adolescence (Steinberg & Chein, 2015). In addition to the slow development of the prefrontal cortex, changes within the limbic system also occur during adolescence. Alterations within the limbic system typically start to occur around puberty (13 years of age) which results in heightened emotional arousal and an inclination towards sensation seeking (Bonnie & Scott, 2013). Although it is normal for adolescents to seek approval from their peers, it becomes destructive when the reward is

detrimental to the youth (e.g., substance use and criminal activity). An easily aroused incentive-processing system and an immature cognitive-processing system results in risk-taking tendencies (Steinberg & Chein, 2015). Researchers have concluded that adolescents are more inclined to engage in risk-taking behaviours and to seek reward due to the diminished capacity of self-regulation (Bonnie & Scott, 2013). Overall, due to immature brain development, adolescence is characterized by diminished decision making and intensified vulnerability to external pressures leading to both substance abuse and criminal behaviour (Bonnie & Scott, 2013).

Prevalence of substance use. Youth between 15 and 24 years old continue to have the highest self-reported use of illicit substances compared with other Canadians (Canadian Centre on Substance Abuse [CCSA], 2012). Canadian surveys show that alcohol and cannabis are the most widely used substances among youth (CCSA, 2007). Polysubstance use is a very common occurrence within the adolescent population and occurs when a person uses several different substances during the same or different occasions (CCSA, 2007). For instance, it is not uncommon for youth to use tobacco, cannabis, or alcohol indiscriminately (CCSA, 2007). Polysubstance abuse during adolescence increases the risk of chronic illicit substance use in the future (Leatherdale et al., 2008). Moreover, polysubstance abuse is associated with impulse control difficulties resulting in increased risk of delinquent behaviours and criminal activity (Mukku et al, 2012).

Although polysubstance abuse is common during adolescence, alcohol remains the most widely used substance by youth. For instance, 44% of youth between the ages of 12 and 18 years reported consuming alcohol in the past year (Canadian Centre on Substance Use and Addiction [CCSUA], 2019). In addition to normative patterns of alcohol use, binge drinking is also very common during adolescence. Binge drinking can be defined as having five or more drinks in a

single occasion (CCSA, 2007). More than one quarter (25%) of drinkers between 12 and 19 years of age reported binge drinking more than 12 times in one year (CCSA, 2007). Moreover, early initiation of alcohol has been linked to negative consequences later in development (e.g., regular heavy use and dependence; CCSA, 2007). After alcohol, cannabis is the second most common and widely used substance by youth. For instance, approximately 17% of 12 to 14-year-olds, 29% of 15 to 17-year-olds, and about 50% of 18 to 19-year-olds report cannabis use (CCSA, 2007). Of these, about three to five percent report using cannabis daily (CCSA, 2007). Though alcohol and cannabis are the most common and widely used substances among adolescents, there are some adolescents who also use other illicit drugs. For instance, approximately 10% of youth have reported using hallucinogenic drugs (e.g., magic mushrooms) as well as ecstasy or cocaine (CCSA, 2007).

Adolescents may choose to use substances for various normative reasons (e.g., social enhancement, experimentation, or medicinal purposes). However, there comes a point in which substance use becomes detrimental to the youth (Canadian Mental Health Association [CMHA], 2020). Substance use can be understood as being on a spectrum from normative experimentation to problematic, chronic use (CMHA, 2020). When the adolescent moves along the spectrum closer to problematic, chronic use, it is likely they will start to encounter more negative consequences (CMHA, 2020). For example, problematic use may lead to trouble with family or peers, school, health, employment, and trouble with the law (CMHA, 2020).

Delinquency and Substance Use

Adolescents will engage in delinquent behaviours with or without the presence of substances, however, substance use is a known risk factor leading to increased rates of delinquency. For instance, researchers have reported that approximately 50% of young offenders

report using alcohol or drugs prior to violent behaviour and approximately 40% report using drugs immediately prior to committing an offense (Hawkins et al., 1988). The development of chronic substance use is also significantly higher in youth who have been arrested compared with youth who have not. In addition, delinquent youth are more likely to have started using substances significantly earlier than their non-delinquent peers (Aalsma et al., 2019).

While there is a connection between substance use and crime, the direction of the pathway between the two is unclear. For instance, drug users are more likely to have a connection or history with the criminal justice system compared with non-users (French et al., 2004), whereby drug use is the incentive for criminal activity. Research examining substance related crime has identified a variety of mechanisms linking substance use to the onset of criminal activity such as burglary, robbery, and drug trafficking (Bennett & Holloway, 2009). One such mechanism may be the inherent effects of the substance, which may prompt offenders to commit a crime (Bennett & Holloway, 2009). For instance, alcohol consumption is known to decrease inhibitions, impair judgement, and increase the chances of aggressive behaviours (Field et al., 2010). Thus, the euphoric and intoxicating effects of substances are thought to lead to decreased judgement, as well as increased courage to offend (Bennett & Holloway, 2009). Substance use tendencies may therefore be a motivating factor leading to increased engagement in criminal activity and may result in youth committing criminal offenses that were not originally planned. Moreover, research finds that youth may partake in burglary or shoplifting in order to obtain money to purchase substances (Bennett & Holloway, 2009). Additionally, the criminal activity of dealing drugs is sometimes used as a way of obtaining drugs; therefore, drug use can be seen as the impetus for crime (Moore & Kleiman, 1989). Overall, many researchers have reported that drug use may be an underlying cause of criminal activity. With this in mind,

several other researchers have found a reverse causality, whereby a criminal lifestyle leads to experimentation with substances and potential abuse (French et al., 2004). For instance, some offenders will use drugs to gain courage in order to commit the crime (Bennett & Holloway, 2009). Others, who may be working as drug dealers, may start using due to the constant supply of substances they find themselves surrounded by (Moore & Kleiman, 1989). Other instances of crime causing drug use is seen when offenders celebrate a successful crime (e.g., shoplifting or burglary) by spending their earnings on pleasurable pursuits, such as drugs.

While no single model can explain all drug-related crime, it is likely that the relationship between substance use and criminal activity is a bidirectional one, whereby engagement in one activity leads to increased engagement in the other. Given the cyclical nature of substance use and crime, it is likely that there are several risk factors common to both.

Risk and Protective Factors Accompanying Substance Use and Delinquency

The risk factor paradigm is one approach taken to better understand the underlying cause of both substance abuse and criminal behaviours (Shader, 2004). A risk factor may increase the probability of offending or substance abuse; however, it does not make offending or substance abuse a certainty (Shader, 2004). Shader (2004) identified family structure (e.g., poor parenting skills, home discord, and child maltreatment) as a risk factor associated with adolescent delinquency. For example, a study of 250 boys found that among a sub-sample of 10-year-old boys, the strongest predictors of later, criminal offenses were poor parental supervision, parental conflict, and parent aggression (e.g., harsh, punitive discipline; Shader, 2004). Additionally, the more risk factors that an individual is exposed to, the more likely they are to engage in delinquent behaviours (Shader, 2004). For instance, a 10-year-old exposed to six or more risk

factors is 10 times more likely to commit a violent act by late adolescence (age 18) than a 10-year-old exposed to only one risk factor.

The differential association theory is another way to explain the onset of substance use or delinquent behaviour (Reed & Roundtree, 1997). The differential association theory states that substance use and delinquency are products of learned behaviours. This becomes evident when discussing the role that family and peers play in adolescent's risk-taking tendencies. Specifically, family cohesion, family stressors, and nonfamilial relationships (e.g., peers) may contribute to the development of deviant behaviour during adolescence (Church et al., 2008). Adolescents that come from troubled homes or a family with high stress and low cohesion levels (e.g., lack of emotional connectedness) are at heightened risk of developing substance use and risk-taking tendencies (Church et al., 2008). In contrast, adolescents who have a cohesive family environment have higher levels of communication and positive interactions; thus, are less likely to develop risk-taking tendencies (Church et al., 2008). Likewise, the choice of peer group can also have an influence on adolescent substance use and delinquent behaviours.

Peer and social influences. Peers can strongly influence the onset of delinquent behaviour (Allen et al., 2012). Peer group risk factors include weak social ties, association with delinquent peers, as well as gang association (Kim et al., 2009). Another key predictor of delinquency in youth between the ages of 12 and 14 is the presence and association with antisocial peers (Kim et al., 2009). The presence of peers primes a reward-sensitive motivational state, which increases the value of immediately available rewards. This increases the preference for short-term benefits associated with risky choices (Albert et al., 2013). For instance, an adolescent who engages in substance consumption or some form of delinquent or criminal behaviour is likely to be rewarded with social acceptance and admiration of their peer group.

Both direct (e.g., actions) and indirect (e.g., attitudes) peer pressure can influence an adolescent's decision-making processes which then leads to risk-taking tendencies. Therefore, it is common for risk taking youth to gravitate towards one another (Albert et al., 2013). Likewise, if a non-delinquent adolescent spends excessive time with delinquent peers, there is a good chance the youth will begin to engage in delinquent behaviours (Allen et al., 2012).

When looking more specifically at substance use, we see that association with substance using peers is one predictive factor of adolescent substance use (Swaim, 1991). It is common for adolescents to engage in behaviours that are motivated or modelled by their peers (Reed & Rountree, 1997). Youth fear that there will be a loss of popularity, loss of respect, rejection, and social withdrawal if they do not engage in the same behaviours as their peers (Reed & Rountree, 1997). Adolescents who are highly involved and affiliated with their peers are more likely to use marijuana compared to adolescents with limited peer involvement (Reed & Rountree, 1997). Additionally, an adolescent's popularity is a marker of peer connection, which has been linked to increased alcohol use over time (Allen et al., 2012). Therefore, adolescents that are involved with "well-liked" peers are more likely to change their substance use behaviours to match their friend's level of substance use (Allen et al., 2012). Moreover, youth have a strong need to be affiliated with their peers therefore, engagement in risky behaviours is motivated by the need to be approved and recognized by peers (Reed & Rountree, 1997).

To conclude, the need to "fit in" or the desire to be "accepted" by peers is strongly influential on an adolescent's involvement in substance use and delinquent behaviours (Reed & Rountree, 1997). Although association with peers is predictive of risk-taking behaviours, strong family cohesion may protect children from the influence of deviant peers (Church et al., 2008).

Researchers suggest that the adolescents' family plays a critical role in the onset of juvenile delinquency and substance use (Church et al., 2008).

Family influences. Familial relationships affect early childhood development; therefore, negative parent-child relationships during childhood may lead to the onset of problem behaviours later during adolescence (e.g., substance use and crime; Church et al., 2008). Key family risk factors for adolescent substance use and crime include family conflict, poor child-parent relationships, inadequate parenting styles, harsh or inconsistent discipline, or a history of parental substance use (Hawkins et al., 1988; Kim et al., 2009; Swaim, 1991). For instance, some of the strongest predictors of violent offenses or convictions in 10-year-old boys are poor parental supervision, parental conflict, and parental aggression (Kim et al., 2009). Additionally, if a child experiences high levels of maltreatment (e.g., emotional mistreatment, abuse, or neglect) there is an increased likelihood of delinquent behaviour and substance use (Kim et al., 2009). Researchers have concluded that substance abuse and delinquency are likely to co-occur in adolescence if the youth experienced abuse, neglect, and malnourishment in early childhood (Dembo et al., 1992; Kim et al., 2009). Moreover, exposure to childhood maltreatment may have adverse consequences on cognitive functioning (e.g., emotion regulation, decision making, and impulse control), that in turn, may lead to increased risk of substance use disorders and delinquency (Chassin, 2008). Family members that are neglectful, unsupportive, or provide poor supervision may provoke a "difficult child." The "difficult child" is a youth who may engage in substance use due to over reactivity to stimuli in combination with aggression or poor impulse control (Swaim, 1991). In what follows, we will more thoroughly examine the role of family relations in terms of substance use and delinquency.

The Role of Family

Family is a critical source of information for learning the values and norms that help shape our thoughts and behaviours. As such, there are many characteristics of parental relationships that can contribute to an adolescent's substance use and risk-taking tendencies. Negative parental influences may be one of the strongest predictive factors for alcohol use, drug abuse, and delinquency exhibited by adolescents (Clark et al., 2011).

Poor parental monitoring and diminished parental control are known to directly affect youth's alcohol use. For instance, Clark et al., (2011) found that adolescents that come from a family with rigid rules and/or broad limits are at higher risk of negative consequences. Boys that have parents who set rigid rules are more likely to show increased levels of aggression, thus leading to increased levels of substance use. It is likely for an adolescent to engage with risk-taking peers if they have reduced levels of parental control within the home environment (Clark et al., 2011). Moreover, rejection from a parent may also increase the likelihood of adolescent alcohol use (Visser et al., 2012). When an adolescent experiences rejection at home or experiences poor interactions with their parents, they may be inclined to seek acceptance from their peers and thus engage in more risk-taking behaviours (e.g., substance use or delinquency). For instance, Hawkins et al., (1988) found that children raised in "broken homes" with poor parent-child interactions are at greater risk of substance use and delinquent behaviour later in life. Thus, an adolescent may be more prone to delinquent acts or substance use if they are raised in unstable home environments with minimal adult supervision and support (Cook & Laub, 1986). In addition to diminished parental control and rejection, parental overprotection has also been found to lead to an increase in undesirable behaviours (Visser, et al., 2012). Adolescents who have parents that are too overprotective are thought to exhibit increased levels of externalizing behaviours (e.g., alcohol use or delinquency) to reclaim some level of

independence. Overall, a lack of parental control or too much parental protection may lead to detrimental consequences for the adolescent (e.g., substance use and delinquency).

Family conflict is considered another risk factor leading to delinquency and substance use during adolescence. For instance, parental disputes and arguments about the adolescent have been shown to increase the adolescent's level of involvement with substances and delinquent behaviours (McQueen et al., 2003). It is common for adolescents to engage in poor coping mechanisms (e.g., illicit drug use and/or delinquency) to reduce the stress caused by family tension (McQueen et al., 2013). Parent-child or sibling-sibling conflict appears to be more predictive of later substance use and delinquency than the overall structure of the family; however, a change in quality and quantity (e.g., divorce) of family may be an underlying reason for the sudden increase in delinquency and troubling trends in youth (Cook & Laub, 1986; Hawkins et al., 1988).

In addition to family conflict, another important factor to consider is attachment between the adolescent and the parent. For instance, poor attachment to a mother is highly predictive of adolescent alcohol and marijuana use. Meanwhile, poor attachment to a father is highly predictive of adolescent binge drinking and illicit drug use (Clark et al., 2011). Specifically, overinvolved mothers and/or passive, disengaged fathers increase the likelihood of the development of pathological outcomes in their children (Swaim, 1991). Furthermore, if the adolescent experiences high levels of separation from caregivers or parents, they have a greater chance of alcohol use and deviant behaviours (McQueen et al., 2003). On the other hand, researchers have found that positive family relationships and concise communication among members typically discourage a youths' motivation for substance use (Hawkins et al., 1988).

Therefore, attachment between the adolescent and the parent is predictive of adolescent substance use and delinquent behaviours.

Perhaps one of the strongest predictors of youth substance use and delinquency is parental substance use and engagement in criminal activities. Children that are exposed to parental substance use early in development are at greater risk of substance use during adolescence (Hawkins et al., 1988). Wills and Yaeger (2003) for instance, found a positive correlation between parents smoking or drinking in the home, and increased substance use during adolescence. Family factors leading to adolescent substance use and delinquency are interrelated; parental substance use leads to negative parent-child conflict, which then increases the likelihood of adolescent substance use (Wills & Yaeger, 2003). Additionally, parents of adolescents who have been involved with the criminal justice system are likely to influence the criminal tendencies that an adolescent engages in (Swaim, 1991). For instance, it is likely an adolescent will engage in non-violent crime (e.g., property damage) if their parent engaged/engages in non-violent offences (e.g., theft; Swaim, 1991). To summarize, adolescents who have parents involved in criminality, model the use of substances or have a history of alcoholism are at heightened risk of substance abuse (Swaim, 1991). Overall, there are many familial risk factors that may increase the likelihood of substance use and delinquency in adolescents. Family conflict, poor child-parent relationships, poor parental monitoring and diminished parental control, parental attachment, and parental substance use and engagement in criminal activities are all significant predictive factors of adolescent delinquency and substance use.

Treatment for Adolescent Delinquency and Substance Use

The criminal justice system is a major referral source for adolescent substance users (Chassin, 2008). For instance, statistics for publicly funded substance abuse treatment programs

show that 55% of male juveniles and 39% of female juveniles are admitted (Chassin, 2008).

Juveniles who continue to use drugs throughout treatment are more likely to continue offending; therefore, treatment for drug use is one way to break the drug-crime cycle (Chassin, 2008).

Although substance use is extremely prevalent within the juvenile justice system, there continues to be an unmet need of treatment for youth offenders. For instance, approximately 30% of young offenders who are arrested need treatment for substance abuse. Unfortunately, of these 30% in need of treatment, less than half (48%) actually receive it (Chassin, 2008).

Treating substance use in adolescent offenders is difficult because there are typically other problems exhibited (e.g., mental health disorders or parental substance use; Chassin, 2008). Treatment is typically more effective for adolescents who have a clinical diagnosis of a substance use disorder (Chassin, 2008); however, in order for treatment to be successful, the treatment program needs to address all co-occurring problems (Chassin, 2008). Additionally, treatment for delinquency (e.g., Juvenile Division Centers) and substance abuse (e.g., addiction treatment centers) may have to occur in different locations depending on the youth and the severity of the problematic behaviour (e.g., in the community, in home, or in a secured facility; Chassin, 2008). Moreover, adolescent treatment programs need to address the environmental factors (e.g., family substance use and association with deviant peers) and additional factors (e.g., attitudes that motivate criminal behaviour) that may contribute to the youth's tendency to participate in risk-taking behaviours in order to be effective in reducing risk-taking tendencies (Chassin, 2008; VanderWaal et al., 2001).

Collaborative treatment programs need to be established in order to effectively address all concerns. The juvenile justice system cannot, independently provide for young offenders' treatment and developmental needs (VanderWaal et al., 2001). If treatment programs have a

single point of entry, followed by a comprehensive assessment, judicial decision-making, and then treatment, it is likely the youth will be reintegrated into the community with decreased levels of substance use and delinquency (VanderWaal et al., 2001). Adolescent substance use can be decreased with effective treatment programs. For example, 58% of adolescent substance users who are involved with the juvenile justice system showed reduced marijuana use, decreased drinking, and reduced criminal activity (Chassin, 2008). The longer the youth was in treatment, the more of a decrease is shown in the frequency of problematic behaviour (Chassin, 2008).

It is critical for interventions and treatment programs to recognize the central role of the risk-taking behaviour. For instance, is substance use causing the deviant behaviours or is deviant behaviour causing the onset of substance use? (VanderWaal et al., 2001). Additionally, treatment programs should address the underlying factors impacting substance use and delinquency and address them accordingly. Substance use and juvenile treatment programs should address the concerns in the environment to which the risk-taking behaviours occur (e.g., the family home, peer groups, or school; VanderWaal et al., 2001). To be effective, treatment programs need to be collaborative in order to break the drug-crime cycle exhibited by the adolescent (VanderWaal et al., 2001). Overall, treatment programming for youth with substance use and delinquency is complex. There are several factors involved in the adolescent's initiation into substance use, its continuation, and the potential relapse needs to be addressed (VanderWaal et al., 2001).

Pine River Addictions Treatment Centre for Adolescents

Pine River Institute (PRI) is a treatment centre for adolescents between the ages of 13 and 17 years who struggle with addictive behaviours which are frequently combined with mental health problems (PRI, n.d.). PRI aims to foster maturity within the adolescents by using a family-centered approach (PRI, n.d.). When an adolescent or family has completed the referral process,

they begin a four-phase journey which supports the youth's and their family's gradual development (PRI, n.d.). Throughout the four-phases, an adolescent is given time to learn, practice and mature moving through the phases at their own individual pace (PRI, n.d.). At PRI there is no predetermined length of time an adolescent spends in the program; however, the average length is 12 to 24 months (PRI, n.d.).

Phase one of the program is the *outdoor leadership experience* (OLE). OLE typically lasts about six to eight weeks and is the first stage for change (PRI, n.d.). The goal of OLE is expose the adolescent to the wilderness which strengthens the mind, body, spirit, and emotions (PRI, n.d.). By the end of phase one, the adolescent should be prepared to create new opportunities for rebuilding and change (PRI, n.d.). Phase two of the program is *residence*. During this phase, the adolescents live on the Pine River campus and engage in special programming which includes community service and family activities (PRI, n.d.). Phase three of the program is *transition*. During this phase, the adolescents take the lessons they have learned at PRI and take the skills home (PRI, n.d.). When the youth is transitioning back to the home environment, supervision is provided, and an aftercare plan is developed to prepare for the fourth and final stage (PRI, n.d.). Phase four of the program is *aftercare*. During phase four, the adolescent has a well-developed plan that outlines the supports, concerns, triggers, commitments, and goals of each individual adolescent (PRI, n.d.).

The approach to treatment at PRI is unique and based on an educational model (PRI, n.d.). The program is focused on the developmental needs of each adolescent respectively and is grounded in the best practices for youth addiction treatment (PRI, n.d.). There are four assumptions that underlie the therapeutic approach at PRI. First, youth in crisis often experience obstacles that impact their maturation (e.g., mental illness, chronic intoxication, or trauma; PRI,

n.d.). Second, the adolescent brain is plastic; therefore, neuroplasticity is an opportunity for change (e.g., minimize destructive thinking pathways; PRI, n.d.). Third, adolescents are part of several social systems (e.g., family or peers) that might influence their risk-taking behaviours (PRI, n.d.). Fourth, adolescent addiction is motivated and influenced by underlying issues and a maladaptive coping strategy; therefore, addressing the addictive behaviour is not effective enough (PRI, n.d.). Overall, PRI strongly believes that family plays an important role in the adolescents' recovery journey; therefore, the family is greatly involved in the treatment program.

Overall, research supports the role of the family in adolescent substance abuse and delinquency. Youth with less parental supervision, limited family/parental support, and exposure to parental risky behaviours may be more likely to abuse substances in the first place, and to get into trouble with law. Moreover, while research has confirmed the relationship between substance use and trouble with the law, there is limited knowledge regarding if in-patient treatment services decrease trouble with the law. Therefore, the objectives of the present study are to examine how trouble with the law changes pre-treatment to post-treatment, and to determine how changes in family functioning impact certain outcome variables. Based on current understandings of adolescent substance use and deviant behaviours, the following predictions are made:

Hypotheses

1. Based on the Drug-Crime cycle (McBride et al., 1997), it is expected that the adolescents at PRI will experience fewer social crises (e.g., crime and delinquency) from pre- to post-treatment. This is line with past research which suggests as substance use improves (e.g., decreases), occurrences with the law will also improve (e.g., decrease).

2. Consistent with past research (Stewart & Brown, 1993) adolescents who experience improvements in family functioning during treatment are predicted to have better treatment outcomes. It is predicted that improvements in family functioning will be related to a decrease in the number of social crises (e.g., delinquency, and criminal activity).
3. Consistent with past research (Das et al., 2016), adolescents with the greatest reductions in substance use, specifically marijuana and alcohol, will also have the greatest reductions in social crisis.

Method

Participants

The current study included 74 parent-reported (majority mothers) questionnaire responses for adolescents between the ages of 15 and 20 years ($M = 17.64$, $SD = 1.39$) who attended the treatment program at PRI. Of the participants included in the study, 42 (55%) identified as male and 32 (43.2%) identified as female.

Measures

Social Crises (crime and deviancy). A 30-item questionnaire which assessed youth crises and social behaviour. The questionnaire collects information regarding whether different social crises (CRISIS) have occurred, and when they occurred last. The questionnaire looks at several types of CRISIS (e.g., self-harm, impaired driving, violent/non-violent offences, police involvement, and hospital treatment for substance use). For the purpose of the current study the items were divided into three subfactors: (1) RUNAWAY, (2) CRIME, and (3) HOSPITAL VISITS. One item was removed due to not meeting the criteria for any of the three subfactors.

The scores for each item were coded as 1 or 0. A score of 1 indicates the adolescent had engaged in the CRISIS behaviour in the last 90 days, while a score of 0 indicates the adolescent had not engaged in the CRISIS behaviour in the last 90 days. A few of the items include: “when was the last time, if ever, the youth was involved with a justice diversion program” and “when was the last time, if ever, the youth was charged with a non-violent offence (e.g., theft) or a violent offence (e.g., weapons or assault).

Family functioning. The McMaster Family Assessment Device (FAD; Epstein et al., 1983) assesses the parent’s perception about their family. Typically, the McMaster Family Assessment Device is a 60-item questionnaire that has seven different sub-scales (e.g., problem solving, communication, affective involvement, and behaviour control). PRI administered a shortened version of this questionnaire which included 12-items, which assessed general family functioning. The responses were scored using a four-point Likert scale which ranged from one (strongly agree) to four (strongly disagree). Once all 12-items have been scored and an average score is calculated, the average score is compared to a clinical sample with a mean of 2.26. A score greater than 2.26 indicates more maladaptive family functioning. A few of the items include: “there are lots of bad feelings in the family” and “in times of crisis we can turn to each other for support.”

Drug history. The Drug History Questionnaire (DHQ; Sobell & Sobell, 200&), was used to gather information about the youth’s past substance use. The questionnaire collects information for nine different drugs respectively: alcohol, marijuana, stimulants (e.g., cocaine, ecstasy, meth), depressants, inhalants (e.g., glue, gasoline), tranquilizers (e.g., valium, Prozac), narcotics (e.g., heroin, morphine), hallucinogens (e.g., mushrooms, LSD), and other drugs (e.g., Ritalin, OxyContin). For the purpose of the current study, only marijuana and alcohol were examined. If

the parent identified “yes” to their child using a specific substance, they then indicated how the substance was taken (e.g., orally, inhalation, injected). Following identifying the route of administration, the parent indicated the year when the substance was last used (e.g., 2018) and the frequency of use in the past 90 days. Frequency of use was indicated by the parent putting a check in one of seven boxes: none, less than 1x/month, 1x/month, 1x/week, 2-3x/week, 4-6x/week, 1x/day, or more than 1x/day. Scores are then converted into a Likert scale ranging from zero (none) to seven (more than 1x/day).

Procedure

The current study used existing, archived parent-reported data regarding their adolescents. All participants (parents and adolescents) agreed to participate in ongoing research at Pine River Institute. In the admission phase, participants were required to complete consent forms which outline the purpose of the research being conducted. Each participant was assured that all disclosed information would remain confidential. Several questionnaires were administered to the participants prior to treatment, during treatment, and after the treatment process. For the current study, we analyzed data from family functioning (FAD), social crisis (CRISIS), and drug history questionnaires (DHQ) as outlined above. The questionnaires were all administered at different time periods during the treatment process. For the purposes of this study, we used data collected before treatment started and after treatment. Pre-treatment included scores primarily from the “Admission” phase however, “Assessment” phase scores were used if the parent-report did not have a score for “Admission.” For post treatment, we used 3-month follow-up data.

Results

Data Screening

All statistical analyses and data screening procedures were done using SPSS Statistics version 27. The original sample consisted of 2838 youth; however, the number of participants

dropped significantly to 74 due to a limited number of parents who completed the necessary questionnaires at the required timepoints.

To examine the first prediction, that CRISIS scores would decrease from the beginning of treatment to post treatment, we matched Pre and Post CRISIS scores. Of the participants who completed the CRISIS questionnaire at both required timepoints, there were 37 participants in the RUNAWAY group, 36 in the CRIME involvement group, and 22 in the HOSPITAL visit group. Some of the participants had responses for more than one subscale; thus, they contribute to the total number of participants in each different group.

For prediction two, we wanted to examine whether change in family functioning across treatment would be correlated with change in CRISIS across treatment. First, due to the nature of the CRISIS questionnaire and how it was coded (e.g., dichotomous Yes vs. No) we were unable to calculate change scores, and therefore used CRISIS scores at 3 months post for all correlation analyses. Second, we had planned on using Pre and Stage 5 FAD scores to examine change in family functioning across treatment. However, when we matched participants who had Pre and Stage 5 FAD scores to CRISIS post scores, all participants had CRISIS scores of zero, indicating that they had not engaged in the specific behaviour. To run a correlation analysis between a continuous variable (FAD change scores) and a dichotomous variable (CRISIS Yes vs. No), it is necessary to have participants in both dichotomous groupings. We then tried to match Stage 5 FAD scores alone (e.g., not create change scores) with CRISIS post scores. Unfortunately, this still resulted in all participants having CRISIS scores of zero. Due to this we were unable to use FAD Stage 5 scores. However, when we matched CRISIS post scores with FAD post at 3 months, there were scores in both the CRISIS groups (Yes vs. No), and therefore correlation analyses were run using CRISIS and FAD post 3-month scores.

Unfortunately, we were still unable to calculate FAD change scores, as participants that had pre- and post- 3 month FAD scores did not have CRISIS post scores; therefore, we did not have any matched pairs when change scores were calculated. There were 52 participants that had RUNAWAY and FAD scores, 54 had CRIME and FAD scores, and 54 had HOSPITAL and FAD scores at three-months post-treatment.

For the third and final prediction, we wanted to examine whether improvements in substance use would result in improvements in CRISIS, with a specific focus on alcohol and marijuana. Pre and three-months post DHQ scores were used to calculate change scores which were compared to three-months post scores for the CRISIS subscales. There were 20 participants in marijuana use group and 17 in the alcohol use group. Prior to conducting any correlation analyses, the change scores for substance use were paired with three-months post scores for the CRISIS subscales. After matching the participants there were 18 youth in the marijuana and runaway group, 18 youth in the marijuana and crime group, and 8 in the marijuana and hospital group. Additionally, there were 16 youth in the alcohol and runaway group, 16 in the alcohol and crime group, and 5 in the alcohol and hospital group.

Before beginning any statistical analyses, data screening procedures were completed to ensure that all applicable assumptions were met. Specifically, for the correlation analyses, scores on the continuous variable must be normally distributed within each level of the dichotomous variable and there cannot be any outliers. Therefore, we examined the FAD post 3-months scores within each of the CRISIS sub-scale groups (e.g., Runaway Yes vs. No, Crime Yes vs. No and Hospital Yes vs. No) to check for normality and outliers. We did the same thing for alcohol and marijuana scores with all the Yes vs. No groups. Due to small sample sizes within some of

the Yes vs. No groups, there were some concerns with reliable interpretation of the assumptions, and therefore Spearman Rank correlations were run.

Sample Characteristics

Table 1 provides a summary of the sample demographics and questionnaire information. There were 74 different participants whose parents responded to the questionnaires. The total number of participants (N=74) comprised of parents who answered CRISIS pre- and three-months post-treatment, FAD 3-months post, and DHQ pre- and 3-months post. Actual numbers used in analyses differ depending on the completed number of questionnaires required for each prediction. The ages on arrival ranged from 15 to 20 years ($M = 17.64$, $SD = 1.39$) with 42 (56%) identifying as male and 32 (42.7%) identifying as female.

Table 1
Sample Characteristics and Questionnaire Information

Variable	<i>N</i>	<i>n (%)</i>	<i>M (SD)</i>
Gender	74		
Male		42 (56.8%)	
Female		32 (43.2%)	
Age	74		17.64 (1.39)
Length of Stay	74		13.13 (6.38)
Substance use behaviours			
Age at first use			
Alcohol	19		12.79 (4.64)
Marijuana	22		13.41 (3.25)
Alcohol use frequency			
None	1 (5.3%)		
Less than once per month	4 (21.1%)		
Once per month	5 (26.3%)		
Weekly	5 (26.3%)		
2-3x per week	0 (0%)		
4-6x per week	3 (15.8%)		
Daily	0 (0%)		
More than once per day	0 (0%)		
Marijuana use frequency			
None	1 (4.5%)		
Less than once per month	0 (0%)		
Once per month	0 (0%)		
Weekly	4 (18.2%)		

Table 1 (continued)

Variable	<i>N</i>	<i>n (%)</i>	<i>M (SD)</i>
2-3x per week	0 (0%)		
4-6x per week	0 (0%)		
Daily	14 (63.6%)		13.86 (1.08)
More than once per day	1 (4.5%)		14.16 (1.17)
Family functioning			
Total FAD average	65		1.97 (.43)
Social Crises	50		
Runaway		37	
Crime Involvement		36	
Hospitalization		22	

Note. *M* = mean; *SD* = standard deviation; FAD = The McMaster Family Assessment Device; *M*

for length of stay is reported in months; *n* for alcohol use frequency is missing 1 value (DK; 5.3%), *n* for marijuana use frequency is missing 2 values (DK; 9.1%); *n* for CRISIS include duplicates, some participants had scores for more than 1 subscale.

Change in Social Crisis Pre to Post Treatment

To test hypothesis one, that the frequency of CRISIS will decrease from pre-treatment to post-treatment, a McNemar's test was conducted using pre and three months post-treatment scores for all three crisis subscales. The McNemar's test is an appropriate test to use when analyzing pre- and post-differences in a dichotomous variable, such as "yes" vs. "no," (Adedokun & Burgess, 2012). For the current study, yes (coded as 1) indicates the adolescent engaged in the CRISIS behaviour and no (coded as zero) indicates the adolescent did not engage in the CRISIS behaviour. Since the pre-treatment time point included both application (APP) and assessment (ASSESS) CRISIS scores, for consistency we chose to use the APP CRISIS score unless the participant only had a score for ASSESS.

Results from the McNemar's test show that the occurrence of running away significantly changed from pre- to post-treatment ($p < .004$). For the RUNAWAY subscale, 27 participants (73%) reported "no" to running away and 10 (27%) participants indicated "yes" to running away

pre-treatment. The occurrence of responding “no” to running away significantly increased at 3M post treatment. The scores from 3M post treatment indicated that 36 (99.7%) participants said “no” and only 1 (0.3%) responded “yes” to running away three-month post-treatment.

The number of visits to the hospital did not significantly change from pre- to post-treatment ($p = .73$). Results from the HOSPITAL subscale found that 16 (72.7%) participants reported “no” to ever being treated in the hospital, whereas 6 (27.3%) reported “yes” to receiving treatment in the hospital pre-treatment. Although there were increases in number of “no’s” at three-months post treatment, the increase was not significant with 18 (81.8%) youth reporting “no” and 4 (18.2%) reporting “yes” to being treated in the hospital.

Lastly, the results for the CRIME subscale showed significant improvements from pre- to post-treatment ($p < .02$). Pre-treatment, 25 (69.4%) youth reported “no” to engaging in any type of criminal behaviour, whereas 11 (30.6%) reported “yes” to having engaged in criminal behaviour. The post-treatment scores were significantly improved for the CRIME subscale, with 33 (91.7%) participants indicating “no” and only 3 (8.3%) indicating “yes” to engaging in criminal, deviant behaviour. Overall, all three of the subscales showed improvements in CRISIS from pre to post-treatment; however, crime involvement and running away were significantly reduced following treatment. Table 2 illustrates the results concluded from the McNemar’s test.

Table 2
Results from the McNemar’s for the CRISIS Questionnaire

Sub Scale	Pre-Treatment		3M Post-Treatment		Total N
	n_1 (%)	n_2 (%)	n_1 (%)	n_2 (%)	
CRIME	11 (30.6%)	25 (69.4%)	3 (8.3%)	33 (91.7%)	36
RUNAWAY	10 (27%)	27 (73%)	1 (0.3%)	36 (99.7%)	37
HOSPITAL	6 (27.3%)	16 (72.7%)	4 (18.2%)	18 (81.8%)	22

Note. The subscript 1 = yes group and 2 = no group.

Change in Family Functioning and Social Crises

To test the second prediction, that family functioning at three-months post treatment would result in improvements in CRISIS at three-months post treatment, several Spearman Rank correlations were conducted. First, the correlation between Runaway at three-months (Yes or No) and average family functioning at three-months was not significant. Second, the correlation between Crime at three-months and family functioning at three-months was significant, $r_s = .43$, $p < .01$. Lastly, the correlation between Hospital visits at three-months and family functioning at three-months was also found to be nonsignificant. Thus, it can be concluded that a positive correlation exists between FAD and Crime three-months post-treatment. A score greater than 2.26 on the FAD indicates more maladaptive family functioning. Therefore, as family functioning improves (the FAD score decreases), crime involvement also improves (e.g., scores decrease from a 1 to a 0). Table 3 illustrates the correlations concluded from the Spearman's test between FAD and CRISIS scores.

Table 3

Summary of Correlations Between Crises and FAD Scores 3-Months Post Treatment

Variable	N	FAD
Runaway	52	.24
Crime	54	.43**
Hospital	54	.17

Note. ** $p < .01$

Improvements in Substance Use and Social Crises

To test the third hypothesis, that improvements in substance use will be associated with improvements in CRISIS, a Spearman's correlation was conducted. Prior to conducting the correlation, change scores were calculated for the frequency of use for alcohol and marijuana respectively. To calculate change scores for frequency of substance use, the score from three-months post was subtracted from the frequency of use score at application (e.g., marijuana frequency of use score 3M post – marijuana frequency of use at application). A negative change

score indicates improvements in substance consumption. Thus, if the adolescent's frequency of marijuana or alcohol use at three-months post treatment was *lower* than their reported substance use at admission (e.g., $2 - 6 = -4$) then treatment reduced frequency of substance use. Therefore, when we examine change scores in substance consumption to three-months crisis scores, a significant positive correlation would indicate that as frequency of substance use decreases (e.g., got better), the youth's engagement in CRISIS also decreased (e.g., improved).

Six different correlation analyses were planned to be conducted: (1) runaway and marijuana use, (2) runaway and alcohol use, (3) hospital visits and marijuana use, (4) hospital visits and alcohol use, (5) crime involvement and marijuana use, and (6) crime involvement and alcohol use. However, four of the correlations could not be computed due to the crisis variable having only one value, 0. Thus, only two correlations were conducted (1) crime involvement and marijuana use and (2) crime involvement and alcohol use. Change in marijuana use three-months post treatment was significantly and positively correlated with crime involvement three-months post treatment, $r_s = .48, p < .05$. However, a nonsignificant positive correlation $r_s = .42, p = .12$ was found between crime involvement and alcohol use three-months post treatment. These results indicate that improvements in marijuana use following treatment resulted in improvements in criminal and deviant behaviours post treatment. Table 4 illustrates a summary for the two Spearman correlations that were conducted.

Table 4
Summary of Correlations Between Crises and Substance Use

Variable	<i>N</i>	<i>M</i>	<i>SD</i>	<i>Crime Involvement</i>
Marijuana Use	18	-3.55	2.65	.48*
Alcohol Use	15	-.44	1.58	.42

Note. *M* = mean; *SD* = standard deviation

^a Mean is reported as a change score

* $p < .05$

Discussion

The purpose of the current study was to examine whether the number of social crises improved (decreased) three-months after addiction treatment and whether family functioning and substance use influenced the improvements in social crises. In support of hypothesis one, the number of social crises (running away, crime involvement, and hospital visits) decreased from pre- to post-treatment. Hypotheses two and three were both partially supported by the current data. As predicted, improvement in family functioning was related to improvements in social crises; however, this was only true for the Crime subscale. As predicted for hypothesis three, improvement in substance use was related to improvement in social crisis; however, this was only true for marijuana use and crime involvement. The results illustrate that treatment improved the occurrence of social crisis and that improvements in family functioning and substance use were related to improvement in crime and deviance.

Implications

Previous research has shown that juvenile substance use is often related to chronic, recurring delinquency that persists into adulthood (VanderWaal et al., 2001). Moreover, researchers have stated that substance use during adolescence can result in poor family relationships, problems with social groups, and other psychological problems. The drug-crime cycle has been proposed as a model to explain the link between criminal activity and substance use during adolescence. The drug-crime cycle does not necessarily mean that criminal behaviour leads to substance use, or vice versa; however, research has concluded that some serious young offenders are also chronic substance users. The results from the current study illustrate that treatment for substance use can be effective in reducing the occurrence and involvement in social crises (running away, criminal behaviours, and hospitalizations). In accordance with the drug-crime cycle, adolescents at PRI experienced fewer social crises (e.g., crime and delinquency)

from pre- to post-treatment. This is line with past research which suggests as substance use improves (e.g., decreases), occurrences with the law will also improve (e.g., decreases). In addition, the findings from prediction three also provide additional support for the drug-crime cycle. The results from the current study illustrated a significant positive relationship between marijuana use and crime involvement, showing that as marijuana use decreased so too did engagement in criminal behaviour. Although a non-significant correlation was found between alcohol use and crime, the results support the relationship between substance use and criminal behaviour in adolescents.

The current study also illustrated the important relationship between family functioning and social crisis, finding that as family functioning improved, so did social crises. Family involvement in treatment has shown to be effective in decreasing engagement in deviant behaviours (Henggeler & Sheidow, 2011). Family functioning plays a critical role in an adolescents' development. For instance, adolescents that have a negative relationship with their parents and experience family conflict are more likely to engage in harmful, problematic behaviours (e.g., crime and substance use) later in development (Church et al., 2008; Kim et al., 2009). The results illustrate that adolescent involvement with social crises were influenced by family functioning. Thus, when family functioning improved, the occurrence of deviant behaviours, specifically crime involvement was reduced. This shows that the family plays a critical role in improving and reducing problematic and deviant behaviours during adolescence.

Limitations and Future Directions

The current study had several limitations that are noteworthy. First, it is critical to acknowledge that the current study used real world data in the analyses. Using real world data allowed us to examine the relationship between social crisis, family functioning and substance

use in a clinical sample, which will provide a greater understanding of treatment pathways and efficacy compared to using a community-based sample. However, the current study was limited in the analyses that could be conducted due to the small sample size. Due to having a small sample, the findings from the current study have restricted generalizability to additional sample groups and settings. It remains unclear whether the findings from the current study could be applied to other addiction-treatment programs. Thus, future research should investigate and compare the current variables with a different sample of adolescents who attend a different addiction treatment centre. Additionally, missing data and information was a problem in the clinical data used in the present study. The response rate from most parents was quite high; however, due to the predictions, we were limited on the number of matched (pre- to post-) responses for the three variables. Due to the limited matched data available, the results should be taken with caution as we cannot confidently extrapolate the findings to the broader population of adolescents who engage in deviant and substance use behaviours. It is important for future research to examine the same variables and time points with larger matched sample groups. This would increase external and internal validity, reduce the number of outliers, and increase the generalizability of findings. In addition, for the current study only parent-reported data was analyzed; thus, future research should consider also using adolescent self-report data. By using self-report data, researchers can investigate the adolescents' perception of their own problematic behaviours (e.g., substance use and social crises), which may provide additional insights into etiology and treatment pathways. Second, the current study only examined and compared responses from pre- to three months post treatment. Although a longitudinal approach was used, the small sample size limited the number of time points that could be examined. Future research should examine how a decrease in social crisis is influenced by improvements in substance use

and family functioning over a longer period of time. Having access to more matched data, future researchers can see how the maladaptive behaviours maintain, improve or regress over time. Having a stronger understanding on how behaviours, such as substance use and delinquency change over time, therapeutic decisions and approaches could be modified to better the outcomes of treatment. Third, to test predictions two and three correlation analyses were conducted. Due to using a correlational design, we cannot infer causation because we cannot confidently confirm that one variable (e.g., social crises) caused another variable to occur (e.g., substance use). Fourth, the items contained within the crisis questionnaire were not continuous variables; therefore, they had to be coded into a categorical variable (yes/no). We were limited in the ability to create change scores for the three crisis subscales due to the variable being categorical. If we had a continuous variable for the crisis subscale, we would have been able to determine if there was a relationship between pre-treatment crisis and post-treatment crisis. In addition, if we used a continuous variable for the crisis subscales, we could have concluded that adolescents who experience a greater change had better treatment outcomes.

Conclusion

Overall, the findings from the current study indicate that adolescent treatment for substance use is effective in reducing delinquent behaviours. We found that the occurrence of running away, crime involvement, and hospital visits all decreased from pre- to post-treatment. This illustrates that although the main premise of the treatment program was *not* to address nor reduce social crisis behaviours, by reducing substance use, the engagement in deviant acts was also reduced. Additionally, these results demonstrated the effectiveness of family-based treatment programs in reducing deviant behaviours. The current study provides insight on how addressing one harmful, delinquent act (e.g., substance use) also addresses several other harmful

consequences which may be exhibited (e.g., crime involvement). Furthermore, it emphasizes the importance for adolescent treatment programs that involve family and address additional detrimental behaviours (e.g., social crises). While decreasing substance use and engagement in deviant acts, the quality of therapeutic outcomes, parent-child relationships, overall family dynamics will be improved.

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