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Court -ordered cognitive -behavioural group treatment with adolescent offenders: Outcomes of an anger management program

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Court-Ordered Cognitive-Behavioural Group Treatment with Adolescent Offenders: Outcomes of an Anger Management Program

by

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ABSTRACT

The Oakland County Court Family Division Psychological Clinic offers two group interventions to aid juvenile offenders and their families. The Skills Training in Anger Reduction (STAR) program is a cognitive behavioural anger management group intervention program for juveniles, while Court Help On Increasing Control and Effectiveness (CHOICE) is a group parent training program tailored to meet the needs of parents of juvenile offenders. Archival data from court records for 281 participants in STAR, CHOICE, or both interventions provided intervention and recidivism data. For a portion of STAR participants, pre- and post-intervention self-reported anger and parent-reported behaviour data also were available. Pearson product correlations, GLM multivariate analyses, logistic regressions, and Cox Regression Survival analyses permitted the exploration of the role of juvenile characteristics in intervention outcome and the examination of treatment effects on recidivism. Juvenile offender gender, ethnicity, socioeconomic status, delinquency of peers, and ages at first offense and intervention all were found to be related to differences in pre-intervention and/or outcome variables. Pre-intervention felony charges were related to higher rates of intervention completion while total pre-intervention charges were related to lower rates of intervention completion. Comparing STAR completers to non-completers revealed significant differences in recidivism between groups. Similarly, significant differences also were observed between CHOICE completers and non-completers. The study failed to find significant added benefits for combined treatment. Court employee surveys provided insight into the importance of various treatment objectives and characteristics of potential participants in juvenile offender and parenting groups.

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CHAPTER I

Introduction

The role of the juvenile justice system is threefold (Puzzanchera, Stahl, Finnegan, & Snyder, 2004). According to the Coordinating Council on Juvenile Justice and Delinquency Prevention (1996), the objectives of the juvenile justice system in the United States should be based upon "the balanced and restorative justice philosophy" (p.2), which attempts to maintain an equilibrium between (a) the victim's need for offender accountability, (b) the community's need for public safety, and (c) the offender's need of help to become a competent and contributing member of society. In response to these goals, disposition options might include out-of-home placements, probation, community service, and mental health treatments.

With the goal of rehabilitation and reintegration, in the State of Michigan, the Oakland County Court Family Division Psychological Clinic has implemented group cognitive-behavioural programs designed to provide the tools for delinquent youth to make healthy adjustments back into society. Skills Training in Anger Reduction (STAR) is a cognitive-behavioural group intervention program for juvenile offenders that emphasizes improved decision-making skills and behaviour control strategies while Court Help On Increasing Control and Effectiveness (CHOICE) is a group parent education program tailored to meet the specific needs of parents of children with disruptive behaviours. The purpose of the current study was to use a database collected by Michigan's Oakland County Court Family Division Psychological Clinic to explore the behaviours of juvenile offenders before and after participation in court-ordered programs designed to address the specific needs of juvenile offenders.

One aim of the study was to explore the relation between specific juvenile characteristics (i.e., severity of delinquency, age-of-onset of court involvement, gender, ethnicity, and peer relationships) and response to interventions. Risk factors for juvenile delinquency include both individual (e.g., emotional and personality characteristics, age-of-onset, gender) and environmental (e.g., parenting, socioeconomic, peers) factors. Renowned for their work with delinquent children, both Terrie E. Moffitt (Moffitt, 1991; 1993; 1994) and Gerald R. Patterson (Patterson, 1979; 1982; 1986; 1993) have posited developmental theories based upon their research to account for the influence of specific factors on children's propensity toward delinquency.

Understanding the factors that potentially increase the likelihood of the onset and maintenance of disruptive behaviours allows for the identification of both high-risk individuals and those individuals who might benefit most from intervention programs. By exploring how specific factors are related to intervention responses to court-ordered intervention programs, the current study attempted to enhance our understanding of juvenile offender risk factors. Secondly, differences in intervention responses between treatment types (juvenile offender groups, parenting groups, and combined treatments) were examined to gain information regarding the best practices for juvenile offenders' intervention programs.

The following sections begin with a general review of juvenile delinquency, its costs and development, including the individual, parental, and social factors that have been associated with delinquency. Following this is an exploration into various means of addressing and reducing juvenile delinquency, along with some prospective costs and

benefits. Based on this review, two hypotheses are presented which then are explored in the data analysis section with a discussion of the findings in conclusion.

Juvenile Delinquency

Juvenile delinquency is a serious and pervasive social problem with juveniles accounting for a significant proportion of crime worldwide. Statistics indicate that in nearly every country juvenile crime rates increased during the last decade of the 20th century (United Nations, 2003). According to the United Nation's World Youth Report (2003), in Western Europe juvenile arrest rates increased by nearly 50 percent between the late 1980's and the mid 1990's. Although juvenile arrest rates vary by country, their frequency is a problem worldwide. In the United States, Hong Kong, and China, the proportion of total crimes committed by juveniles ranges from 15 to 18 percent (Wong, 2000). Similarly, a longitudinal study of a cohort of Canadian youth born between April 1979 and March 1980 conducted by Statistics Canada 2000 found that 18 percent of the youth (28 percent of males, 8 percent of females) came before the Court for crimes committed prior to their 18th birthdays (Matarazzo, 2006). At the upper extreme of the continuum, in Japan, juveniles are responsible for approximately 45 percent of reported crimes (Wong, 2000). The pervasiveness of juvenile delinquency worldwide underscores the importance of identifying traits associated with increased risk of disruptive behaviours and interventions that prevent or reduce delinquency.

According to *Juvenile Court Statistics 2000* (Puzzanchera et al., 2004), in the year 2000 in the United States there were over 1.6 million delinquency cases handled by courts with juvenile jurisdiction with a total of more than 30 million youth under juvenile court jurisdiction. In the United States by the year 2007, there were an estimated 2.18

million arrests of juveniles which was a slight decline from the recent increases of 2005 and 2006 (Puzzanchera, 2009). Juveniles come to the attention of the justice system for two basic types of offenses. *Delinquency offenses* are behaviours that, if performed by an adult, could result in criminal prosecution, while *status offenses* are those behaviours that are considered illegal only because the person performing them is a juvenile. Running away from home, truancy, incorrigibility, curfew violations, and underage liquor and tobacco law violations are all status offenses because the individual's status as a juvenile is the central determinant of the illegality of the act (Puzzanchera et al., 2004).

The antisocial behaviours that comprise delinquency include both *covert* (e.g., lying, stealing) and *overt* (e.g., noncompliance, physical destructiveness, verbal and physical aggression) activities (McCart, Priester, Davies, & Azen, 2006). Delinquency cases typically are divided into four types of crimes: (a) person, (b) property, (c) drugs, and (d) public order. Crimes against Persons include criminal homicide, forcible rape, and assaults. Crimes against property include burglary, larceny, motor vehicle theft, arson, vandalism, stolen property offenses, and trespassing. Drug law violations include any involvement with controlled substances and drug paraphernalia. Offenses against public order include weapons offenses, nonviolent sexual offenses, non-status liquor law violations, disorderly conduct, and obstruction of justice (Puzzanchera et al., 2004).

While trend analyses indicate that there has been some abatement in the case rates in the United States since their peaks in the 1990's (Puzzanchera et al., 2004), juveniles continue to account for a significant portion of arrests made each year (DeMatteo & Marczyk, 2005; Puzzanchera et al., 2004; Snyder, 2002). Since 1985, there has been an overall increase in the number of youth processed through the juvenile courts, with 53.2

delinquency cases for every 1,000 juveniles (5.32%) in the U.S. in 2000, in comparison to the 43.3 cases per 1,000 juveniles (4.33%) that were processed in 1985; specifically, between 1985 and 2000 in the United States, there have been increases in delinquency case rates for person, drug, and public order offenses (Puzzanchera et al., 2004).

According to the 2008 Annual Report of the Sixth Judicial Circuit Court Oakland County Probate Court of Michigan, there were 2,098 juvenile offenders in the Oakland County Court system in 2008. The Family Division handled 10,296 juvenile hearings during 2008, 3,675 of which were preliminary inquiries. Oakland County Court Casework Unit serviced 1,061 standard probation, 753 consent probation, 224 intensive probations, and 538 other forms of intervention services (Oakland County Court, 2009).

Costs of Juvenile Delinquency to Society

Adolescent anti-social behaviour is recognized as having significant effects on both the juveniles and society at large (Tackett, Krueger, Sawyer, & Graetz, 2003; Webster-Stratton & Reid, 2003). Disruptive behaviours are among "the most costly mental disorders to society, because such a large proportion of antisocial children remain involved with mental health agencies or criminal justice systems throughout the course of their lives" (Webster-Stratton & Reid, 2003, p. 224). Detaining juvenile offenders in out-of home placements can cost up to $300 per day with additional costs accrued in monitoring juveniles who are not detained (Greenwood, 2006). Cohen (1998) estimated that at the end of the twentieth century, the financial costs to society for one criminal career spanning from adolescence through adulthood was up to US$ 2.3 million. With the current economic downturn both worldwide and locally, limited resources highlight the importance of identifying cost-effective interventions.

The cost of juvenile delinquency goes beyond the immediate financial burdens to broader, long-term costs to society at large. Conduct problems are the most frequent cause of child referrals for mental health treatment (Chamberlain & Smith, 2003) and approximately 80 percent of children with Conduct Disorder will meet the criteria for a psychiatric disorder in the future (Kazdin, 2003). Furthermore, most adult offenders began their criminal activities while juveniles (Moffitt, 1993). "One of the most robust and consistent findings in criminological research is the connection between juvenile and adult crime. Almost all serious or chronic adult offenders have extensive juvenile records" (Greenwood, 2006, p.3).

Development and Maintenance of Delinquent Behaviours

Individual-Level Risk Factors in Juvenile Delinquency

Risk factors are the "characteristics, events, or processes that increase the likelihood (or risk) for the onset of a problem or dysfunction" (Kazdin, 1995, p. 50). Risk factors can include both individual and environmental factors. For adolescents, significant individual-level risk factors for juvenile delinquency include mental health problems (Redding, Sevin Goldstein, & Heilbrun, 2005), social skills deficits (Kazdin, 2003; Redding et al., 2005), low school achievement (Hinshaw & Lee, 2003; Kazdin, 2003; Loeber et al., 2001), gender (APA, 2000; Chamberlain & Reid, 1994; Chamberlain & Smith, 2003; Rosenbaum, 1989), ethnicity (Leiber, 2002; Puzzanchera, 2009; Vaughn Wallace, Davis, Fernandes, & Howard,, 2008), and age of onset (APA, 2000; Moffitt, 1993).

In addition, family factors have been shown to play a significant role in the development of juvenile delinquency (Frick, 1993, 1998; Loeber & Stouthamer-Loeber,

1986; Moffitt, 1993; Patterson, 1979; Patterson, Reid, & Dishion, 1992). For example, adolescents living in nontraditional families have been shown to be two and one-half to three times more likely to engage in delinquent behaviours than their peers from traditional family structures, even after controlling for the effects of gender, age, and socioeconomic status (Kierkus & Hewitt, 2009). Furthermore, as children age into adolescence, peers gain increasing influence on adolescents' behaviours (Ayers et al., 1999; Sullivan, 2006) with deviant peer friendships appearing to increase deviant behaviours during adolescence (Dishion & Andrews, 1995). The following sections will explore these factors in greater depth.

Emotional characteristics associated with juvenile offenders. Emotions are a prominent feature of psychological maladjustment (Loeber et al., 2001) and, as a result, often are a main focus of intervention. The text-revised fourth edition of the *Diagnostic and Statistical Manual of Mental Disorders* (DSM-IV TR; American Psychiatric Association, 2000) describes disruptive disorders (Conduct Disorder, Oppositional Defiant Disorder, and Disruptive Disorder Not Otherwise Specified) as being characterized by anger and aggression. According to the DSM-IV TR, the defining feature of Oppositional Defiant Disorder "is a recurrent pattern of negativistic, defiant, disobedient, and hostile behavior toward authority figures" (APA, 2000, p. 100). Conduct Disorder (CD), a more serious form of disruptive behaviour disorder, is defined by a "repetitive and persistent pattern of behavior in which the basic rights of others or major age-appropriate societal norms or rules are violated" (APA, 2000, p. 93). Aggressive behaviour toward others and/or property is typical of individuals with CD,

and these individuals are unlikely to experience empathetic feelings for others (APA, 2000).

Preliminary research has shown some evidence that boys with externalizing disorders respond to frustration differently than do boys without externalizing disorders. For example, in a task during which boys experienced failure, Keltner and colleagues (1995) observed that boys who had not been diagnosed with externalizing disorders were more likely to display facial expressions of embarrassment, boys with externalizing behaviour problems were more likely to display increased facial expressions of anger, while boys with internalizing behaviour problems were more likely to show expressions of fear (Keltner, Moffitt, & Stouthamer-Loeber, 1995). Keltner and colleagues concluded that different psychological disorders might manifest themselves in distinct and observable expressions of specific emotions.

The likely role played by anger in antisocial behavioural disorders is that it has the potential to lead to aggressive and violent behaviours (Burney, 2001). As a result, anger reduction is an important focus for juvenile offender intervention programs (Feindler & Scalley, 1998). Burney (2001) has conceptualized anger as being either reactive or instrumental. *Reactive Anger* is "an immediate angry response to a perceived negative, threatening, or fear-provoking event" (Burney, 2001, p. 8). Rather than stopping to process anger triggers and assess potential responses and outcomes, adolescents who often respond to anger reactively tend to act immediately and aggressively to the anger provocation with little cognitive processing (Burney, 2001). In contrast to the instantaneous response of Reactive Anger, *Instrumental Anger* is "a

negative emotion that triggers a delayed response resulting in a desired and planned goal of revenge and/or retaliation" (Burney, 2001, p. 7).

The presence of childhood aggression has been linked to juvenile delinquency, conduct problems, poor school performance, substance abuse, and adjustment difficulties (Loeber, 1990). Children who exhibit aggressive behaviours tend to develop poor relationships with others, including peers, teachers, and other family members (Lochman, Barry, & Pardini, 2003). DeMatteo and Marczyk (2005) point to the link between early aggressive behaviour and juvenile violence as being indicative of a developmental model in which antisocial behaviour begins with early aggressive behaviour and potentially culminates in serious violent behaviour.

Like anger, aggression is a broad term that is better understood when broken down into component parts. One way of defining and understanding aggression is to consider the differences between *reactive* and *proactive* aggression. *Reactive aggression* is an angry, defensive response to frustration or provocation (Crick & Dodge, 1996). *Proactive aggression*, in contrast, is a purposeful behaviour that is motivated by external reinforcements (Crick & Dodge, 1996). For example, the adolescent who impulsively strikes a peer who has made disparaging comments about him would be displaying reactive aggression, while the adolescent who taunts a peer with the goal of provoking a response that is likely to result in disciplinary actions would be displaying a form of proactive aggression.

Personality characteristics associated with juvenile offenders. Due to their disproportionately high involvement in violent crime, individuals with psychopathic personality traits are of specific interest to the justice system (Gretton, Hare, &

Catchpole, 2004; Millon, Simonson, Birket-Smith, & Davis, 1998). *Psychopathy* consists of a combination of limited or blunted affect, poor interpersonal skills with a self-referential style, and impulsive, careless behaviours (Cleckley, 1976; Hare, 1986, 1998; Hare & Hare, 1997). Individuals with psychopathic traits are characterized by long-term social maladjustment that manifests itself in a propensity toward grandiosity, manipulation, and impulsivity, with little consideration or awareness of the needs or wants of others (Hare, 1991).

Recent research on the biological underpinnings of psychopathy has identified differences between the brains of criminals convicted of crimes against persons who are high on traits of psychopathy and a group of comparison participants without psychopathic traits (Craig et al., 2009). With the use of in vivo diffusion tensor magnetic resonance imaging (DT-MRI) tractography, the researchers observed in the brains of the psychopathic individuals a significant reduction in the integrity of the small particles that comprise the uncinate fasciculus (UF), which connects the amygdala, the portion of the brain associated with emotion, with the orbitofrontal cortex, the portion of the brain associated with decision making. Craig and colleagues also noted a correlation between the extent of psychopathic traits and the anatomical anomalies. Thus, the findings suggest that neurological abnormalities in the communication network between the areas of the brain associated with decision-making and emotions are associated with strong psychopathic tendencies.

Adults with strong psychopathic tendencies have been shown to be resistant to passive avoidant learning (withholding responses) and less responsive to learning through punishment than adults with normal levels of psychopathic traits, suggesting that

"psychopathy is associated with particular dysfunction in the formation of stimulus-punishment associations" (Blair et al., 2004, p. 1190). Consistent with this line of research is the practical observation by Hare (1991) that psychopathic individuals often commit high-risk crimes impulsively, even when they have experienced previous punishment for their behaviours. Even after incarceration, adult criminals with high levels of psychopathic traits are more likely to reoffend more quickly, more often, and more violently after their release than are criminals with lower levels of psychopathic traits (Gretton et al., 2004).

With longitudinal studies indicating that the antisocial behaviours of adults typically have their beginnings in childhood (Loeber, 1982), researchers are increasingly interested in the applicability of the psychopathy construct to childhood and adolescence as a means of potentially identifying the most severe and aggressive subset of juvenile offenders (Gretton et al., 2004; Kruh, Frick, & Clements, 2005;Lynam, 1996; 1997; 1998; Marsee, Silverthorn, & Frick, 2005). When applied to juveniles, *psychopathy* typically is defined as high levels of narcissism, callous-unemotional traits, and impulsivity (Marsee et al., 2005). When described in the context of the Five Factor Model of personality (Digman, 1990; John & Srivastava, 1999), psychopathy is associated with low Agreeableness, low Conscientiousness, and high Neuroticism (Lyman et al., 2005).

There is growing evidence of an association between juvenile psychopathic traits and violent behaviours (Gretton et al., 2004; Kimonis, Frick, Fazekas, & Loney, 2006; Marsee et al., 2005). Current research indicates that adolescents' self-reports of psychopathic traits are associated with levels of aggression (Kimonis et al., 2006; Marsee

et al., 2005). Follow-up studies of the Pittsburgh Youth Study boys found moderate evidence of the stability of psychopathy from ages 13 to 24 years old (Lynam et al., 2007). Additionally, in a 10 year follow-up study of adolescent offenders, Gretton and colleagues (2004) found that high scores on the Hare Psychopathy Checklist: Youth Version (PCL:YV; Forth, Kosson, & Hare, 2003) were associated with the greater likelihood of committing violent offenses and shorter latency periods between assessment and the first post-assessment violent offense.

Research has shown that children with conduct disorder who display psychopathic traits appear to be higher in novelty-seeking behaviours, less responsive to punishment cues, and less reactive to emotionally threatening stimuli than their conduct-disordered peers who are low on psychopathic traits (Frick, Stickle, Dandreaux, Farrell, & Kimonis, 2005). Specifically, researchers have identified significant positive correlations between antisocial behaviours in adolescence and the psychopathic traits of callous/unemotional (Frick, Cornell, Barry, Bodin, & Dane, 2003; Frick et al., 2005; Kruh et al., 2005) and impulsivity (Colledge & Blair, 2001; Lynam, 1996; White et al., 1994).

A demonstrated lack of guilt or concern for others appears to be an instrumental feature of the most severe and aggressive adolescent offenders (Frick et al. 2003; Frick et al., 2005; Kruh et al., 2005). In a study of non-referred children with conduct problems, Frick and his colleagues (2003) found that the presence of callous/unemotional traits was predictive of higher levels of instrumental and premeditated aggression one year later. Following the same group of participants, researchers found that four years after the initial assessment, youth with conduct problems who were high on callous/unemotional traits displayed more severe and chronic antisocial behaviours than did their peers. This

group of youth also had earlier and more frequent contact with police than did their peers (Frick et al., 2005).

Impulsivity has been linked to antisocial behaviours by researchers with a variety of theoretical perspectives (see White et al., 1994, for a review). Epidemiological studies have demonstrated a high comorbidity rate of Attention Deficit/Hyperactivity Disorder (ADHD) and conduct disorder in youth, although the cause of this association is unknown (Colledge & Blair, 2001). Lynam (1996) hypothesized that it is the shared impulsivity component of ADHD and CD that links the two diagnoses in some individuals.

Moffitt (1993) theorized that neurological impairments, especially as related to self-control, might contribute to the maintenance of antisocial behaviour throughout the life course. According to Moffitt (1993), impulsivity can increase delinquency both directly and indirectly; deficits in impulse control can hinder an individual's ability to inhibit inappropriate responses, thus directly increasing delinquent behaviours. Additionally, poor impulse control can negatively impact one's ability to perform well in school, thus decreasing the individual's likelihood of academic achievement and economic security and increasing the likelihood that the individual will engage in socially deviant behaviours.

Poor behavioural self-control is associated with serious delinquency that is stable over time (White et al., 1994). In their work with male participants in the Pittsburgh Youth Study, White and her colleagues (1994) observed that boys with a history of stable, serious delinquent behaviours averaged more than one standard deviation above the mean on measures of behavioural impulsivity. As a result of their findings, these

researchers posited that youth with limited self-control "may steal and fight on the spur of the moment when the potential negative consequences seem small and in the distant future" (White et al., 1994, p.193). Consistent with this theory, Colledge and Blair (2001), using correlational analyses found significant intercorrelations between the impulsivity component of ADHD and the conduct problems (antisocial behaviour) component of CD.

Because most juvenile offenders will not eventually become adult criminals, the use of measures that predict an individual's propensity toward violent behaviours may potentially benefit the juvenile justice system by identifying those most in need of intervention services. For those with a greater risk for adult criminality, appropriate interventions at an earlier age might have greater effects on potentially more malleable personality traits (Gretton et al., 2004). Some researchers caution against the use of assessment measures of psychopathy within the juvenile justice system, however, fearing the effects of labeling and citing the concerns over the stability of psychopathic traits in adolescence (Edens, Skeem, Cruise, & Cauffman, 2001; Seagrave & Grisso, 2002).

Age of onset. In the 1990's the number of children ages 7 to 12 who became involved in the U.S. juvenile court system increased 33 percent (Snyder, 2001) while in 2000, more than half of all delinquency cases processed by the juvenile courts involved defendants age 15 or younger (Puzzanchera et al., 2004). Although young offenders often come to the attention of the court at an early age, as age increases through adolescence, so does the propensity toward delinquency. Thus, while adult antisocial behaviour nearly always has its origins in youth (Elliott, Huizinga, & Menard, 1989), most antisocial youth will not become antisocial adults (Moffit, 1993; Robins, 1978). As

adolescents enter into adulthood, rates of delinquent behaviours commonly decline (Gottfredson, 2005; Laub & Sampson, 2003; Sampson & Laub, 1993), with peaks about the age of 17 years (Moffit, 1993).

Longitudinal research consistently reveals a positive correlation between age and likelihood of engaging in antisocial behaviours in adolescence (Loeber, 1990; Moffitt, 1990; 1994). With the Pittsburgh Youth Study, which began in 1987 as a prospective longitudinal survey of the development of behavioural and psychological disorders in three samples of inner-city boys (see Loeber et al, 2001 for a review of the first 14 years of research findings), Loeber and his colleagues found that the prevalence of Oppositional Defiant Disorder (ODD) in inner-city boys doubled between the ages of seven and 10 years. The prevalence of Conduct Disorder also increased with age, with the greatest increase occurring between the ages of 10 and 13 years (Loeber et al., 2001). Moffitt (1990), who has been a leader in the field of adolescent delinquency developmental research and theory, observed an increase in reported antisocial behaviours from five percent of the boys at age 11 to 32 percent of the boys at age 15.

Despite the transitory nature of many adolescents' antisocial behaviours, for some individuals antisocial behaviour is a lifelong occurrence (Moffit, 1993). Longitudinal studies indicate that the age of onset of severe conduct problems is a strong and consistent predictor of antisocial behaviour in adulthood (Frick & Loney, 1999; Loeber, 1991; Moffit, 1993; Piquero & Chung, 2001; Robins, 1966), with nearly all adults with antisocial personality disorder having a history of conduct disorder as children (Robbins, 1966, 1978).

The majority of chronic offenders, defined as those adolescents who have been arrested three or more times by age 18, first offend at an early age (Patterson, Forgatch, Yoerger, & Stoolmiller, 1998). In their work with high-risk boys in the Oregon Youth Study, Patterson and his colleagues (1998) found that 76 percent of boys who had been arrested prior to the age of 14 were chronic offenders by the age of 18 years. According to Loeber's (1982) review of the research, a first arrest between ages 7 and 11 is a strong predictor of long-term adult offending. Youth who begin offending before the age of 12 are two or three times more likely to continue offending in adulthood than are those who begin later in life (Loeber, Farrington, & Petechuk, 2003).

The developmental pathway model proposed by Moffitt (1993) posits two distinct developmental trajectories of delinquency, with the age of onset being the distinguishing characteristic between the two. The distinction between the two groups is one of continuity versus discontinuity – for those with a childhood onset of antisocial behaviours, there is a continuity throughout the life course of oppositional and/or delinquent behaviours, while for those with an adolescent onset of antisocial behaviours, these dysfunctional behaviours are better viewed as a discontinuity in their life course of behaviours (Moffitt, 1993).

Childhood-onset of antisocial behaviours. Research shows that a small percentage of males are responsible for a large percentage of known crimes (Moffitt, 1993) The approximately 5 percent of males who commit 50 to 60 percent of all known crimes typically have a history of early childhood onset of behavioural problems (Henry, Caspi, Moffitt, & Silva, 1996). Patterson (1982), in his work with male children and adolescents, found that the most aggressive 5 percent of boys also were the most

persistently aggressive group. Moffitt (1993) posits that this small percentage of serious and persistent offenders is a unique group of delinquents characterized by childhood onset of antisocial behaviours that remain constant throughout the life course. Moffitt and her colleagues identified a larger group of males (10 percent) whom they proposed to be Life Course Persistent (LCP) offenders (Moffitt et al., 2002).

Children who have been identified as engaging in antisocial behaviour at an early age are typified by having had a difficult temperament with higher rates of physical aggression, an oppositional and argumentative response style, and a more detached and callous attitude than their later onset counterparts. Children with early onset of delinquent behaviours are more likely to have neurological abnormalities, low intellectual ability, reading difficulties, and hyperactivity (Jeglum-Bartusch, Moffitt, Lyman, & Silva, 1997; Moffitt, 1990; Moffitt & Caspi, 2001; Moffitt, Lyman, & Silva, 1994). In addition, these children are more likely to come from dysfunctional families (Capaldi & Patterson, 1991, 1994; Patterson, 1982). Moffitt (1990, 1993) theorized that the combination of their difficult temperament and their parents' poor parenting style likely results in fewer opportunities for prosocial interactions.

While the nature of oppositional and antisocial behaviour changes, the underlying disposition remains the same (Moffitt, 1993). The variety and form of antisocial behaviour changes as opportunities change - temper tantrums in the preschool years, hitting peers in childhood, skipping school and vandalizing in early adolescence, selling drugs and stealing in late adolescence, and spousal abuse in adulthood. Moffitt (1993) thus theorized that life-course-persistent antisocial behaviours, while consistent across the

lifespan, vary in their manifestations as development provides new abilities and circumstances.

Neurological abnormalities, according to Moffitt (1993), likely leave some children predisposed and vulnerable to engaging in antisocial behaviours. "Personal characteristics such as poor self-control, impulsivity, and inability to delay gratification increase the risk that antisocial youngsters will make irrevocable decisions that close the doors of opportunity" (Moffitt, 1993, p. 684). According to Moffitt's *developmental theory of cumulative continuity*, the neural anomaly might be the result of several factors including genetic disposition, prenatal or perinatal trauma, complications during delivery, or some combination of the above.

Moffitt (1993) further posited that children with a predisposition for antisocial behaviours often are raised in environments characterized by family disadvantage and/or deviance. Shared characteristics between parent and child mean that vulnerable children often reside in environments ill-equipped to adequately address their special needs. Thus, children with difficult temperaments and limited impulse control whose dysfunctional behaviours might have been restrained by firm discipline will frequently have parents unable to provide the needed discipline due to their own impatient and irritable temperaments (Moffitt, 1993). When the vulnerable and difficult child is reared in an environment ill-prepared to address his or her needs, there is the potential for the initiation of a lifelong pattern of antisocial behaviours (Moffitt, 1993).

Additionally, the ill-equipped parent may be more likely to provide an inadequate prenatal and postnatal environment (Robins, 1978). Inadequate health care, poor nutrition, and substance abuse during pregnancy are likely to leave the child vulnerable

for developmental difficulties, above and beyond environmental influences. A study of adopted children in the Midwest region of the United States demonstrated that heavy prenatal alcohol exposure was a predictive variable of adult antisocial personality disorder (Cadoret, Yates, Troughton, Woodworth, & Stewart, 1995).

Lahey, Waldman, and McBurnett (1999) describe a likely genetic-environmental interaction in the development of severe antisocial behaviours with genes influencing temperament and impulsivity, which, when combined with inadequate parenting, increases the likelihood of the development of antisocial behaviours. Twin studies suggest that while adult criminality has some genetic influence, juvenile delinquency is only minimally attributable to heritability, being mainly influenced by environmental factors (Zuckerman, 1999). Lahey and colleagues (1999) resultantly posit that the genetic influences of antisocial behaviours are indirect. It is the interaction between a vulnerable child and an ill-equipped parent that leads to a lifelong propensity for antisocial behaviour. As the child acts on the environment, the environment acts on the child (Caspi, Elder, & Bem, 1987; Moffitt, 1993). If the interaction tends to evolve around dysfunction and antisocial behaviours, the child misses opportunities to engage in and develop prosocial behaviours, and antisocial behaviours become automatic responses.

Transactions between the child with a difficult temperament and an inadequately equipped environment gradually develop an individual with a propensity toward physical aggression and antisocial behaviour (Moffitt et al., 2002). The developmental theory of cumulative continuity predicts that the antisocial behaviour will generalize to most aspects of the adult life (Moffitt et al., 1996; Moffitt et al., 2002). The Life-Course

Persistent youths' inadequate prosocial experiences result in limited behavioural repertoires that hinder their abilities to effectively adapt to social expectations in adulthood (Moffitt, 1993).

Life-course persistent (LCP) adolescents generally have bleak adulthoods plagued by drug and alcohol addiction, underemployment, financial difficulties, violence, inadequate parenting, and mental health disorders (Farrington & West, 1993; Moffitt et al., 2002; Robins, 1966; Sampson & Laub, 1990). At age 26, men identified as belonging to the LCP pathway, when compared to the Adolescent-Limited (AL) group, were adjusting more poorly to the social expectations of adulthood (Moffitt, Caspi, Harrington, & Milne, 2002). They were significantly more likely to display symptoms of antisocial personality disorder, to have poor relationships, to have been involved in criminal activity, and to have low-status jobs.

The LCP men were significantly more likely than the AL men to display callousness and other symptoms of antisocial personality disorder. They also were rated by informants as having more serious problems with alcohol and more symptoms of depression and schizophreniform disorder (Moffitt et al., 2002). The LCP men were more likely than other men to use controlling abuse, including intimidation, humiliation, and restrictions, in their relationships. They were accountable for six times their share of the Dunedin group's battering of women and rape convictions. Regarding children, the LCP men were significantly more likely to have fathered children and significantly less likely to have contributed to the care of their children. They also were more likely to hit a child in anger (Moffitt et al., 2002).

The LCP men in the Dunedin study at age 26 were two to three times more likely than the AL men to have been convicted of crimes as adults. In addition, the types of criminal offenses these individuals were engaging in were more serious than the type of criminal activity in which the AL individuals were engaging. The LCP men were more likely to have carried a hidden weapon, assaulted, robbed, and violated court orders.

LCP men had higher rates of unemployment than their peers and were more likely to have difficulties at work. With little education on average, the LCP men's jobs were generally of low status. The earnings of LCP men were more likely to be made up of welfare benefits and the profits of illegal activities. Informants described these individuals as poor money managers who had difficulty making ends meet (Moffitt et al., 2002).

Adolescent onset of antisocial behaviours. Moffitt posited that adolescent-onset delinquency would be characterized by a "modal onset in early adolescence, recovery by young adulthood, widespread prevalence, and lack of continuity" (Moffitt, 1993, p. 686). Moffitt identified 26 percent of the study participants as fitting into this group of adolescents (Moffitt et al., 2002). For those adolescents whose delinquent behaviours appear to be confined to their teen years, the causal factors likely differ from those of the life-course persistent youth. In contrast to the adolescents on the LCP pathway, most of the adolescents with late-onset of antisocial behaviours tended to have normative or better than average backgrounds (Moffitt & Caspi, 2001).

Moffitt (1993) theorized that adolescent-onset of delinquent behaviours emerges at puberty, during the *maturity gap*, a period characterized by ambiguity in social roles and expectations. Despite reaching biological maturity and having increased access to

some privileges and responsibilities, adolescents are denied many of the status symbols of adulthood; adolescents thus become "chronological hostages of a time warp between biological age and social age" (Moffitt, 1993, p. 686).

In 1985, Agnew proposed a revised strain theory of delinquency that posited that delinquency is the result of adolescencts' limited opportunities to obtain goals or avoid pain through legal channels. Adolescents often have limited control over their current life situations. If they experience stress at home, in their neighbourhoods, or at school, adolescents have few legal means of forcing change or avoiding the pain. The blockage of pain-avoidance behaviour can lead to delinquency either through illegal means of avoidance or through frustration-induced aggression. Agnew (1985, 2001) posited that strain is most likely to result in delinquency when it is perceived as intense, unavoidable, and unjust.

According to Moffitt, adolescents whose onset of delinquency has its origins around the time of puberty or after have had an opportunity during childhood to learn and develop prosocial, socially adaptive behaviours (Moffitt, 1993). Moffitt (1993) suggests "that every curfew violated, car stolen, drug taken, and baby conceived is a statement of personal independence and thus a reinforcer for delinquent involvement" (pp. 688-689). Moffitt theorized that adolescents with late-onset of delinquency will shed their delinquent lifestyles once the opportunity to establish mature social status occurs; thus they have coined the term adolescent-limited (AL) delinquency (Moffitt, 1991, 1993).

Despite the later onset of delinquency, during adolescence the antisocial behaviours of the adolescent-onset delinquents often appear indistinguishable from those of their LCP peers (Moffitt, 1991). However, closer examination reveals some

differences, including sporadic and situation-specific antisocial behaviours (Moffitt, 1993). For youth whose onset of delinquency occurs in adolescence, the delinquent behaviours are more likely to be situational. These youth might maintain socially appropriate behaviours in most situations, choosing to engage in antisocial behaviours only when the likely outcome appears to be beneficial. This pattern is indicative of a response-contingency in which delinquent behaviours are reinforced in certain situations.

By definition, at age 26 the men who had been classified as *adolescent-limited* (AL) offenders should have shed their deviant behaviours and have adopted more socially acceptable means of living. Moffitt and colleagues' (2002) follow-up study indicated that this was not the case. While their deviancy and difficulties generally were less extreme than the LCP group's, the AL men continued to have elevated levels of criminal activity, mental health difficulties, and social adjustment problems into early adulthood. It is possible that the maturity gap has been extended for these individuals into the mid-twenties and that social adjustment will not occur until a later date (Moffitt et al., 2002).

Recently, researchers exploring differences in conduct problems between childhood-onset and adolescent-onset male delinquents (Dandreaux & Frick, 2009) found greater levels of ineffective parenting, callous-unemotional traits, and delinquent peer associations in the juveniles with childhood-onset delinquency, consistent with the two trajectory model. In contrast to the model prediction, there were no observed differences in impulsivity and sensation seeking, and male juvenile offenders in the adolescent-onset group reported higher rates of nontraditional beliefs. Further in contrast to the model prediction, childhood-onset delinquents reported higher rates of association with delinquent peers than did the adolescent-onset offenders. Pulkkinen and colleagues

(2009) in a similar study conduct in Finland, found that adolescent-limited offenders reported higher levels of neuroticism, aggressiveness, and psychosomatic symptoms than non-offenders well into adulthood. The mixed findings indicate that further research exploring the role of age-of-onset in juvenile delinquency will continue to add insights regarding age as a contributor to delinquency.

Gender and delinquency. Research has indicated that male adolescents are much more likely to display conduct problems than are females (Farrington et al., 1986; Moffitt, 1993; Patterson, 1982). Additionally, boys are more likely to offend with more serious crimes and at an earlier age than are girls (Ayers et al., 1999). Robins (1991) argued that with the publication of the American Psychiatric Associations' Diagnostic and Statistical Manual of Mental Disorders, third edition, revised (DSM-III-R; APA, 1987), in which changes in the diagnosis of Conduct Disorder (CD) included the elimination of several non-violent symptoms (e.g., academic underachievement, early sexual experience, early substance abuse), and the addition of defining features characterized by violent behaviours (e.g., fire setting, sexual coercion, cruelty), the likelihood of diagnosing girls with CD decreased.

The current edition of the Diagnostic and Statistical Manual of Mental Disorders (DSM-IV-TR; APA, 2000) requires the presence of at least three of 15 criteria, with criteria divided between aggression toward people or animals (7 criteria), destruction of property (2 criteria), deceitfulness or theft (3 criteria), and serious violations of the rules (3 criteria). The symptoms must cause significant impairment for at least the past 12 months for diagnosis of CD (APA, 2000). The current DSM acknowledges the differences in CD manifestation between genders, describing females diagnosed with CD

as more likely to "exhibit lying, truancy, running away, substance use, and prostitution" (APA, 2000, p. 97). The APA (2000) also acknowledges that females are more likely to express aggression nonconfrontationally than are males.

Just as adult males generally are higher on psychopathic traits than are adult females (Vitale & Newman, 2001), adolescent males appear to have higher levels of callous and unemotional traits than do adolescent females of all ages (Essau, Sasagawa, & Frick, 2006); however, base rate statistics in the United States indicate that female offenders are becoming increasingly common (Puzzanchera et al., 2004). In 2000, one-fourth of all delinquency cases involved a female juvenile, compared to 19 percent in 1985. The sharpest increase in cases involving female offenders was among person offenses, with a rise from 20 to 27 percent (Puzzanchera et al., 2004). By the year 2007, 29 percent of juvenile arrests involved female offenders (Puzzanchera, 2009). Puzzanchera (2009) noted that over the period from 1980 to 2007, juvenile male arrest rates for aggravated assaults rose just over 8 percent, in sharp contrast to the observed 83 percent increase in female juvenile arrest rates for the same offense. Some researchers (Feld, 2009; Garland, 2001; Kempf-Leonard & Johansson, 2007; Steffensmeier, Schwartz, Zhong, & Ackerman, 2005) argue that the increases are artifacts of changes in cultural tolerance of minor aggression and subsequent changes in police policies. Over the past two decades, juvenile courts have formally processed and adjudicated a higher percentage of cases for both genders, but with a greater percentage increase for female juvenile offenders (Tracy, Kempf-Leonard, & Abramoske-James, 2009). It is possible that the court takes a more paternalistic approach to female offenders than male

offenders, intervening to protect young female offenders and thus imposing harsher sentences (Guevara, Herz, & Spohn, 2008).

Unfortunately, due to the relatively small number of female offenders, much of the early research on adolescent offenders has focused solely on males (Leve & Chamberlain, 2004; Moffitt & Caspi, 2001). Moffitt (1994, as cited in Moffitt & Caspi, 2001) theorized that because young girls are less likely to demonstrate symptoms of "nervous system dysfunction, difficult temperament, late milestones in verbal and motor development, hyperactivity, learning disabilities, reading failure, and childhood conduct problems" (p. 357), they are less likely to experience the punitive and avoidant responses from caregivers and peers that might initiate the cumulative cycle of antisocial interactions that culminate in early-onset delinquent behaviours. Moffitt (1994) further posited that while females would have opportunities to engage in delinquent behaviours as adolescents, exclusion from male-only delinquent peer groups and higher vulnerability to personal victimization may decrease female adolescents' likelihood to engage in delinquent behaviours during adolescence (Moffitt & Caspi, 2001).

Consistent with Moffitt's theory, many researchers have reported that females generally are more likely to begin exhibiting delinquent behaviours in adolescence, rather than childhood (Moffitt & Caspi, 2001; Silverthorn, Frick, & Reynolds, 2001). In the Dunedin cohort, the ratio of males to females on the life-course persistent pathway was 10:1, in strong contrast to the 1.5:1 ratio of males to females with adolescent-onset of antisocial behaviours (Moffitt & Caspi, 2001). The low occurrence rate of childhood onset delinquency in females has hindered research efforts and limited the scope of the

findings. Perhaps as a result, findings regarding the applicability of the *two-trajectory* model to females have been inconsistent.

In their review of previous research, Moffitt and Caspi (2001) found no significant differences in characteristics between boys and girls for both the childhood-onset and adolescent-onset groups, supporting their position that no female-specific theory is needed to explain delinquency in girls. Moffitt and Caspi (2001) in their research identified no characteristic differences between girls and boys, although an insufficient number of females in this group ($n = 6$), did not allow for statistical analyses of the life course-persistent group. Utilizing a sample of 62 girls with severe delinquency problems who were participating in a study of the effectiveness of the Multidimensional Treatment Foster Care program for girls, of whom over 70 percent qualified as early-onset, Leve and Chamberlain (2004) observed that girls with earlier-onset of delinquency had higher rates of criminal, antisocial, and risky sexual behaviours.

Silverthorn and Frick (1999) have posited a *delayed-onset* pathway for females, theorizing that girls' antisocial behaviours might be delayed as the result of a societal push toward the manifestation of girls' behavioural symptoms in internalizing rather than externalizing ways. According to this theory, female delinquents who begin acting out in adolescence will have more serious dysfunction and outcomes that more closely resemble the typical profiles of males with childhood onset of delinquency (Silverthorn & Frick, 1999; Silverthorn et al., 2001).

Considerable research supports the supposition that females may more closely resemble the most severe, earlier-onset of delinquency male peers. For example, in their study of 72 adolescents held in a secure detention facility, the female participants more

closely resembled the childhood-onset boys in personality traits (e.g., callous-unemotional, impulsivity) than the adolescent-onset boys (Silverthorn et al., 2001).

Regarding severity of symptoms, compared to their male counterparts, females referred by the juvenile justice system for treatment reported significantly higher mental health symptomatology, including greater internalizing behaviours (Gavazzi, Bostic, Lim, & Yarcheck, 2008; Graves, Frabutt, & Shelton, 2007) and heavier substance abuse (Chamberlain & Smith, 2003). Additionally, these girls were more likely to have families that were more severely dysfunctional than were their male counterparts' families (Chamberlain & Smith, 2003; Gavazzi, 2006). In the foster care system, research indicates that females were more likely to have been placed outside of the home, to have truanted from home, to have been sexually assaulted, and to have attempted suicide than were their male counterparts (Chamberlain & Reid, 1994).

While adolescence is characterized by the onset of puberty in both genders, the timing varies by individual. The onset of menarche in females provides an effective and non-intrusive means of classifying the timing that is not available for males. In a longitudinal study of girls in New Zealand, Caspi and his colleagues (1993) found that timing of the onset of menarche was associated with adolescent delinquency. At age 13, girls who had experienced early onset of menarche (12 years, 5 months and younger) were more likely to report being familiar with delinquent peers and engaging in norm-violating behaviours. At age 15, girls who experienced early- and on-time (12 years, 6 months to 13 years, 6 months) onset of menarche were more likely to report engaging in delinquent activities than were girls with late (13 years, 7 months or later) onset of menarche (Caspi, Lynam, Moffitt, & Silva, 1993).

The effects of early onset menarche appear to be moderated by the gender composition of the schools. Girls who attended mixed-gender schools showed more stable patterns of delinquency than girls in single-gender schools. Caspi and his colleagues compared and found no differences between girls in mixed gender and single-gender schools of parental values, social class, and childhood behaviour problems. They concluded that the presence and attention of boys plays a significant role in girls' likelihood to engage in delinquent behaviours (Caspi et al., 1993).

In 2003, Howell proposed a five factor model of risk for female juvenile offenders involved in the most serious offenses. Howell (2003) posited that when young females are subjected to child abuse, suffer mental health problems, run away or are rejected from the home, become involved in gangs, and find themselves in the juvenile justice system, the combination of factors results in greater negative effects on the female juveniles than on their male counterparts who experience similar circumstances. In a large-scale analysis of juvenile offenders in Texas, researchers observed that female offenders were more than three times as likely as their male peers to have been the victims of suspected abuse or maltreatment and twice as likely to qualify for a diagnosis of a mental disorder (Johansson & Kempf-Leonard, 2009). Testing the applicability of Howell's model to this large sample, Johansson and Kempf-Leonard (2009) failed to find support for a gender differential model, finding that mental health problems, home truancy, gang involvement, and juvenile detainment in a secure facility were associated with chronic offending in both genders. As is apparent, the role of gender in delinquency continues to be a topic of debate amongst researchers.

Ethnicity and delinquency. Minority youth are disproportionately represented in the juvenile offender population. In 2007, the population of 10 to 17 year olds in the United States consisted of 78 percent White/Hispanic, 17 percent African-American, 5 percent Asian, and 1 percent Native American. In contrast, African-American youth accounted for 51 percent of juvenile arrests for violent crimes (Puzzanchera, 2009). Leiber (2002) reported that in every state examined by the Disproportionate Minority Confinement (DMC) of youth project, juvenile offenders of ethnic minorities were overrepresented, with the largest overrepresentation for African-American youth followed by juveniles of Hispanic descent.

A controversy exists about whether the disparity is the result of a greater incidence of criminal activity engaged in by African-Americans or whether the disparity is better accounted for by bias in the criminal justice system (Piquero & Brame, 2008). A recent analysis of the outcome in two county courts found that European-American youth were more likely than youths of ethnic minority backgrounds to receive probation than to be placed in residential treatment; however, there were no significant differences between groups for the rate of dismissal of charges (Guevara et al., 2008).

Recent research by Vaughn and colleagues (2008) found significant differences between African-American and European-American youth in self-reported behaviours and mental health. The "African-American youths reported higher levels of overall delinquency, violence, personal victimization, gang fighting, weapon carrying, and witnessing of severe injury and death" (p. 325) while European-American youth reported greater "mental health distress, suicide, substance use in various forms, and substance-related problems" (p. 325).

An interaction effect between gender and ethnicity frequently has been observed with female African-American youth more likely to report experiencing higher levels of family dysfunction (Gavazzi, 2006), higher levels of externalizing behaviours (Gavazzi, Bostic, Lim, Yarcheck, 2008) and more likely to be dually involved in the mental health and juvenile justice systems (Graves et al., 2007). According to Gavazzi's (2006) research, African-American females reported the highest family dysfunction, followed by European-American females, while the African-American and European-American males reported equally lower levels of family dysfunction. Thus, while being an ethnic minority in the United States might be a factor for increased risk of involvement in the court system, there are considerable additional risk factors associated with being a young African-American female.

Parental Factors Contributing to Juvenile Delinquency

While the importance of understanding the individual-level risks for juvenile offending should not be understated, it also is important to understand the role of the family in the development of juvenile delinquent behaviours. From a developmental perspective, the roots of individual risk factors for delinquency can be observed to develop from problems within the family (Redding et al., 2005). Redding and his colleagues (2005) reported that causal modeling studies of delinquency identify family dysfunction as one factor that frequently leads to involvement with delinquent peers and that associations with troubled peers often lead to engagement in delinquent behaviours.

A laundry list of parenting factors has been found to be associated with adolescent delinquent behaviours. These include parental factors such as parental antisocial behaviour, unemployment, criminality, and substance abuse (Grekin, Brennan, &

Hammen, 2005) as well as parenting-style factors such as inconsistent disciplinary practices, poor family management practices, harsh disciplinary practices, child maltreatment, low levels of parental involvement, and parent-child separation (DeMatteo & Marczyk, 2005; Fergusson & Horwood, 1999; Hawkins et al., 2000; Heaven, Newbury, & Mak, 2004; Moore, Pauker, & Moore, 1984; Patterson, 1993). For example, Grekin and colleagues (2005) observed that paternal substance abuse, especially in the presence of executive functioning deficits and stressful home environments, was associated with juvenile delinquency. As a result of these observations, the researchers posited a biosocial conceptualization of the relation between parental alcohol abuse and delinquency.

Patterson and Stouthamer-Loeber described the *unattached parent* (1984), whose lack of monitoring of their children's whereabouts, companions, and activities was found to be moderately correlated with their adolescent children's antisocial behaviours. Consistent with Patterson and Stouthamer-Loeber's findings, Kimonis, Frick, and Barry (2004) also found that parental monitoring, supervision, and involvement were moderately negatively correlated with adolescent delinquency, although the mediational role of parenting appeared to be weaker at later assessment points in the longitudinal study, indicating that parenting influences might diminish as children age. Loeber (1990) has posited that poor parenting practices contribute to children's aggressive behaviour, and as these aggressive behaviour patterns become entrenched, they lead to the development of more serious and pervasive behaviour problems, including substance abuse and conduct disorder.

In their work with the Pittsburgh Youth Study following three cohorts of boys (ages 7, 10, and 13 at the beginning of the study), Loeber and his colleagues (2001) found several family process factors that were strongly related to boys' conduct problems, covert behaviour problems, and the use of physical aggression. The strongest factor associated with covert behaviour problems was poor parent-son communication. Other family process factors found to predict male adolescent covert behaviours were mother's use of physical punishment (strongly related to physical aggression in the oldest sample), high parent stress (strongly related to conduct problems and covert behaviour problems in all three samples) and parent substance use problems (strongly related to conduct problems in all three samples).

Coercion Theory.

Based on his and others' work at the Oregon Social Training Center, Patterson introduced a theory of coercion to explain the development of aggressive behaviour problems (Patterson, 1982; 1986). Patterson (1986) theorized that social disadvantage, poor parent skills training, and difficult temperaments are likely contributing factors to early-onset of delinquency. When parents fail to adequately teach their children to comply to set rules and regulations, they begin a process of coercive exchange within the family (Patterson, 1986).

According to *coercion theory*, aggressive behaviours result from an interaction between parents and children in which each participant molds the others' behaviours (Patterson, 1982). During confrontational dyadic interactions between a parent and child, the effects of reinforcement are reciprocal with both parents and children contributing to the socialization process (Snyder & Patterson, 1995). Parents and children mutually

influence each other's behaviours, with the ongoing effect that children's aggression increases while parents' control of their children's behaviours decreases. Interactions are characterized by parental insistence upon compliance, children's refusal to acquiesce, and parents' eventual surrender of authority in the situation (Patterson, 1982). Continued repetitions of coercive interactions lay the groundwork for the emergence and cementing of aggressive behavioural responses (Granic & Patterson, 2006).

Research indicates that there is a reciprocal relationship between ineffective parental discipline and child antisocial behaviour that is relatively stable over time as behaviour patterns become entrenched (Patterson, 1979; Patterson & Moore, 1979; Vuchinich, Bank, & Patterson, 1992). Patterson and his colleagues (1992) have proposed a bidirectional developmental theory of aggressive behaviour stemming from the actions and reactions between inadequate parenting (e.g., inconsistent and/or harsh discipline, vague expectations, low levels of monitoring) and their children who often respond with aggressive or antisocial behaviours.

When parents' expectations of their children's behaviours are negative, these negative expectations can have negative influences on children's subsequent behaviour (Nix et al., 1999; Snyder, Cramer, Afrank, & Patterson, 2005). Hostile parent attributions potentially provoke increased parental anger and harsher disciplinary practices (Snyder et al., 2005). Snyder, Reid, and Patterson (2003) theorized that when parents assume their children will misbehave and resist attempts to redirect behaviours, parents might be less likely to observe any positive changes in children's behaviour that might occur. Thus, hostile attributions, when combined with inadequate monitoring of child behaviour,

potentially decrease the parents' likelihood of distinguishing successful from unsuccessful disciplinary attempts.

According to coercion theory, as children become increasingly defiant and coercive in their interactions, they experience increased social rejection from their family members and well-adjusted peers (Patterson, 1982, 1986). Antisocial behaviours are likely to generalize from the family environment to the school setting (Ramsey, Patterson, & Walker, 1990) thus increasing the risk of academic failure (Patterson, 1986). With failure and rejection, low self-esteem is then likely to develop (Patterson, 1986). All these factors combined are hypothesized to place the coercive child at increased risk of remaining in the coercive, negative interactions (Patterson, 1982, 1986). As failure and rejections amass, anger and aggression result (Patterson, 1986).

Social Factors Contributing to Juvenile Delinquency

In a large scale (n= 900) study of the risk factors associated with deviant peer affiliations, Fergusson and Horwood (1999) found that adolescents most at risk were those who had impoverished backgrounds, poorly functioning families, and a history of early onset of deviant or aggressive behaviours. Loeber and his colleagues (2001) found that family demographic factors were less strongly related to negative outcomes than were child or family process factors. However, coming from a broken family was a strong predictor of conduct problems and delinquency.

Socioeconomic factors of delinquency. Socioeconomic status (SES) has been implicated in juvenile delinquency. Areas with lower socioeconomic status and higher proportions of Minority-Americans often are characterized by high rates of unemployment, crime, homelessness, substance abuse, and mental health problems while

lacking sufficient resources and opportunities for education, employment, and mental health care (Chow, Jaffee, & Snowden, 2003).

Moss, Lynch, and Hardie (2003), in their research, found a modest effect of SES on peer affiliation, with lower SES being associated with increased deviant peer affiliation and higher SES being associated with fewer delinquent peer affiliations. Low SES was a strong predictor of conduct problems in the Pittsburgh Youth Study middle cohort sample, while living in poor housing was a strong predictor of physical aggression in the Pittsburgh Youth Study oldest age sample (Loeber et al., 2001). Loeber and his colleagues (2001) also observed that living in a "bad neighborhood," as defined by a parent, was a strong predictor of delinquency and physical aggression.

Originating in a family that receives welfare assistance was strongly related to both covert behaviour problems and delinquency in all three samples (Loeber et al., 2001). Follow-up analyses found that the socioeconomic status of the family moderated the affective and impulsive components of juvenile psychopathy in a group of males assessed at ages 13 and 24 (Lynam, Loeber, & Stouthamer-Loeber, 2008). In contrast to these findings, Caspi and colleagues (1993), in their study of a female cohort in New Zealand, found no effect of social class on girls' likelihood to report familiarity with delinquent peers or self-reported delinquency.

Peer influences: deviancy training. Peer groups have been shown to influence adolescent behaviours both positively by dissuading deviant behaviours and negatively by encouraging or reinforcing deviancy (Ayers et al., 1999). Deviant peer affiliation has been shown to be a strong predictor of later delinquency (Dishion, Eddy, Haas, Li, & Spracklen, 1997; Elliott & Menard, 1996; Patterson, Capaldi, & Bank, 1991) with deviant

peer friendships appearing to increase deviant behaviours during adolescence (Ayers et al., 1999; Dishion & Andrews, 1995), including drug usage (Kendal, 1978; Moss et al., 2003).

Once a deviant peer group is formed, reinforcement increasingly comes from peers, while adult influence wanes. When involved in intimate relationships that endorse and promote a culture of violence, there is an increased risk that adolescents will choose violence as a means of resolving problems (Dishion et al., 1997). The reinforcement from peers thus serves to develop, sustain, and escalate antisocial behaviours (Dishion et al., 1997).

Prior similarities in behaviours and beliefs promote the maintenance of friendship (Kandel, 1978). Kandel's (1978) longitudinal study of adolescent friendships generally supported the conclusion that adolescents seek out and maintain friendships with peers so as to maximize the similarity of specific attitudes and behaviours especially as pertaining to the use of marijuana. Adolescents with similar prior traits generally gravitate toward one another and then tend to influence one another as the result of their sustained alliance (Kandel, 1978). Pertaining to frequency of marijuana use, Kandel (1978) found that if an imbalance in attitude or behaviour between friends exists, adolescents generally would either break off the friendship and seek another friend or modify their own drug usage to better match their friends'.

Dishion and colleagues (1997) found that *deviancy training* in adolescent friendships was associated with adolescent violence even after controlling for previous childhood antisocial behaviour and parental discipline practices, thus reinforcing the influence of peers upon delinquent behaviours (Dishion et al., 1997). Male adolescents

who participated in deviancy training with friends tended to have a higher probability of being arrested for a violent act than those male adolescents whose friendships were based on socially appropriate topics (Dishion et al., 1997). The researchers concluded that adolescent violence could be predicted by the communication patterns that occur within the group, especially the tendency of significant peers to positively reinforce antisocial behaviours (Dishion et al., 1997). As a result, it is necessary for treatment interventions to address the role of peers in the induction and maintenance of antisocial behaviours.

It is possible, however, that not all aggressive youth will be equally influenced by deviancy training (Fite & Colder, 2007; Poulin & Boivin, 2000b). Proactively aggressive youth may not be as vulnerable to peer socialization as their reactively aggressive peers (Fite & Colder, 2007; Poulin & Boivin, 2000b). Differences in aggressive styles appear to be related to peer evaluations, with proactively aggressive children, those who act aggressively with the intent of gain, often being positively evaluated by peers despite having some problems with peer relations (Boivin, Vitaro, & Poulin, 2005; Dodge & Coie, 1987; Poulin & Boivin, 1999, 2000a; Price & Dodge, 1989; Prinstein & Cillessen, 2003), while reactively aggressive children often are viewed negatively by their peers (Dodge, Lochman, Harnish, Bates, & Petit, 1997; Poulin & Boivin, 1999; Prinstein & Cillessen, 2003). As a result of the rejection reactively aggressive children receive from their prosocial peers, often these children seek out and maintain relationships with other reactively aggressive peers (Dishion, Patterson, & Griesler, 1994). Fite and Colder (2007) found a reciprocal relation between reactive aggression and peer delinquency over time, although high levels of proactive aggression were unrelated to peer delinquency over time. In exploring the influence of peers on juvenile offenders' delinquent

behaviours, therefore, it may be necessary to explore the offenders' predisposing aggressiveness style.

The following section will examine various methods of addressing adolescent delinquency with an examination of research into the efficacy of various treatment approaches. Included will be an in-depth description of treatment options provided by the Oakland County Court Psychological Clinic.

Addressing Juvenile Delinquency

Sanctions for Juvenile Offenders.

Juveniles adjudicated in the juvenile court system as delinquent or status offenders face sanctions that typically include the imposition of a fine or other form of restitution, supervised probation by the Court, referral for treatment, or placement in a group, foster, or other residential facility (Puzzanchera et al., 2004). A discretionary sentencing alternative, probation allows the offender the opportunity to remain in the community under the supervision of the Court while following a Court-ordered mandated set of rules (Prosecuting Attorneys Association of Michigan, 2008). The parameters of the probation vary, with the most rigorous being an Intensive Probation and the least restrictive being a Consent Probation or Consent Calendar (Oakland County Court, 2003, Prosecuting Attorneys Association of Michigan, 2008). An informal probation, the Consent Calendar option allows that if all probation terms are successfully completed, the case is dismissed (Prosecuting Attorneys Association of Michigan, 2008). Mental Health treatment referrals, which are often required as a condition of probation, can include programs designed to address the special needs of the juvenile delinquent. The Oakland County Circuit Court Family Division's Skills Training in Anger Reduction (STAR)

Adolescent Group Therapy is one example of a Court-ordered sanction designed to meet the special needs of the adjudicated juvenile offender (Oakland County Court, 2003).

Farrell and Flannery (2006) warn that when untested and unproven resources are dedicated to the prevention and treatment of antisocial behaviours, there is the potential for unintended harm that comes from withholding potentially more efficacious treatments. In an attempt to apply efficacious treatment approaches in its response to juvenile delinquency, the Oakland County Circuit Court Family Division has implemented programs that are designed to address the unique needs of juvenile offenders. Two of the programs, Skills Training in Anger Reduction (STAR) Adolescent Group Therapy and Court Help On Increasing Control and Effectiveness (CHOICE) are provided free of charge as a service of the Court Psychological Clinic in an attempt to target and address dysfunctional behaviours and to reduce the rate of recidivism for the juvenile delinquents who come before the Court. Court employees (administration, referees, attorneys, case workers, psychologists) familiar with the juveniles and their families often recommend one or both intervention programs as a condition of the juvenile's probation. A review of the research that guided the program designs follows, with an in depth examination of the Court group programs. Also included is a look at the types of programs that have been found to be efficacious in the past, as well as a review of the potential negative effects of group treatment with adolescents.

Research on Intervention Programs for Juvenile Offenders

Intervention efficacy and effectiveness research. The Boulder, or *scientist-practitioner*, model of psychological training promotes a liaison between research and the dissemination of findings for application to interventions (Rainey, 1950). Spurred by the

scientist-practitioner model and increasing outside pressure partially attributable to the advent of the managed healthcare system, researchers have been systematically seeking to answer the question "what works for whom? " (Lonigan, Elbert, & Johnson, 1998; Silverman & Hinshaw, 2008).

Researchers differentiate between studies that examine the *efficacy* of an intervention and those that explore the *effectiveness* of an intervention. *Efficacy* studies are those in which "considerable control has been exercised by the investigator over sample selection (usually recruited samples), over delivery of the intervention, and over the conditions under which the intervention or treatment occurred" (Hoagwood, Hibbs, Brent, & Jensen, 1995, p. 683). In contrast, *effectiveness* studies are those in which treatment outcome data are obtained in real-world settings (Hoagwood et al., 1995). Efficacy research provides the researcher the opportunity to limit extraneous variables that might account for changes over the course of intervention; however, the increased controls implemented in efficacy research also potentially limit its generalizability to real-world applications (Hoagwood et al., 1995; Kazdin, 1978). Weisz and Weiss (1989) caution that in contrast to the conditions typical of most outcome studies, treatment often takes place with participants who have severe symptoms and multiple diagnoses, therapy that focuses on a broad spectrum of problems, and therapists who have not been recently trained in the specific interventions being conducted. As a result, what appears to work in the laboratory might be much less effective in real-life settings.

In 1998, the *Journal of Clinical Child Psychology* published a special edition focused on and highlighting the current state of intervention research for childhood disorders of depression, anxiety, conduct problems, attention deficit/hyperactivity, and

autism (Lonigan et al., 1998). A primary objective of the journal's editors was to disseminate knowledge of the American Psychological Association (APA) Division 12 Task Force's criteria for identifying *well-established* and *probably efficacious* interventions (Chambless et al., 1996) as applied to interventions with children (Lonigan et al., 1998). To be determined to be a *well-established* psychosocial intervention for a childhood disorder, an intervention must either (a) have been shown in at least two independent well-designed group studies to be either superior to an alternative form of intervention or equal to a previously established treatment, or (b) demonstrated superior outcome to another treatment in nine or more well-designed single-case studies. The sample must be clearly specified and described, and a treatment manual, which might allow for ease of treatment adherence and replication, while not required, is preferred (Lonigan et al., 1998).

The requirements for a *probably efficacious* intervention are only slightly less stringent, with either (a) demonstrating in least two independent well-designed group studies to be superior to a no-treatment control group or two studies conducted by the same researcher that both meet the criteria for well-established interventions, or (b) demonstrated superior outcome to another treatment in three or more well-designed independent single-case studies (Lonigan et al., 1998).

A third level of classification, *possibly efficacious*, was added by the Child and Adolescent Mental Health Division of the Hawaii Department of Health's Empirical Basis to Services Task Force when investigators failed to identify any interventions meeting the criteria for the original two classifications for some childhood disorders (Chorpita et al., 2002). To be classified as *possibly efficacious*, parameters were

modified to require (a) one well-designed between-group study demonstrating improved outcome compared to placebo or another treatment or (b) demonstrated superior outcome to another treatment in three or more single-case studies conducted by at least two independent researchers. Also added were the classifications of unsupported treatments and possibly harmful treatments.

A decade after their first special edition was published, the renamed *Journal of Clinical Child & Adolescent Psychology* published a follow-up to the original review of treatment efficacy studies of childhood disorders (Silverman & Hinshaw, 2008). Included in the special issue was a review of the articles published from 1996 to 2007, updating the original report by Brestan and Eyberg (1998) on the evidence-based treatments for conduct problem disorders in childhood (Eyberg, Nelson, & Boggs, 2008). The reviewers identified 16 evidence-based treatments, of which only one (Multisystemic Treatment (MST); Henggeler, Melton, & Smith, 1992) met the criteria for a well-established treatment (Eyberg et al, 2008).

The increase in violent crime in the 1990's also resulted in an increased focus by government and society on effective intervention and prevention programs designed to reduce violent crime and increase quality of life (Elliot, 2000). In 1996, the Blueprints program was established at the University of Colorado's Center for the Study and Prevention of Violence in conjunction with the Colorado Division of Criminal Justice. The goal of the Blueprints program was to identify programs that had demonstrated outstanding effectiveness in the prevention of violence (Elliott, 2000). The Blueprint program established four evaluation standards for identifying effective violence prevention programs. The first standard is a strong research design that includes random

assignment, low participant attrition, and adequate measurement of outcome, conducted with quality, consistency, and timeliness. The second standard requires evidence of deterrent effects for delinquency, drug use, or violence. Thirdly, the Blueprints program requires that a program's outcome effects be demonstrated at multiple sites, and finally, the program must demonstrate the ability to deter delinquency over a sustained period of time (Elliott, 2000). According to these standards, the Center for the Study and Prevention of Violence has evaluated over 600 programs, eleven of which the CSPV has endorsed as working effectively (Center for the Study and Prevention of Violence, 2006).

Adolescent-focused interventions. An adolescent's propensity to seek or resist "acts of short-term self-interest can be overcome by minimal barriers, by opportunities, and by decisions" (Gottfredson, 2005, p. 54). Thus, interventions that encourage the use of decision-making skills to inhibit impulsive actions potentially reduce delinquent behaviours. Acquiring or improving upon various social skills, such as problem solving, conflict resolution, anger management, and critical thinking, may reduce the likelihood of juvenile antisocial behaviour (DeMatteo & Marczyk, 2005), and subsequently the likelihood of reoffending.

Cognitive-behavioural therapy (CBT) interventions typically teach socially-appropriate, non-violent problem solving skills aimed at replacing inappropriate and maladaptive thought and behaviour patterns (McCart et al., 2006). CBT interventions have been shown to be useful for reducing antisocial behaviours in youth (see Hinshaw & Anderson, 1996, for a review) and recidivism in juvenile and adult offenders (Landenberger & Lipsey, 2005; Pearson, Lipton, Cleleand, & Yee, 2002, Wilson, Boufard, & MacKenzie, 2005). McCart and his colleagues (2006), in a meta-analysis of

41 published CBT studies, found a small but significant effect of treatment for aggressive behaviours. Consistent with previous analyses of the research data (Durlak, Fuhrman, & Lampman,1991), the authors noted, however, a positive relation between age and CBT effect size, indicating that this type of intervention is best suited for older youth with more advanced cognitive reasoning skills (McCart et al., 2006). McCart and his colleagues (2006) reported that ethnicity was not found to influence the effectiveness of treatment.

Cognitive behavioural interventions that address behaviours specific to Anger Control attempt to provide adolescents with the knowledge and ability to successfully negotiate anger-provoking situations. Lochman and colleagues (2003), in their review of anger management interventions, reported that using an Anger Coping framework to implement cognitive behavioural interventions can have moderate effects on children's aggressive behaviour at home and school immediately after intervention, as reported by parents, teachers, and independent observers. Observed outcome effects included not only decreases in teacher-reported and parent-reported aggressive behaviours, but also increases in positive social skills and adaptive behaviours up to three years post-treatment (Lochman et al., 2003). Additionally, a meta-analysis of factors associated with adult and juvenile offender treatment outcome observed that CBT programs that addressed Anger Control and interpersonal problem solving skills had larger treatment effect sizes than did CBT programs that found on other issues (e.g., moral reasoning, relapse prevention, social skills; Landenberger & Lipsey, 2005).

While Lochman and colleagues (2003) reported general success with anger management interventions, moderators such as initial levels of problem-solving skills and

family income level were shown to affect the interventions on certain outcomes, indicating that not all children respond to this form of intervention. Fonagy and Kurtz (2002) caution that while anger management programs have face value in addressing the underlying features of aggression and impulsivity, there is insufficient evidence that adolescents will generalize the learning to appropriate situations. Treatments that address multiple likely contributors to adolescent aggression and delinquency are more likely to be effective than treatments that address single factors (Fonagy & Kurtz, 2002).

Peer contagion effects. In 1978, McCord reported in the *American Psychologist* findings from a 30-year follow up of a randomized delinquency- prevention treatment program, indicating that participants in the treatment group had experienced several negative side effects including higher rates of criminal behaviour, death, and disease. While critics have argued that McCord's findings were non-conclusive (Sobol, 1978; Worbol, 1978), the debate over the potential for *iatrogenic effects* (negative effects caused by the treatment) of delinquency intervention programs continues.

Developmental research indicates that increased deviant peer involvement is associated with increases in antisocial behaviours (Patterson, 1993). When high-risk adolescents are brought together, it is possible that the group will work as a social network to increase contact with other deviant peers (Chamberlain, 2003; Dishion et al., 1997; Fischer & Chamberlain, 2000). When juvenile offenders are brought together for treatment, there is a risk that they will serve as negative influences upon one another, potentially exacerbating negative behaviours rather than reducing them (Dishion & Dodge, 2005; Dishion, McCord, & Poulin, 1999; Leve & Chamberlain, 2005). For example, youth who were placed in out-of-home group settings were found to have

higher associations with delinquent peers one year after placement than youth placed in foster care settings (Leve & Chamberlain, 2005).

Longitudinal and intervention research has indicated that peer contagion effects in group treatment for behavioural problems can have iatrogenic effects, undermining or reducing the intended results (Dishion & Andrews, 1995; Dishion & Dodge, 2005; Dishion et al., 1999). Meta-analysis of juvenile delinquency treatment has shown that up to 29 percent of examined treatments showed negative effects (Lipsey, 1992). For example, Dishion and colleagues (1999), in a longitudinal matched-pair outcome study, found that in comparison to their matched control pairs, participants who engaged in multiple summer camp placements were significantly more likely to have negative outcomes than those who participated in one placement or did not participate in any placements. When participants in groups vary in level of deviancy, research has found differing and conflicting results regarding the iatrogenic effects of aggregating deviant or at-risk adolescents.

It is possible that in youth who are not engaging in delinquent activities or who are deeply engaged, the effects of peer influence may be minimal (Dishion & Dodge, 2005). One possible explanation for the differences in findings is the varying amounts of supervisions and structure in the groups (Dishion & Dodge, 2005). Based on the research regarding peer contagion effect, recommendations for treatment of delinquent youth include providing constant supervision, minimizing opportunity for non-supervised interactions, and enforcing negative consequences for delinquent behaviours (Leve & Chamberlain, 2005). While iatrogenic effects of interventions have been observed in some treatment studies, other intervention studies have shown positive results (Dishion &

Dodge, 2005; Dishion et al., 1999; Leve & Chamberlain, 2005; Lochman et al., 2003). Weiss and colleagues (2005), in their review of the research, challenged the significance of any observed iatrogenic effects associated with peer deviancy training in group interventions; however, Dishion and colleagues (1999) warn that the lack of reported null or iatrogenic effects might be attributable to the file drawer problem, in which studies without significant findings are not published.

Group interventions are a more fiscally responsible and efficient means of providing intervention if they are effective at reducing unwanted behaviours (French et al., 2008). Group interventions for juvenile offenders that reduce the likelihood of recidivism benefit society by providing a reduction in the costs of juvenile and adult crime while offering the added benefit of integrating juvenile offenders back into mainstream society.

Skills Training in Anger Reduction (STAR) adolescent group therapy. The Oakland County Circuit Court Family Division provides innovative treatment to adolescent offenders and their families in an attempt to reduce juvenile recidivism rates. The Skills Training in Anger Reduction (STAR) Adolescent Group Therapy program is a manualized and highly structured cognitive-behaviourally based group therapy designed for male and female adolescents ages 11 to 18 who have become involved with the Oakland County Circuit Court Family Division as the result of delinquent behaviour. (For a copy of the manual, see Appendix A for contact information.) The program was created by Oakland County Circuit Court Family Division psychologist James Windell in response to the perceived need to efficiently and effectively address the role of anger in juvenile offending. Prior to its manualization in 2005, the program had been run as an

ongoing group therapy in which participants engaged for an indeterminate period of time. With the change in format, the program included multi-respondent pre- and post-intervention measures of problem behaviours with the intent of objectively measuring treatment effectiveness.

The goal of STAR is to reduce the likelihood of recidivism by providing the adolescent participants with improved decision-making and anger management skills. Based upon the work of Feindler and her colleagues (Feindler, 1987; Feindler, Ecton, Kingsley, & 1986; Feindler, Marriott, & Iwata, 1984), the program is presented in a psychoeducational format with primary goals of arousal management, cognitive restructuring, and prosocial skills development.

The STAR program is run by Court staff and graduate level interns trained in psychology, under the supervision of Ph.D. level, Court-employed, licensed psychologists. Supervision consists of weekly meetings of staff members with a supervisor to discuss the implementation of the program. The program consists of 12 weekly 75 minute sessions, each with a specific agenda. The program encourages the implementation of a self-monitoring system that allows the adolescent participants to identify and assess (a) potentially anger-provoking situations, (b) their potential responses, (c) probable outcomes, (d) best-course-of-action decisions, and, after the situation, (e) objective analyses of their responses.

The structure of the STAR program consists of an introductory session that includes information gathering and dissemination with an introduction to the program for both participants and parents. Sessions 2 through 11 are designed for adolescents without parental attendance during which a variety of teaching methods (media, discussion, role

playing, assignments, tests) are utilized to introduce the concepts and encourage their implementation. In the final session, week 12, parents are asked to return to hear about what their adolescents have learned over the past 10 sessions and to provide feedback regarding their impressions of their adolescents' progress. At the final session, the STAR adolescent participants also are given forms to complete. The group ends with a final brief review of the program content. To successfully complete the STAR program, participants must attend at least 10 of the 12 sessions. In addition, it is required that they complete homework assignments and tests. Attendance, homework, and test grades are combined to calculate an overall score that must be at or above 80 percent for successful program completion. Program leaders aid and encourage the juvenile offenders toward successful completion of the program.

Parent Training. Parent training interventions are modeled on social learning theory, based on the assumption that children's behaviour problems are attributable to inadequate reinforcement of prosocial behaviours and a tendency toward coercive parent-child interactions (Fonagy & Kurtz, 2002). Behavioural parent training interventions typically attempt to address the child's behavioural problems by teaching parents more adaptive and effective means of parenting (McCart et al., 2006). Parent-based interventions for delinquent youth typically address issues such as effective monitoring of youth behaviours, communication skills, discipline techniques, and realistic expectations. Goals include decreasing coercive interactions while increasing positive reinforcement for appropriate behaviours (McCart et al., 2006).

Previous intervention studies have demonstrated a reduction of child antisocial behaviours with the improvement of parenting practices (Fonagy & Kurtz, 2002; Kazdin,

1987; Serketich & Dumas, 1996). For example, group parent training for families of children with ADHD and aggressive and defiant behaviours has been shown to reduce children's' aggressive and oppositional behaviours (Danforth, Harvey, Ulaszek, & McKee, 2006). The majority of the research on the effectiveness of parent behavioural interventions, however, has been conducted with children below the age of 12 (Chorpita et al., 2002; Eyberg et al., 2008; McCart et al., 2006). Of the eleven Blueprint programs, the only intervention focused solely on parents is a preventive program that targets pregnant women at risk of preterm delivery (Elliott, 2000). Of the six identified evidence-based treatments, all but one were developed for implementation with children below the age of six (Eyberg et al., 2008).

Parent Management Training Oregon Model (PMTO; Patterson, Reid, Jones, & Conger, 1975), the only intervention for child delinquency to earn the designation as a well-established treatment, also was the only parent-based program that demonstrated efficacy with older children (Eyberg et al., 2008). The focus of PMTO is providing parents with the tools to implement behavioural changes in their children. PMTO's goals for parents include improved monitoring of children's behaviours, and the development and implementation of behavioural modification programs targeted at specific problem behaviours (Patterson et al., 1975).

Despite its demonstrated efficacy, PMTO has been shown to impact behaviours only on children up 12 years of age (Eyberg et al., 2008). As children reach adolescence, parental influence weakens as peer influences increase. It is possible that parent-based interventions for adolescents will have less impact on older, more socially independent children than they do on younger children who rely predominantly upon their parents for

guidance and support (McCart et al., 2006). Fonagy and Kurtz (2002) recommend that children over 8 years of age receive additional intervention services beyond parent training.

Court Help On Increasing Control and Effectiveness (CHOICE). The Oakland County Circuit Court Family Division also provides a manualized and highly structured group program for parents of juvenile offenders based on social learning theory, Court Help On Increasing Control and Effectiveness (CHOICE). CHOICE was developed by Oakland County Circuit Court Family Division psychologists James Windell and Mary Seyuin with the goal of empowering parents of juvenile offenders to effect changes in their children's behaviours. (See Appendix A for contact information.) CHOICE is designed to address the specific needs of parents of juveniles exhibiting significant delinquent behaviours. As such, CHOICE is a highly structured cognitive behavioural group training that provides parents of juvenile offenders with information and guidance regarding effective and consistent means of parenting adolescents with behavioural difficulties.

The class is run by Court-employed master's level psychologists and meets weekly for eight 90-minute sessions. The first four sessions teach and promote discipline skills that encourage and reinforce positive behaviours. The final four sessions then address discipline skills that discourage undesired and inappropriate behaviours. Parents are given weekly homework tasks and tests. The focus of the program is providing parents with a safe and supportive environment in which to learn more effective ways of addressing the serious behavioural difficulties that are typical with juvenile offenders.

Participants are encouraged to share their experiences and to help one another problem solve using appropriate parenting solutions.

Combined treatment approaches. Treatments that address multiple factors have been shown to be more effective than those that address fewer factors (Kazdin, 1987, 2003; Redding et al., 2005). Additionally, there is some evidence that involving parents in treatment improves outcome. Karver and colleagues (2006), in a meta-analytic review of the effects of process factors on treatment outcome, noted moderate effect sizes for parents' willingness to participate in treatment. Kazdin and his colleagues have found that combining problem-solving skills training for children with parent management training generally improves outcome over either treatment individually (Kazdin, 2003). Kazdin and Wassell (2000) reported large treatment effects for child behaviour change for a combined treatment intervention for children ages 7 to 14 and their parents.

Of the eleven Blueprint programs, five include a parenting component as a factor of the intervention. Similarly, nine of the sixteen evidence-based psychosocial treatments described by Eyberg and colleagues (2008) include parents as a component of treatment. Multisystemic Treatment (MST) is a wraparound approach providing services that focus on the individual, family, peers, school, and community (Henggeler et al., 1992). "MST is the most extensively validated family-based treatment for adolescents presenting serious clinical problems" (Shoenwald & Henggeler, 2005, p. 103) with the program having been identified as both a Blueprint program (Elliott, 2000) and a probably efficacious treatment by the Hawaii Empirical Basis to Services Task Force (Chorpita et al., 2002) and the Task Force on Promotion and Dissemination of Psychological Procedures (Eyberg et al., 2008).

MST utilizes a high-intensity approach in which trained therapists follow a small caseload of families, offering a high rate of availability with the intent of empowering the family to effectively address the delinquent behaviours. Additional support is sought from other family members, friends, and community members to further aid in intervention. Reviews of empirically supported treatment for delinquency have consistently validated the efficacy of MST in reducing delinquent behaviours and improving family relations (Burns, Hoadwood, & Mrazek, 1999; Farrington & Welsh, 1999; Karnik & Steiner, 2007; Kazdin & Weisz, 1998; van der Merwe & Dawes, 2007).

A meta-analysis of published MST outcome studies (Curtis, Ronan, & Borduin, 2004) reported a large effect of MST on family relations with moderate effects on delinquent behaviors. Farrington and Welsh (2003), however, observed that earlier MST trials showed more positive outcome than did later trials. Curtis and colleagues (2004), in their analysis of the literature, noted the potential moderating effect of study condition. Compared to treatment by community-based therapists, treatment disseminated by graduate student therapists who were under the close watch of supervisors showed larger effects. It is possible, therefore, that for true efficacy of treatment, MST requires strict adherence to the model. Eyberg and colleagues (2008) noted that both well-conducted MST studies in their review had been conducted by the same investigatory team. Thus, to obtain a higher ratings, significant results with independent researchers are required.

Although the Oakland County Court does not offer a program specifically targeting both parent and child, in some cases the juvenile offender is referred to STAR and caregivers are referred to CHOICE. In this manner, the Court attempts to address the multiple needs of the juvenile and the family.

In summary, the Oakland County Family Court currently provides two manualized group intervention programs. The juvenile offender program is a highly structured cognitive-behaviourally based group therapy designed for male and female adolescents while the CHOICE program is a highly structured group program for parents of juvenile offenders based on social learning theory. Although the groups were designed with the intent of offering treatments that will effectively reduce delinquent recidivism, they have been untested to date.

Study Hypotheses

As research has shown, adolescent delinquents are a heterogeneous group with a variety of predisposing factors that leave them vulnerable to delinquency. As such, it is hypothesized that individual factors are related to the ability of intervention programs to successfully reduce antisocial behaviours and juvenile recidivism rates. As a result, the outcome of interventions likely is related to the characteristics of the participants.

Based on these observations, the following hypotheses are proposed:

Hypothesis 1: Specific individual juvenile offender characteristics are likely to be related to intervention outcome.

Hypothesis 1a: The gender of the juvenile offender will be related to intervention outcome. Based upon research that indicates that girls, while less likely to offend, are more likely to have higher rates of family dysfunction, later onset of delinquent behaviours, and poorer outcomes than their male counterparts (Chamberlain & Smith, 2003; Chamberlain & Reid, 1994; Silverthorn & Frick, 1999; Silverthorn et al., 2001), it is hypothesized that the girls who come before the Court will have more severe symptoms and will respond differently to treatment than will their male peers.

Hypothesis 1b: Juvenile offender ethnicity will be related to intervention outcome. Given that juvenile offenders of ethnic minority backgrounds are over-represented in the court system (Leiber, 2002; Puzzanchera, 2009), and African-American juveniles report higher levels of overall delinquency and violence (Vaughn et al., 2008), it is hypothesized that along with the disproportionate presence of juvenile offenders of ethnic minority referred for treatment, there likely will be differences between the juvenile offenders of European-American and ethnic minority descent.

Hypothesis 1c: The socioeconomic status of the juvenile offender will be related to intervention outcome. With some evidence suggesting that lower socioeconomic status increases risk for deviancy (Fergusson & Horwood, 1999; Loeber et al., 2001; Moss et al.,2003), it is hypothesized that with increases in socioeconomic status also will be increases in successful intervention outcome.

Hypothesis 1d: The age of the juvenile offender will be related to intervention outcome. Research suggests that the earlier the onset of problem behaviours, the more likely that antisocial and delinquent behaviours will be lifelong (DeMatteo & Marczyk, 2005; Frick & Loney, 1999; Loeber, 1991; Moffit, 1993; Piquero & Chung, 2001; Robins, 1966, 1978) with the majority of crimes committed by the small portion of offenders who have a history of early childhood onset of behavioural problems (Henry et al., 1996). As a result, it is hypothesized that earlier age of onset of delinquency and age at intervention will be related to intervention outcome, with younger juvenile offenders having poorer outcome than those who are older.

Hypothesis 1e: Juvenile offender severity of delinquency will be related to intervention outcome. Most serious and chronic adult offenders enter adulthood with

extensive criminal records (Greenwood, 2006). As a result, it is hypothesized that the juvenile offenders' offense records prior to intervention will be related to intervention outcome, with greater pre-intervention charges being associated with poorer intervention outcome.

Hypothesis 1f: Juvenile offender association with delinquent peers will be related to intervention outcome. Based on research that has demonstrated that having a peer cohort that is actively engaged in delinquent behaviours is associated with higher rates of delinquency (Ayers et al., 1999; Dishion & Andrews, 1995; Dishion et al., 1997; Kendal, 1978; Moss et al., 2003; Patterson et al., 1991), it is hypothesized that adolescents who report having friends who also are delinquent will be more resistant to intervention than adolescents who report fewer delinquent friends. For the current study, adolescent self-report of friends who currently are on probation will provide a basis for determining the delinquency of the adolescent's peer group.

Hypothesis 2: The type of treatment provided will be related to the outcome of treatment.

Hypothesis 2a: The ratio of adolescents to leaders will be related to the outcome of treatment with better outcome for adolescents in groups with higher leader to juvenile offender ratios. Because research indicates that adolescents brought together with little supervision can potentially exacerbate the antisocial and delinquent behaviours of their peers (Dishion & Dodge, 2005; Dishion et al., 1999; Leve & Chamberlain, 2005), it is hypothesized that adolescent outcome as assessed by adolescent self-report of anger control, their behaviour as assessed by parent reports on a symptom checklist compared to their pre-treatment reports, and recidivism reduction rates will be better for groups with higher leader to adolescent ratios than for groups with lower ratios.

Hypothesis 2b: Completion of the STAR treatment program will result in better juvenile offender outcomes. Based on research that indicates that CBT interventions can be useful in reducing antisocial behaviours, it is hypothesized that adolescents who participate in STAR will show improvements in Anger Control as assessed by their own report and in their behaviour as assessed by parent reports on a symptom checklist compared to their pre-treatment reports. Additionally, it is predicted that STAR completers will have fewer post-treatment Court and police contacts compared to their peers who through attrition did not complete the program.

Hypothesis 2c: Parents' Completion of the CHOICE treatment program will result in better juvenile offender outcomes. Because previous research has shown that inadequate parenting contributes to delinquency and that parental involvement is positively related to intervention outcome (Fonagy & Kurtz, 2002; Kazdin, 1987; Serketich & Dumas, 1996), it is hypothesized that adolescents whose parents participated in CHOICE will have fewer post-treatment Court and police contacts compared to their peers whose parents did not complete the CHOICE program.

Hypothesis 2d: Combining treatment programs will result in better adolescent outcomes than either adolescent or parental treatment alone. Because research indicates that adolescent delinquency has many contributors (see Kazdin, 1995 for a review), utilizing treatments that address both individual and family-systems dysfunction should improve adolescent outcome above and beyond the implementation of either treatment alone. As a result, it is predicted that adolescents who complete STAR and whose parents participate in CHOICE will have better outcomes as assessed by post-treatment Court and police contacts of the adolescents than adolescents in either intervention program alone.

CHAPTER II

Method

Participants

Archival data were collected from 281 male (n = 201) and female (n = 80) youth who as part of their adjudication in the Oakland County Circuit Court Family Division were either referred for participation in the STAR program between May 2005 and April 2007 and/or had one or two parent(s) referred to the CHOICE program during the same time period (see Table 1). As shown in Table 1, just over half of the participants were European-American and one-third were African-American. The remaining participants were Hispanic, Asian, Native-Americans, and Other/Multi-Ethnic. For the purpose of analysis, the juvenile offenders were divided into two ethnic groups- European-American (n = 149) and Ethnic Minority (n = 121). Cross tabulation analyses of juvenile offender gender and minority status revealed no significant association between ethnicity and gender ($\chi^2 = .01, p = .92$).

As shown in Table 1, the majority of participants for whom data were available were residing in single parent homes, mostly in the custody of their mothers. Only 17.3 percent of juvenile offenders were reported to be in the custody of both biological parents, indicating that the traditional nuclear family was not the norm for the juvenile offender participants. The large representation of nontraditional families in the current study is consistent with observations of the increased risk of delinquency associated with single parent and step-parent families (Kierkus & Hewitt, 2009).

As a measure of peer relationships, juvenile offenders were asked to report the number of their friends who also were on probation (see Table 1). According to the 128

Table 1

Juvenile Offender Participant Information: Frequencies

Participant Descriptive	*n*
Gender	
Male	201
Female	80
Total	281
Ethnicity	
European-American	150
African-American	95
Hispanic	11
Asian	2
Native-American	2
Other/Multi-Ethnic	9
Information Not Provided	11
Custody Placement	
Mother	129
Father	21
Both Parents	34
Relative/Guardian	12
Information Not Provided	85
Friends on Probation	
None	68

Table 1 (Continued)

Juvenile Offender Participant Information: Frequencies

Participant Descriptive	*n*
1 or 2 Friends	36
3 or 4 Friends	19
5 or more Friends	5
Information Not Available	153
Program Referral	
STAR Only	174
CHOICE Only	62
Combined Treatment	45
Program Completion	
STAR Only	114
CHOICE Only	59
Combined Treatment	30
No Treatment Completed	67
Completion Data Unavailable	11

respondents, just over half had no friends on probation. As a result, the data were converted to a dichotomous variable with 53.1 percent of respondents reporting having no friends on probation and 46.9 percent reporting having at least one friend on probation.

Academic data for the juvenile offenders who participated in the STAR program were collected from parents reporting on the pre-intervention Achenbach Child Behavior Checklist (CBCL; Achenbach, 1991) and from juvenile offenders on the pre-intervention Adolescent Anger Rating Scale (AARS; Burney, 2001). According to the 143 respondents on the pre-intervention CBCL (50.9 % of the total sample), 31.5 percent of the juvenile offenders had repeated a school grade prior to the intervention and 30.1 percent had received special education.

As shown in Table 2, socioeconomic status was calculated using the US Census Bureau online American Factfinder Fact Sheets for the cities and townships reported as residences of the juvenile offenders at the time of intervention. The US Census 1999 median per capita income for the cities and townships of residences ranged in the current sample from a low of US $14,717 in Detroit, Michigan to a high of US $62,716 in Bloomfield Township, Michigan. The most frequent place of residency for juvenile offenders, with 52 (18.5 %) of the reported 262 residences, was Pontiac, Michigan which had a 1999 median per capita income of US $15,842. For the current sample, the mean US Census median per capita income was US $27,013.95 with a standard deviation of $9,219.03.

Table 2

Juvenile Offender Characteristics: Mean, Standard Deviation and Range

	n	Mean	SD	Range
Socioeconomic Status (Median 1999 Per Capita Income in US Dollars)	262	27,013.95	9,219.03	14,717 - 62,716
Age at First Court Contact (Years)	260	15.00	1.34	9.50 - 18
Grade of Problem Onset	121	5.82	3.41	0 - 12
School Competence (t-score)	130	39.05	9.06	20 - 55
Age at First Intervention	276	15.58	1.29	9.89 - 17
Pre-Intervention Status Charges	260	0.30	0.52	0 - 2
Pre-Intervention Violation Charges	259	0.17	0.48	0 - 3
Pre-Intervention Misdemeanor Charges	259	1.29	1.10	0 - 5
Pre- Intervention Felony Charges	261	0.80	1.13	0 - 8
Pre- Intervention Total Charges	260	3.07	2.08	1 - 13

Age of onset of delinquent behaviours was explored by examining the juvenile offenders' age of first court contact. Age at intervention was defined as the youngest age at which the first STAR or CHOICE session occurred. For the purposes of the current study, age was calculated in days for analysis purposes and converted to years for reporting purposes. Juvenile offenders ranged in age from 9 to 18 years at the time of their first court contacts. Information from 260 participants revealed that the mean age at first court contact was 15.00 years with a standard deviation of 1.34 years. The vast majority of juvenile offenders (73.3 %) were in the age range of 14 to 16 years at the time of their first court contacts.

For some participants, offense data were unavailable due to their successful completion of consent calendar probations. A consent calendar probation is the least restrictive of the probation options in which juvenile offenders are provided the opportunity to have their offenses removed from the court record if they successfully participate in all aspects of their probations. In those instances in which the juvenile offenders were allowed the opportunity to participate in a consent calendar rather than a formal probation and the juveniles did not reoffend or violate the terms of their consent calendars, their records were expunged from the system. As a result of the successful completion of consent calendars by 20 of the 281 juvenile participants, complete offense data were available for only 261 participants. For other participants, the age of majority occurred within the year after intervention. Because access to adult criminal records was not available, 84 participants who reached the age of 17 prior to the post-intervention year and had not reoffended were eliminated from the participant pool for recidivism analyses.

The total number of charges the adolescents had accrued prior to the STAR intervention program ranged in number from 1 to 9 with a mean of 3.07 offenses (*SD* = 2.08). The total pre-intervention mode was 1 charge prior to intervention with a frequency of 38 percent, with the second most frequent number of charges prior to intervention being two, with 27.4 percent of participants entering intervention with two charges. The most commonly accrued charges were misdemeanors; juvenile offenders had accrued a mean of 1.29 misdemeanor charges (SD = 1.10) prior to intervention. Violations of municipal codes, court orders, and terms of probation were the least frequent of charges. The frequency of pre-intervention felony charges, the most severe of offense charges, ranged from 0 to 8 with the mean pre-intervention felony charges being less than one (0.74, *SD* = 1.13). Nearly half of the participants (48.4 %) had no felony charges prior to intervention. Of those participants who entered intervention with a felony charge, 28.5 percent had one felony charge and 11.4 percent had two felony charges. Fewer than 5 percent of the participants entered intervention with 3 or more felony charges.

Of the 261 participants for whom the data were available, 154 (59 %) had accrued at least one charge for crimes against persons (assault and criminal sexual conduct charges). Appendix B shows the legal charges accrued by the juvenile offenders with the alphanumerical charge codes used in the legal system, whether the charges were of the status or non-status type, the level of the offense, and a description of the charge.

Descriptions of Intervention Referral Groups.

Of the 281 juvenile offender participants, 174 (61.9 %) were referred to only the STAR program, 62 (22.1 %) were referred to only the CHOICE program, and 45 (16 %)

participants were referred to both group programs (Combined). A Pearson Chi-Square test revealed that there was a significant association between referral groups and completion rates, $\chi^2 = 15.26, p < .001$. Although completion information was missing for 11 of the STAR referrals, analysis of the remaining 163 revealed that 109 (66.9 %) completed the referred STAR intervention. Of the 62 referred only to the CHOICE intervention, 55 (88.7 %) completed the referred intervention. For the 43 Combined intervention participants for whom completion data were available, 24 (55.8 %) completed both referred interventions (see Figure 1). Nine of the individuals referred to the STAR intervention group (5.5 %) and two participants referred to the Combined intervention group (4.6 %) did not complete all referred treatment due to juvenile offender incarceration during the STAR program. Juvenile offender placement did not affect the CHOICE completion because parents were able to proceed with the intervention program regardless of juvenile offender placement.

Exploring juvenile offender differences between the referral groups, cross tabulations for juvenile offender gender, minority status (European-American/Ethnic Minority), and pre-intervention charges for assault charges were conducted to identify any between-group differences. Pearson chi-square tests revealed no significant association between referral groups and gender, $\chi^2 = 2.08, p = .35$, but a trend toward a significant association between referral groups and minority status, $\chi^2 = 4.59, p = .10$. As displayed in Figure 2, ethnic minority participants comprised 49.4 percent of the STAR only referrals, 33.3 percent of the CHOICE only referrals, and 42.2 percent of the Combined group referrals. Analyses of ethnicity by CHOICE referral revealed a trend

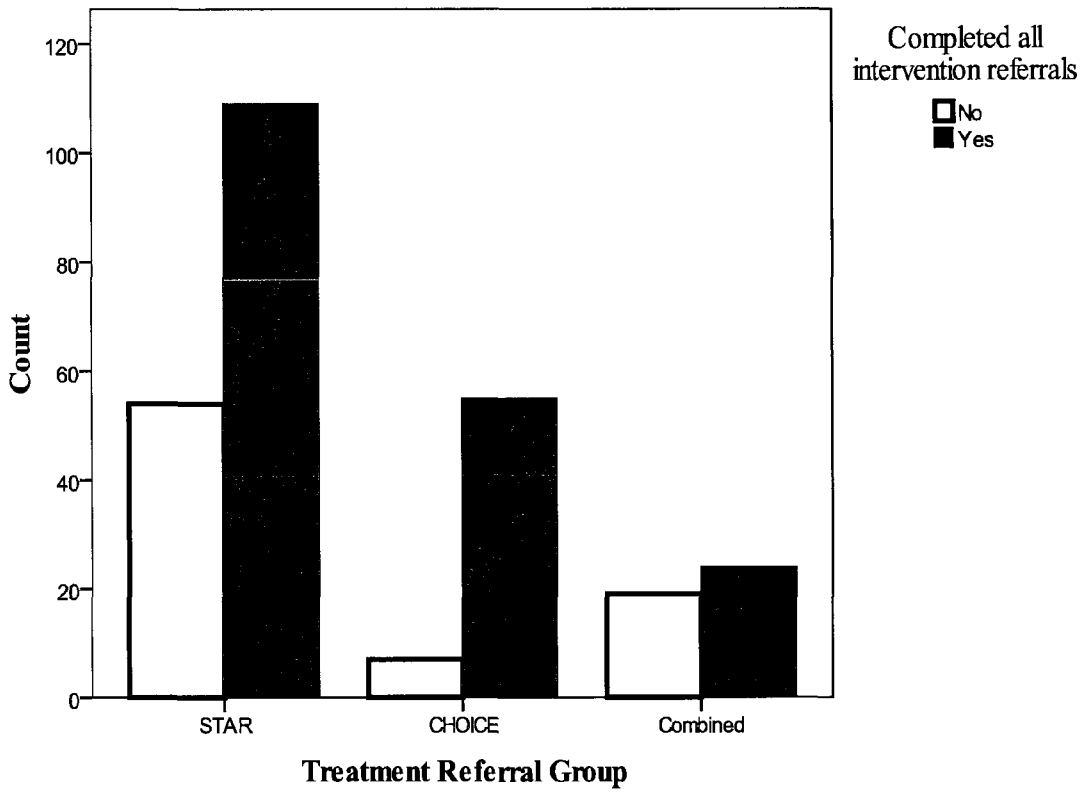

Figure 1: *Intervention Completion by Referral Group (n = 268)*

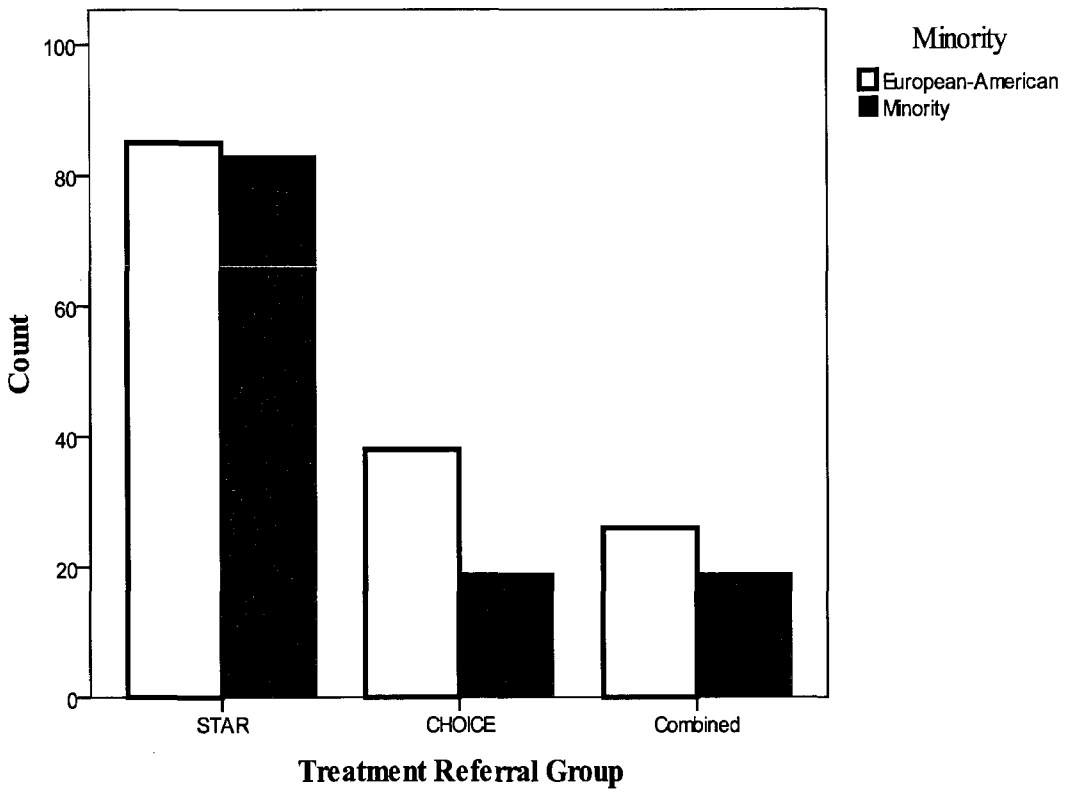

Figure 2: *Ethnicity by Referral Group*

toward an association between ethnicity and the likelihood of parents of juvenile offenders being referred to intervention $\chi^2 = 3.79, p = .05$.

Multivariate analyses of variance with planned post hoc analyses were performed between referral groups with socioeconomic status, age at first offense, age at intervention, total charges, and total felony charges as continuous dependant variables (see Table 3). While there were no differences between groups for socioeconomic status, total felony charges, or total charges, there were significant differences between groups for the age at first offense and age at intervention. Post hoc analyses using the Bonferroni method to guard against Type I error revealed that juvenile offenders with parental CHOICE referrals were significantly younger at the time of their first offense than were STAR referrals by a mean difference of 0.61 years. Juvenile offenders whose parents had been referred to CHOICE also were significantly younger at the time of referral than were STAR referral participants by a mean difference of 0.55 years.

Descriptions of Intervention Completion Groups.

To effectively explore the effects of the intervention received for those who completed the program and for the purposes of the current analyses, participants were identified as belonging to one of 4 groups (a) Comparison (referred to treatment but did not complete; $n = 67$), (b) STAR program completers ($n = 114$), (c) CHOICE program completers ($n = 59$), or (d) Combined program completers ($n = 30$). Completion data were not available for 11 participants.

For the 219 juvenile offender participants who were referred to STAR, attendance data were available for 163 participants. For STAR completers, the mean number of

Table 3

Juvenile Offender Characteristics by Referral Group

	Referral Group							
	STAR		CHOICE		Combined			
	Mean	*n*	Mean	*n*	Mean	*n*	*F*	*p*
Socioeconomic Status	27050.03	159	27311.08	62	26424.73	41	0.12	.89
	(9452.18)		(9074.71)		(8693.24)			
Age at Intervention	15.74	169	15.19	62	15.49	45	4.38	.01
	(1.25)		(1.53)		(0.93)			
Age at 1st Offense	15.18	35	14.57	11	14.95	22	4.70	.01
	(1.34)		(1.51)		(0.92)			
Felony Charges before	0.74	154	0.68	62	0.82	45	0.26	.77
Intervention	(1.04)		(0.97)		(1.09)			
Total Charges before	2.01	154	2.35	62	2.44	45	2.29	.10
Intervention	(1.38)		(1.56)		(1.37)			

Standard Deviations are reported in parentheses

sessions attended was 10.34 out of a possible of 12 sessions (81.67 %) with the mode attendance of 10. In contrast, for juvenile offenders who were referred to STAR but did not complete the program, the mean number of sessions attended was 3.06 (25.5 %) with a mode of 0 attendance.

As with the referral groups, preliminary analyses were conducted to explore differences between completion groups. Cross tabulations for juvenile offender gender, ethnicity, and pre-intervention charges for assault charges were conducted to identify any between-group differences. Pearson chi-square tests revealed no significant association s between groups and juvenile offender gender, $\chi^2 = 1.71, p = .64$, or pre-intervention charges for assault charges, $\chi^2 = 5.43, p = .14$, but did reveal significant associations between groups and minority status. As shown in Figure 3, ethnic minority participants comprised 58.7 percent of the Comparison group, 45.5 percent of the STAR group, 30.9 percent of the CHOICE group, and 40.0 percent of the Combined group completers.

Multivariate analyses of variance with planned post hoc analysis were performed between groups with socioeconomic status, age at first offense, age at intervention, total charges, and total felony charges as the dependent variables (see Table 4). While there were no differences between groups for socioeconomic status or total felony charges, there were significant differences between groups for total charges, $F(2, 252) = 3.24, p = .02$, age at first offense $F(2, 252) = 3.23, p = .02$), and age at intervention, $F(2, 252) = 2.73, p = .04$. Post hoc analyses using the Bonferroni method to guard against Type I error indicated a trend toward STAR completers having fewer pre-intervention total charges than did the non-completers in the Comparison group; however there was no

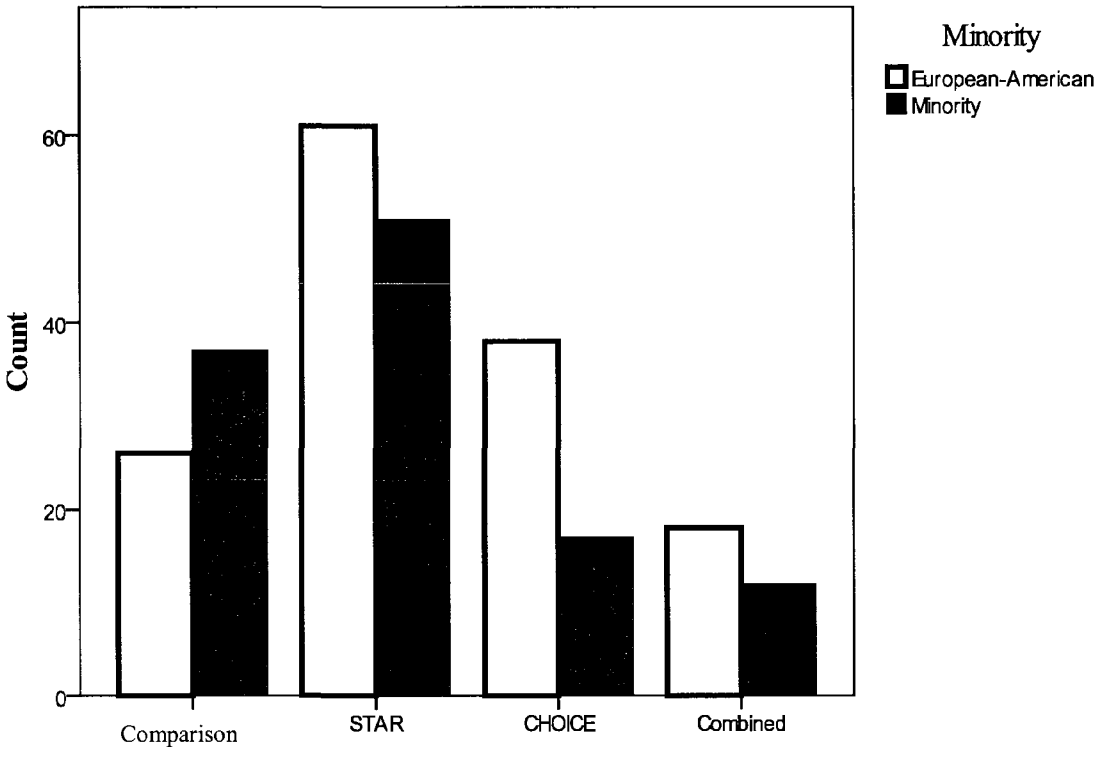

Figure 3: *Ethnicity by Intervention Received*

Table 4

Juvenile Offender Characteristics by Intervention Received

	Intervention Received									
	STAR		CHOICE		Combined		Comparison			
	Mean	*n*	Mean	*n*	Mean	*n*	Mean	*n*	*F*	*p*
Socioeconomic	27623.23	108	28377.92	59	26660.83	29	24993.11	57	1.53	.21
Status	(9292.70)		(8842.14)		(8646.07)		(9444.65)			
Age at	15.74	169	15.19	62	15.49	45	15.49	45	2.73	.04
Intervention	(1.25)		(1.53)		(0.93)		(0.93)			
Age at 1st	15.18	35	14.57	11	14.95	22	14.95	22	3.23	.02
Offense	(1.34)		(1.51)		(0.92)		(0.92)			
Felony Charges	0.80	102	0.68	59	0.70	30	0.69	62	0.25	.86
before	(1.14)		(1.01)		(1.12)		(1.04)			
Intervention										
Total Charges	1.83	102	2.27	59	2.40	30	2.47	62	3.24	.02
before	(1.28)		(1.50)		(1.52)		(1.43)			
Intervention										

Standard Deviations are reported in parentheses

significant difference between the Comparison, CHOICE, and Combined groups for total charges before intervention. Regarding differences between intervention groups for age at first offense, post hoc analyses using the Bonferroni method to guard against Type I error indicated a significant difference between STAR and CHOICE completers, with STAR completers 0.65 years older on average than the CHOICE completers at the time of their first offense. There were no significant differences between the Comparison, CHOICE, and Combined groups for age at first offense.

Similarly, post hoc analyses using the Bonferroni method to guard against Type I error indicated a trend toward significant age differences between STAR and CHOICE completers at the time of the intervention, with STAR completers a mean 0.52 years older than the CHOICE completers at the time of Intervention. There were no significant differences between the Comparison, CHOICE, and Combined groups for age at intervention.

Descriptions of Participants Included and Excluded from Recidivism Analyses.

Finally, for the analyses of recidivism in the year after intervention,76 (34.7 %) of STAR participants who had not yet reoffended but came of age within the measured year were excluded from the dataset. To explore potential differences between the included and excluded participants, several preliminary analyses were conducted. Pearson chi-squares revealed no significant association between included and excluded participants and gender ($\chi^2 = 0.02, p = .88$) or ethnicity ($\chi^2 = 1.34, p = .25$).

An independent samples t-test compared juvenile offender characteristics by group (see Table 5). As expected based upon exclusion criteria, there were significant differences in both age at iIntervention and age at first offense. There also was a

Table 5

Included and Excluded Participants in One-Year Recidivism Analyses

	Excluded		Included			
	Mean	*n*	Mean	*n*	*t*	*p*
Socioeconomic Status	29364.62	87	25845.33	175	2.67	.01
	(10916.94)		(8027.73)			
Age at Intervention	16.68	89	15.05	187	15.94	<.001
	(0.47)		(1.22)			
Age at 1st Offense	15.87	81	14.60	179	8.83	<.001
	(0.95)		(1.30)			
Felony Charges before Intervention	0.75	81	0.73	180	0.14	.89
	(1.00)		(1.06)			
Total Charges before Intervention	2.37	81	2.08	180	1.53	.13
	(1.47)		(1.41)			

Standard Deviations presented in parentheses

difference between groups in socioeconomic status with the excluded participants residing in areas with higher per capita income. There were no differences between groups for pre-intervention felony or total charges.

Descriptions of Survey Respondents

In addition to the archival data collected for the juvenile offenders, Oakland County Circuit Court Family Division employees were asked to participate in the current research. Approximately 350 Family Court employees, including administrators, social workers, psychologists, and psychology interns, were contacted via email and/or Court mailboxes and requested to provide information regarding their perceptions of the current status of Court-ordered intervention programs and their suggestions for future directions of intervention. During the course of the data collection, the economic downturn experienced in the region resulted in layoffs and uncertainties amongst Court personnel. Poor morale is a likely contributor to the low survey response rate of 26 respondents.

On a whole, the participants had spent a considerable amount of time in their positions, with 88.5 percent having worked at the Court for 10 or more years. The majority of respondents (65.4 %) were full-time employees. The amount of time reportedly spent working with juvenile offenders ranged from approximately 10 percent to nearly 100 percent, with the majority of respondents reporting that their position required them to spend approximately half their working time directly with juvenile offenders.

Measures

A variety of measures were utilized in the current study to assess participant and parent perceptions of behavioural changes that occurred during the course of the

intervention (See Table 6). In addition, Court records were reviewed and objective measures of behavioural changes were derived by identifying any additional charges accrued and calculating the duration between intervention and additionally accrued charges.

Adolescent self-report of anger: Adolescent Anger Rating Scale (AARS; Burney, 2001). The AARS was designed to measure the expression of anger amongst adolescents ages 11 to 19 and to provide a means of differentiating types of anger expression (Burney, 2001; Burney & Kromrey, 2001). The AARS is a 41-item, self-report, Likert-type rating scale designed to identify an adolescent's typical mode of anger expression and anger control. The questionnaire items are written at approximately a 4th grade reading level, and responses are rated according to how frequently the adolescent perceives the behaviour occurring, ranging from *Hardly Ever* to *Very Often* (Burney, 2001). In addition to the subscales of Anger Type (Instrumental, Reactive), also included is a subscale measure of Anger Control designed to measure the adolescents' cognitive processes and skills for managing their own anger. The three subscales combined provide an overall Total Anger score (Burney, 2001).

The AARS has shown good discriminant validity and reliability (Burney & Kromrey, 2001). This scale previously has been shown to have good internal consistency, with subtest alpha values ranging from .70 to .83, as well as two-week test-retest reliability Pearson product coefficients ranging from .58 to .69 (Burney & Kromrey, 2001). For the current study, analyses of internal consistency were performed using coefficient alpha (Cronbach) for the three subscales comprising the Total Anger scale. The alpha coefficients were medium to large (Cohen, 1988) and consistent with previous

Table 6

Description of Measures

MEASURE	RELEVANT SCALES	RESPONSE-STYLE	PURPOSE
Adolescent Anger Rating Scale (AARS; Burney, 2001)	Total Anger; Instrumental Anger, Reactive Anger, Anger Control	41 Likert-style self-report with responses ranging from *"hardly ever"* to *"very often"*	Assesses STAR participants' perception of their anger management skills pre- and post-intervention.
Achenbach Child Behavior Checklist (CBCL; Achenbach, 1991)	School Competence, Social Problems, Rule Breaking Behavior, Externalizing Problems, Aggressive Behavior	120 Likert-style parent report with responses ranging from *"not true"* to *"often true"*	Assesses parental perception of adolescent's strengths and weaknesses pre- and post-intervention.
Windell Social Skills Questionnaire for Teens (WSSQT; Windell, 1994)	Total social skills score	40 Likert-style self-report questions with responses ranging from *"I am poor at this skill"* to *"I am better than most others at this skill"*	Preliminary scale providing descriptive information of STAR participants' perception of their own social skills.
Qualitative Survey of Family Court Intervention Programs	None	12 open response and rating scale questions	This brief questionnaire provided feedback from Court personnel regarding the STAR and CHOICE programs.

reports with pre- intervention Instrumental Anger at .83, Reactive Anger at .83, and Anger Control at .79. Post-intervention alpha coefficients were good with Instrumental Anger at .78, Reactive Anger at .79, and Anger Control at .73.

Achenbach Child Behavior Checklist (CBCL; Achenbach, 1991). The CBCL is designed to obtain information from a child's parent or other close informant about the child's competencies and behavioural difficulties. The instrument consists of 20 items pertaining to competencies followed by 120 items designed to measure behavioural problems in the past 6 months. Each informant responded to the questions by circling the response that best fit the target child, either 1 (*not true*), 2 (*somewhat or sometimes true*), or 3 (*very true or often true*). The scales' t-scores are based upon normative data so that the mean is 50 and one standard deviation is 10 points. Examining the data in normative form allows for the comparison of how the study's results vary from the normative sample. For the problem scales, t-scores in the 65-69 point range are in the borderline range while t-scale scores at or above 70 are in the clinical range.

The CBCL has shown good discriminant validity and reliability (Achenbach, 1991). The measure provides raw scores, t-scores, and percentile scores for several scales pertinent to intervention programs with juvenile offenders, including Aggressive Behavior, Delinquent Rule Breaking, Externalizing Total Problems, and DSM-oriented scales. The Aggressive Behavior scale of the CBCL, comprised of 23 items, has been used in previous research as a measure of children's conduct problems (e.g., Ramsey et al., 1990; Snyder et al., 2005; Snyder et al., 2003). The Externalizing Total Problems scale, comprised of 33 items, also has been used with previous research as a means of measuring children's antisocial behaviours (e.g., Dishion et al., 1997). For the current

study, six (i.e., School Competence, Social Problems, Aggressive Behavior, Rule-Breaking Behavior, Externalizing Problems, Total Problems) t-scores of the CBCL scales were examined.

Analyses of internal consistency were performed using coefficient alpha (Cronbach) for the six subscales utilized in the current study. The alpha coefficients for the pre-intervention problem scales were medium to large with Rule-Breaking Behavior at .84, Aggressive Behavior at .92, and Social Problems at .75. Post-intervention alpha coefficients were good with Rule-Breaking Behavior at .93, Aggressive Behavior at .93, and Social Problems at .76.

Windell Social Skills Questionnaire for Teens (WSSQT; Windell, 2004). Previous research has shown that adolescents can be accurate reporters of their own behaviours, including delinquent and violent behaviours (Huizinga, 1991). The WSSQT was created by Oakland County Circuit Court Family Division psychologist and STAR leader, James Windell, M.A., L.L.P., as a means of measuring the participants' perception of changes in their own social skills over the course of the treatment. The measure consists of 40 Likert-style questions, with answers ranging from "*I am very poor at this skill*" to "*I am better than most others at this skill.*" Analyses of internal consistency were performed using coefficient alpha (Cronbach) for the pre- and post-intervention administrations. The alpha coefficients for the scale were excellent with a pre-intervention Cronbach alpha level of .94 and a post-intervention Cronbach alpha level of .91.

Court records. The records of the juvenile offender include both Mainframe Court files and Court psychological files created during and specifically for the intervention (e.g., STAR, CHOICE). Demographic information was culled from each of

these available data sources. Demographics of interest included age, gender, ethnicity, and socioeconomic status. Because individual economic factors were not available for the current sample, aggregate economic data in the form of median individual per capita income were calculated using the US Census Bureau online American Factfinder Fact Sheets for the cities and townships reported as residences of the juvenile offenders at the time of intervention (US Census Bureau; Census 2000). The Fact Sheets provided the median 1999 per capita income in each city or township of residence.

Because Court records have been shown to be reliable indicators of externalizing behaviours (Capaldi & Patterson, 1991; Capaldi & Stoolmiller, 1999), in the current study Juvenile Court records also were utilized both as an indicator of onset and severity of delinquency, as well as a measure of outcome. The date, nature, and number of police contacts were totaled for the time prior to, during, and after completion of treatment (see Appendix B for a complete list of juvenile offender charges). Offense categories examined included felony charges, total charges, and assault charges. As an objective measure of intervention outcome, Court records were utilized to determine the number of days after intervention completion prior to a probation violation or police contact up to 365 days.

Procedure

Support and ethical clearance for the current study was obtained from the Oakland County Court and the University of Windsor Ethical Review Board. To maintain the highest level of confidentiality, the researcher was the sole reviewer of Court files. All information was coded to shield the participants' identities and protect their privacy. In

addition, all information is reported in aggregate form to protect the privacy of individual participants.

Court files were reviewed for each participant to determine if a parent had been recommended for participation in the cognitive-behavioural Court-run parent training program, CHOICE. For each referred parent, information regarding relation to the adolescent and program completion was gathered. No identifying information was included in the data set.

In addition to the information gathered from juvenile offenders' and parents' Court files, qualitative data were collected from Family Court employees on a voluntary participation basis. Employees who are involved in the juvenile justice system at the Oakland County Court, including administrators, case workers, and psychologists, were asked to complete an anonymous survey designed to elicit information regarding their beliefs about current interventions and suggestions for improvements. A Qualitative Survey of Family Court Intervention Programs (see Appendix C) was emailed and placed in Court-employee mailboxes as a means of recruiting participants and collecting data.

Quantitative data collection. The primary sources of data were the participants' Court Psychological Clinic files, created specifically to be used during the Court-ordered group treatment (e.g., STAR, CHOICE) , and Mainframe Court records. There was no contact with juvenile offender participants or their parents. STAR and CHOICE files were examined and sorted into groups based upon treatment completion, adolescent completion of pre- and post-treatment questionnaires, and parental completion of pre- and post-treatment questionnaires. From this information, the participants were sorted into four groups, (a) the non-completion (Comparison) group (n = 67), (b) the STAR-only

completion group (n = 114), (c) the CHOICE-only completion group (n = 59), and (4) the Combined STAR/CHOICE completion group (n = 30).

Mainframe Court records for each STAR and CHOICE referral were reviewed and outcome data were entered into the data set. This data set included the number of days in the community in the year after the scheduled completion date of intervention, the number and nature of Court contacts and whether residential treatment prohibited intervention completion. Mainframe Court records also were used for the completion of demographic information that was not available in the Court Psychological Clinic files.

Court employee data collection. The 26 returned employee packets were compiled and reviewed for themes of responses. This information is reported in the Additional Analyses section to provide insight into the perception of the interventions in the Court and as a source of possible future directions for research and Court interventions.

CHAPTER III

Results

All analyses were performed using Statistical Procedures for Social Sciences 17 (SPSS 17). Prior to the analyses, parent- and juvenile-offender reported data were reviewed. The data were transformed through the process of winsorization, by which "extreme values exceeding certain predefined upper and lower thresholds are replaced by the ordinate of the two thresholds" (Shete et al., 2004, p. 155). According to this method, data values beyond the first and third quartiles were recoded to fall on the upper and lower bound thus allowing for the non-linear transformation of the data distribution to reduce skewing without the loss of data values.

The results of the analyses are divided into three sections. The Preliminary Analyses contain an examination of the variables. The Main Analyses consists of explorations of pre-intervention differences and testing of hypotheses. The final section, Additional Analyses, examines the newly developed Windell Social Skills Questionnaire for Teens (WSSQT) and reports and reviews the survey responses of Court employees.

Preliminary Analyses

Prior to the main analyses, juvenile offender characteristics were explored and relations identified. The relations between pre- and post-intervention measures also were explored relative to one another, juvenile offender characteristics, and STAR completion. Changes over the course of intervention were reviewed and juvenile offender characteristics were examined in relation to recidivism rates.

Several variables were identified as likely to be related to the outcome of the intervention programs including juvenile offenders' gender, ethnicity, socioeconomic

status, academic performance, anger, behavior problems, age at first offense, age at intervention, peer relationships, and charges accrued prior to intervention. While some of these variables were available for the majority of the data set (i.e., gender, ethnicity, socioeconomic status, age at first offense, age at intervention, charges accrued prior to intervention), others (i.e., academic performance, peer relationships, anger, parent-reported behaviour problems) were only available for a subset of the juvenile offenders referred to the STAR intervention group. As not all data were available for all participants, data analyses were conducted with a variety of group sizes. In addition to the juvenile characteristics, it was hypothesized that certain treatment characteristics also were likely to be related to outcome. For the STAR intervention, ratio of juvenile offenders to leaders in each group was hypothesized to be related to outcome. Also of interest were the types of interventions completed by the juvenile offenders and/or their families (i.e., STAR, CHOICE, or Combined).

School competency measure. Preliminary analyses (see Table 7) revealed that the three parent-reported pre-intervention academic performance measures (CBCL Repeated Grade, CBCL Special Education, CBCL School Competence) were all significantly related to one another. As a result, the CBCL School Competence scale was chosen as the parent-reported measure of adolescent academic performance. Although the juvenile offender-reported AARS Current Average Grades were significantly correlated with the CBCL School Competence score, $r = .41, p = .001$ ($n = 62$), the total number of respondents reporting this information was smaller ($n = 75$) than the number of respondents reporting the CBCL School Competence ($n = 130$), thus making the parent-

Table 7

Correlation of Measures of Juvenile Offenders' Academic Performance[a]

Variables	1	2	3	4	5
1. Grade in School	–	-17*	-.25**	.27**	.19
2. History of Special Education		–	.22**	-.60***	.08
3. History of Repeating Grade			–	-.53***	-.18
4. School Competence				–	.41**
5. Current Average Grades					–

[a] *n*'s range from 62 to 142

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

reported variable the better choice for the measure of academic performance in the current data set.

Pre-intervention variables. The current study includes two observer reporters- the juvenile offender and the parent. At the commencement of intervention, both juvenile offenders and their parents completed measures pertaining to the current functioning of the juvenile offender. Juvenile offenders reported on their social skills and anger while their parents reported on the juvenile offenders' behaviours. Table 8 provides descriptions of the juvenile offenders' pre-intervention self-report. The mean T-scale scores all fell within the Average range of anger and anger control. Table 9 provides descriptions of the parent-reported behaviours. The mean T-scale scores for Rule-Breaking Behavior, Aggressive Behaviour, and Externalizing Behavior all were greater than one standard deviation from the normative mean, but none of the scales fell into the Borderline or Clinical range of functioning.

Parents and their adolescent children often fail to agree on reports of juvenile behaviours despite both parent and child's expectation for agreement (Kramer et al., 2004). To explore the relation between juvenile offender self-report and parent-report, a Pearson product correlation of juvenile offender self-reported social skills and anger with parent-reported juvenile offender behaviours was computed. As shown in Table 10, there were significant correlations between the variables, indicating a good degree of agreement between parent and child reporters.

Several means of measuring intervention outcome are included in the main analyses, including changes over intervention, treatment completion, and recidivism rates up to one year after intervention. Juvenile offenders who came of age within the post-

Table 8

Descriptions of Pre-Intervention Juvenile Offender Reported Anger and Social Skills

	n	Mean	SD	Range
Social Skills	109	80.53	14.05	50 - 119
Reactive Anger	135	49.64	6.95	32 - 62
Instrumental Anger	135	47.33	4.52	41 - 54
Anger Control	135	52.33	9.98	31 - 78
Total Anger	135	48.26	8.63	31 - 74

Table 9

Descriptions of Pre-Intervention Parent Reported Behaviours

	n	Mean	SD	Range
Rule-Breaking Behavior	145	63.26	8.41	50 - 77
Aggressive Behavior	145	62.61	9.53	50 - 78
Social Problems	145	57.76	7.48	50 - 74
Externalizing Behavior	145	62.54	10.96	34 - 82
Total Problems	145	59.29	11.43	24 - 79
School Competence	130	39.05	9.06	20 - 55

Table 10

Correlations between Pre-Intervention Juvenile Offender Reported Social Skills and Anger with Parent Reported Behaviours[a]

Variables	1	2	3	4	5	6	7	8	9	10	11
1. Windell Social Skills		-.45***	-.40***	.51***	-.53***	-.35**	-.44***	-.34**	-.47***	-.48***	.39***
2. Instrumental Anger		–	-.22***	-.12	.81***	.45***	.31**	.32**	.42***	.40***	-.24
3. Reactive Anger				.23**	.72***	.40***	.31**	.24*	38***	.33***	-.18
4. Anger Control				–	-.66***	-.18	-.19*	-.29**	-.24*	-.27**	.12
5. Total Anger					–	.45***	.35***	.33***	.45***	.42***	-.26**
6. Rule-Breaking Behavior							.71***	.58***	.90***	.83***	-.49***
7. Aggressive Behavior							–	.64***	.91***	.85***	-.48***
8. Social Problems								–	.64***	.75***	-.33***
9. Externalizing Problems									–	-.93***	-.54***
10. Total Problems										–	-.48***
11. School Competence											–

[a] *n*'s range from 89 to 14

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

intervention year without having accrued additional charges were excluded from the recidivism analyses, however, because records did not include information regarding whether or not they had reoffended in the adult system. To explore potential differences between the participants included and excluded in the recidivism analyses, pre-intervention differences between those juveniles excluded from the analyses due to coming of age prior to reoffending within the year after intervention were compared to those included in the analyses.

As noted in the Participant section, the groups varied in age at intervention, age at first offense, and socioeconomic status. As a result, analyses of pre-intervention self-reported anger controlled for these potential covariates with a general linear model (GLM) multivariate analysis of variance between the included and excluded participants. The test of overall model significance showed a significant effect of the predictor variables on Anger Control, $F(4, 113) = 2.71, p = .03$, but not on the other three anger measures (Instrumental Anger, $F(4, 113) = 1.50, p = .21$; Reactive Anger, $F(4, 113) = 1.23, p = .30$; Total Anger, $F(4, 113) = 1.69, p = .16$). After controlling for the effects of the covariates, age at intervention, age at first offense, and socioeconomic status, the GLM multivariate tests of the effects of each independent factor and covariate on each dependent variable revealed that there were no significant differences between the juvenile offenders who were included in the recidivism analyses and those who were excluded due to coming of age in the year following intervention (Instrumental Anger, $F(1, 113) = 2.28, p = .13$; Reactive Anger, $F(1, 113) = 0.82, p = .37$; Anger Control, $F(1, 113) = 0.05, p = .83$; Total Anger, $F(1, 113) = 1.00, p = .32$; See Appendix D for descriptives).

Similarly, a general linear model (GLM) multivariate analysis of variance between the included and excluded participants was conducted with age at intervention, age at first offense, and socioeconomic status as covariates and pre-intervention parent reported behaviours as the dependent variables. The test of overall model significance showed a significant effect of the predictor variables on four of the six parent-reported behaviours (Rule-Breaking Behavior, $F(4, 104) = 1.20, p = .01$; Aggressive Behavior, $F(4, 104) = 3.99, p = .005$; Social Problems, $F(4, 104) = 3.41, p = .01$; Externalizing Problems, $F(4, 104) = 2.69, p = .04$; Total Problems, $F(4, 104) = 3.40, p = .01$; School Competence, $F(4, 104) = 1.46, p = .22$).

Despite the significant differences of the overall effects, the GLM multivariate tests of the effects of each independent factor and covariate on each dependent variable revealed that there were no significant differences between the parent reports of juvenile offenders who were included in the recidivism analyses and those who were excluded due to coming of age in the year following intervention (Rule-Breaking Behavior, $F(1, 104) = 1.13$, p = .29; Aggressive Behavior, $F(1, 104) = 2.58$, p = .11; Social Problems, $F(1, 104) = 0.24$, p = .62; Externalizing Problems, $F(1, 104) = 2.20$, p = .14; Total Problems, $F(1, 104) = 1.52$, p = .22; School Competence, $F(1, 104) = 0.00$, p = .99; See Appendix E for descriptives).

Post-intervention variables. At the completion of the STAR intervention program, juvenile offender participants and their parents were asked to complete the same reports as they had at the beginning of the intervention program. Table 11 shows the means and standard deviations of the juvenile offender responses while Table 12 shows the means and standard deviations of the parent-reported behaviours. At the

Table 11

Post-Intervention Scores of Juvenile Offender -Reported Anger and Social Skills

	n	Mean	SD	Range
Social Skills	70	89.64	14.37	60 - 119
Reactive Anger	87	46.63	4.96	41 - 57
Instrumental Anger	87	49.32	7.78	34 - 65
Anger Control	87	52.49	8.75	31 - 74
Total Anger	87	46.52	6.65	33 - 58

Table 12

Post-Intervention Scores of Parent Reported Behaviour Problems

	n	Mean	SD	Range
Rule-Breaking Behavior	76	58.38	7.19	50 - 74
Aggressive Behavior	76	58.38	8.53	50 - 76
Social Problems	76	55.34	6.48	50 - 73
Externalizing Behavior	76	56.26	11.71	34 - 83
Total Problems	76	53.54	12.32	27 - 73
School Competence	68	41.27	8.68	26 - 55

completion of the program, all scales' mean t-scores were within the normal range of functioning. A Pearson product correlation of post-intervention juvenile offender-reported social skills and anger with post-intervention parent-reported behaviours (see Table 13) revealed that while the juvenile-offender reported social skills continued to correlate with many of the other post-intervention variables, there were few relations between juvenile offender and parent post-report. Only post-intervention juvenile offender -reported Instrumental Anger was related to parent reported post intervention behaviors (i.e., Rule-Breaking Behavior and Total Problems).

Changes over the course of intervention. The completion of pre-and post-intervention scales allowed for an examination of juvenile offenders' and parents' perceptions of change over the course of intervention. The variables were created by subtracting each respondent's post-intervention t-scores from their pre-intervention t-scores. As shown in Table 14, the juvenile offenders reported decreases in Reactive, Instrumental, and Total Anger over the course of intervention and increases in Social Skills and Anger Control. Table 15 shows the correlation between pre-and post-intervention self-reported anger. Pearson product correlations revealed that all scales were related to one another with the exception of pre-intervention Reactive Anger and post-intervention Anger Control. Similarly, parents of juvenile offenders reported decreases in all behaviours except School Competence, for which there was an increase in mean t-scores (see Table 16). As shown in Table 17, Pearson product correlations revealed significant relations among all parents' reported behaviour variables. Because Court-ordered juvenile offenders on probation and their parents might be predisposed to report positive changes over the course of a Court-run intervention

Table 13

Correlations between Post-Intervention Juvenile Offender Reported Social Skills and Anger with Parent Reported Behaviours [a]

Variables	1	2	3	4	5	6	7	8	9	10	11
1. Windell Social Skills	–	-.48***	-.12	.40**	-.46***	-.53***	-.33*	-.29*	-.52***	-.44***	.32***
2. Instrumental Anger		–	-.47***	-.42***	.82***	.26*	.14	.19	.20	.26*	-.14
3. Reactive Anger			–	-.27*	.68***	-.04	-.13	-.02	-.03	.02	.07
4. Anger Control				–	-.69***	-.19	-.09	.03	-.20	-.14	.05
5. Total Anger					–	.20	.11	.08	..24	.24	-.14
6. Rule-Breaking Behavior							.73***	.64***	.87***	.80***	-.46***
7. Aggressive Behavior							–	.77***	.90***	.84***	-.50***
8. Social Problems								–	.72***	.74***	-.37**
9. Externalizing Problems									–	-.93***	-.53***
10. Total Problems										–	-.49***
11. School Competence											–

[a] *n*'s range from 45 to 87

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

Table 14

Changes over Intervention from Pre- to Post-Intervention in Juvenile Offender Reported Anger and Social Skills Scores

	n	Mean	SD	Range
Social Skills	53	-9.36	10.66	-42 - 18
Reactive Anger	71	0.27	4.41	-13 - 11
Instrumental Anger	71	2.31	10.73	-17 - 35
Anger Control	71	-3.55	9.03	-30 - 28
Total Anger	71	2.68	6.80	-12 - 19

Table 15

Correlations of Pre- and Post-Intervention Adolescent Anger Rating Scales [a]

Variables	1	2	3	4	5	6	7	8
1. Pre-Intervention Instrumental Anger	–	.63***	-.38***	.81***	.54***	.31**	-.30*	.50***
2. Pre-Intervention Reactive Anger		–	-.25**	.72***	.25*	.27*	.04	.26*
3. Pre-Intervention Anger Control			–	-.66***	-.47***	-.25*	.46***	-.528***
4. Pre-intervention Total Anger				–	.51***	.29*	-.27*	.50***
5. Post-intervention Instrumental Anger					–	.47***	-.42***	.82***
6. Post-intervention Reactive Anger						–	-.27*	.68***
7. Post-intervention Anger Control							–	-.69***
8. Post-intervention Total Anger								–

[a] *n*'s range from 71 to 135

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

Table 16

Changes over Intervention from Pre- to Post-Intervention in Parent -Reported Behaviour Scores

	n	Mean	SD	Range
Rule-Breaking Behavior	69	2.96	6.17	-17 - 19
Aggressive Behavior	69	4.65	7.38	-16 - 29
Social Problems	69	2.60	5.98	-13 - 23
Externalizing Behavior	69	4.99	7.85	-34 - 21
Total Problems	69	5.10	8.48	-32 - 27
School Competence	56	-2.50	6.09	-24 - 7

Table 17

Correlations of Pre- and Post-Intervention Achenbach Child Behavior Checklist Scales [a]

Variables	1	2	3	4	5	6	7	8	9	10	11	12
1. Pre-STAR School Competence	–	-.33***	-.49***	-.49***	.48***	.77***	-.48***	-.41***	-.58***	-.51***	-.65***	-.59***
2. Pre-STAR Social Problems		–	.58***	.64***	.64***	-.43***	.75***	.61***	.54***	.65***	.64***	.63***
3. Pre-STAR Rule-Breaking Behavior			–	.74***	.90***	-.49***	.83***	.47***	.72***	.56***	.70***	.61***
4. Pre-STAR Aggressive Behavior				–	.91***	-.46***	.85***	.60***	.70***	.81***	.81***	.74***
5. Pre-STAR Externalizing Problems					–	-.50***	.93***	.53***	.70***	.69***	.78***	.72***
6. Pre-STAR Total Problems						–	-.49***	.55**	.63***	.69**	.76***	.76***
7. Post-STAR School Competence							–	-.37***	-.46***	-.50***	-.53***	-.49***
8. Post-STAR Social Problems								–	.64***	.77***	.72***	.74***
9. Post-STAR Rule-Breaking Behavior									–	.73***	.87***	.80***
10. Post-STAR Aggressive Behavior										–	.90***	.84***
11. Post-STAR Externalizing Problems											–	.93***
12. Post-STAR Total Problems												

[a] *n*'s range from 61 to 145

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

program, a Pearson product correlation analysis was run as a means of exploring the relation between self reported change, parent reported change, and outcome in the year following intervention as measured by recidivism rates. Participants who came of age in the year following intervention prior to reoffending were excluded from the analysis. As shown in Table 18, there were no relations between recidivism rates and juvenile offender reported and parent reported changes.

Pre-intervention self reported anger and STAR completion. A logistic regression explored the relation between pre-intervention self-reported anger and the successful completion of the STAR program. The predictor factors included the four continuous AARS scales: Reactive Anger, Instrumental Anger, Anger Control, and Total Anger. For the current analysis, the Hosmer and Lemeshow chi square test for overall goodness of fit revealed that the model adequately fit the data, $\chi^2 = 3.38$, $p = .91$; however, the model summary reported a Nagelkerke R-square value of .011 and the omnibus test of model coefficients indicated that the model predictors jointly failed to predict successful STAR completion, $\chi^2 = 3.38$, $p = .91$.

As shown in Table 19, Wald statistics indicated that none of the predictor variables contributed to the prediction value. The parameter estimates for the predictor variables ranged from a minimum of $\beta = -.01$ to a maximum of $\beta = .06$. All odds ratios, (Exp) β, neared 1.00 with the 95 percent confidence interval for the odds ratios all including 1.00. Thus, with the current dataset, self-reported pre-intervention anger failed to predict successful completion of the STAR program.

Pre-intervention parent reported behaviours and STAR completion. A binary logistic regression explored the relation between parent-reported problem behaviours and

Table 18

Correlations between Recidivism Rates and Juvenile Offender Reported- and Parent Reported- Changes over Intervention[a]

Variables	1	2	3	4	5	6	7	8	9	10	11	12
1. Recidivism Rates	-	0.15	0.14	-0.13	0.13	-0.04	-0.2	-0.15	-0.14	-0.25	-0.2	-0.15
2. Windell Social Skills		–	-0.23	-0.22	0.22	-0.27	0.12	0.11	-0.3	-0.04	-0.16	0.11
3. Instrumental Anger			–	0.24	-0.18	.59***	0.15	0.05	0.3	0.1	0.17	0.05
4. Reactive Anger				–	-.36*	.70***	-0.01	-0.06	-0.06	-0.07	-0.13	-0.06
5. Anger Control					–	-.67***	-0.3	-0.09	-0.27	-0.21	-0.22	-0.09
6. Total Anger						–	0.28	0.14	0.3	..15	0.11	0.14
7. Rule-Breaking Behavior							–	.69***	.60***	.86***	.79***	.69***
8. Aggressive Behavior								–	.49***	.79***	.70***	-.43**
9. Social Problems									–	.53***	.58***	.49**
10. Externalizing Problems										–	-.90***	.79***
11. Total Problems											–	.70***
12. School Competence												–

[a] *n*'s ranged from 30 to 46

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

Table 19

Logistic Regression of Self-Reported Pre-Intervention Anger Predictors for STAR Intervention Completion (n = 130)

Variable	β	SE	Wald	*p*	(Exp)β	95% CI for (Exp)β
Reactive Anger	.06	.09	.48	.490	1.06	.89 - 1.26
Instrumental Anger	-.01	.04	.17	.677	.99	.92 - 1.06
Anger Control	-.02	.04	.16	.689	.98	.91 - 1.07
Total Anger	-.03	.09	.13	.723	.97	.81 - 1.16

the successful completion of the STAR intervention program. The data set consisted of 127 participants of whom 95 had successfully completed the intervention program. The predictor factors included the six continuous parent-reported pre-intervention CBCL behavior scales: Rule-Breaking Behavior, Aggressive Behavior, Social Problems, Externalizing Problems, Total Problems, and School Competence. The Hosmer and Lemeshow chi square test for overall goodness of fit revealed that the model adequately fit the data, $\chi^2 = 5.72, p = .68$. The model summary reported a Nagelkerke R-square value of .208 with the omnibus test of model coefficients indicating that the model predictors were jointly able to predict successful STAR completion, $\chi^2 = 19.29, p = .004$.

As shown in Table 20, the Wald statistics indicated that only pre-intervention Aggressive Behavior, Wald = 5.41, $p = .02$, contributed to the prediction value of the model although there was a trend toward significance for Externalizing Problems, Wald = 3.49, $p = .06$. The parameter estimates for the predictor variables ranged from a minimum of $\beta = .00$ (Total Problems) to a maximum of $\beta = -.34$ (Aggressive Behavior). The predictor variables indicated that the likelihood of successfully completing STAR increased with the elevation of the Aggressive Behavior t-scale score. There was a trend toward increased STAR completion rates with a decrease in Externalizing Problems. No other parent-reported pre-intervention behaviours were shown to predict the likelihood of STAR completion.

STAR group characteristics. For the convenience of the juvenile offenders and their families, the STAR intervention programs are held at three locations around Oakland County, Michigan: Pontiac, Troy, and Walled Lake. Individuals were assigned to group locations based upon the geographic proximity of the class to the participant's

Table 20

Logistic Regression of Parent-Reported Pre-Intervention Behaviour Predictors for STAR Intervention Completion (n = 127)

Variable	β	SE	Wald	*p*	(Exp)β	95% CI for (Exp)β
Rule-Breaking Behavior	.07	.11	.48	.490	1.08	.87 - 1.33
Aggressive Behavior	.25	.11	5.41	.020	1.28	1.04 – 1.59
Social Problems	-.02	.05	.27	.606	.98	.89 - 1.07
Externalizing Problems	-.34	.18	3.49	.062	.71	.50 - 1.02
Total Problems	.00	.07	.00	.965	1.00	.87 - 1.16
School Competence	-.04	.03	1.65	.199	.96	.91 - 1.02

residence. The majority (n = 105) of the juvenile offenders attended STAR at the Pontiac location, 61 participated at the Walled Lake location, and 50 participated at the Troy location. For three participants, group location was not available. STAR Intervention groups were run by one or two leaders and with group sizes ranging from 2 to 12 juvenile offender participants. Mean group size was 7.25 (mode = 7) with a standard deviation of 2.21. The ratio of leader to participant, as expressed in decimal, ranged from a low of 0.08 (1:12) to a high of 1.00 (2:2).

To explore any potential differences among the groups at the three locations, one-way analysis of variance, with planned post hoc comparisons between variables utilizing the Bonferroni method to guard against Type I errors, was performed with the group location as the independent variable and juvenile and group characteristics as the dependent variables (see Table 21). Groups varied by location in both the number of STAR group members, $F(2, 208) = 10.93$, $p < .001$, and the number of STAR leaders, $F(2, 213) = 142.40$, $p < .001$. Post hoc analyses revealed that the Pontiac groups averaged significantly fewer (1.61) members than the Walled Lake groups. The number of leaders varied significantly between the Pontiac group and both other groups, but did not vary between the Walled Lake and Troy groups; while the Pontiac groups always were run by two leaders, the Walled Lake group was most frequently run by only one group leader. With significant differences between group locations in both group size and number of leaders, it follows that the ratio of group leaders to members also varied significantly by location, $F(2, 209) = 42.48$, $p < .001$. The ratio of leaders to group members was significantly larger for the Pontiac groups than both the Troy and Walled Lake. The Walled Lake and Troy group leader to member ratios did not vary significantly.

Table 21

Juvenile Offender Characteristic Differences by STAR Location

	Location							
	Pontiac		Troy		Walled Lake			
	Mean	*n*	Mean	*n*	Mean	*n*	*F*	*p*
Group Members	6.62	101	7.32	50	8.23	60	10.93	<.001
	(1.82)		(2.58)		(2.17)			
Group Leaders	2.00	105	1.22	50	1.32	60	140.93	<.001
	(0.00)		(0.42)		(0.47)			
Group Leader to	0.34	101	0.20	50	0.17	60	42.48	<.001
Member Ratio	(0.14)		(0.10)		(0.08)			
Socioeconomic	23152.26	94	27489.53	45	32397.04	59	22.42	<.001
Status	(8231.30)		(9866.27)		(7164.52)			
Age at First STAR	15.60	104	15.72	49	15.95	60	1.60	.204
Session	(1.25)		(1.27)		(0.96)			
Age at First Offense	15.02	99	15.18	45	15.33	52	1.06	.349
	(1.33)		(1.26)		(1.10)			
Pre-Intervention	0.63	100	0.78	45	1.00	52	2.14	.121
Felony Charges	(0.85)		(0.93)		(1.43)			
Pre-Intervention	2.01	100	2.18	45	2.25	52	0.57	.567
Total Charges	(1.27)		(1.25)		(1.73)			

Standard Deviations are reported in parentheses

Between groups differences revealed that the only juvenile offender characteristic that varied between groups was socioeconomic status, $F(2, 195) = 22.42, p < .001$. Post hoc analyses revealed that the median per capita income of the juvenile offenders' area of residency was US $4,333.28 higher for Troy group members than Pontiac members and US $9,244.78 higher for Walled Lake group members than Pontiac members. The differences between the Walled Lake and Troy group members socioeconomic status also significantly varied with Walled Lake's participants hailing from areas with a median per capita income US $4,907.51 greater than Troy's. Cross tabulations of group location and gender revealed no significant differences, $\chi^2 = 0.32, p = .85$. A second cross tabulation of group differences and ethnic minority revealed a trend toward significant differences in ethnic minority by location, $\chi^2 = 5.59, p = .06$, with Pontiac groups consisting of 53.40 percent Minority-Americans, Troy groups 52.08 percent and Walled Lake groups 35.00 percent.

To further explore potential differences among the groups at the three locations, two additional one-way analyses of variance, with planned post hoc comparisons between variables utilizing the Bonferroni method to guard against Type I errors, were performed with the group location as the independent variable. The first analysis explored potential differences in changes over intervention in self-reported anger (see Table 22) while the second analysis explored potential differences in changes over intervention in parent-reported behaviours (see Table 23). There were no significant differences between locations for any changes.

Table 22

STAR Group Location Differences in Change over Intervention in AARS Self-Reported Anger Scales

	Location							
	Pontiac		Troy		Walled Lake			
	Mean	*n*	Mean	*n*	Mean	*n*	*F*	*p*
Instrumental Anger Change	0.06	35	1.15	13	0.09	23	0.32	.73
	(4.31)		(4.18)		(4.80)			
Reactive Anger Change	2.11	35	1.46	13	3.09	23	0.10	.90
	(11.77)		(10.21)		(9.72)			
Anger Control Change	-3.29	35	-6.85	13	-2.00	23	1.19	.31
	(10.85)		(5.43)		(7.26)			
Total Anger Change	2.94	35	3.15	13	2.00	23	0.17	.85
	(6.49)		(7.70)		(6.99)			

Standard Deviations are reported in parentheses

Table 23

STAR Group Location Differences in Changes over Intervention in CBCL Parent Reported Behaviors

	Location							
	Pontiac		Troy		Walled Lake			
	Mean	*n*	Mean	*n*	Mean	*n*	*F*	*p*
Rule-Breaking Behavior Change	3.17 (2.36)	35	1.45 (4.41)	11	3.82 (7.53)	22	0.57	.57
Aggressive Behavior Change	4.71 (5.38)	35	5.45 (7.02)	11	3.05 (7.09)	22	0.71	.50
Social Problem Change	2.66 (5.59)	35	3.27 (7.30)	11	1.23 (6.13)	22	0.55	.58
Externalizing Behavior Change	5.91 (6.47)	35	3.82 (5.76)	11	4.05 (10.33)	22	0.53	.59
Total Problem Change	6.51 (8.47)	35	5.73 (5.68)	11	3.14 (9.40)	22	1.10	.34
School Competence Change	2.01 (1.27)	26	2.18 (1.25)	11	2.25 (1.73)	18	0.66	.52

Standard Deviations are reported in parentheses

A cross tabulation of group location by STAR completion did not show a significant association, $\chi^2 = 4.38, p = .11$. A one-way analysis of variance also found no significant differences between group locations in recidivism rates in the year after intervention, $F(2, 123) = 0.29$, $p = .75$. Due to the lack of differences in outcome measures among groups by location, the STAR groups in the three locations were examined as a single unit in the main analyses.

Main Analyses

There were two primary objectives of the main analyses. The first objective was to examine the role of juvenile offender characteristics in the effectiveness of intervention. The second goal was to explore the relation between the juvenile offender interventions provided at the Oakland County Family Court and intervention outcomes. Outcome is defined and explored as the amount of change reported by juvenile offenders and their parents over the course of intervention, successful completion of the program, and recidivism rates in the year after the program.

Hypothesis one posited that juvenile offender characteristics would be related to intervention outcome. To understand the role of juvenile offender characteristics on intervention outcome, however, it is useful to explore variations in the juvenile offender characteristics at the time prior to intervention. As a result, for each of the predictor variables, the analyses first report the relations between juvenile offender characteristics at the onset of intervention. Next, changes in self-reported anger are examined in relation to the juvenile offender characteristic, followed by an analysis of changes over the course of intervention in parent-reported behaviours. This is followed by an analysis of the role

of the characteristic in intervention completion and finally, the relation between the juvenile offender characteristic and recidivism rates is explored.

Hypothesis two posited that the intervention format would be related to intervention outcome. Several analyses are utilized to identify the relations between intervention type and intervention outcome. First, binary logistic regression allows for the examination of the predictive power of leader to juvenile offender ratio for recidivism rates. Next, survival analyses (event history analyses) are utilized to identify any differences between intervention completers and non-completers on recidivism rates.

Survival analysis consists of a set of analytical procedures that allow for the examination of the relation between time and the variable of interest (Garson, 2008b; Nguyen, 2007). Originating in the medical field to explore survival rates of research participants, it has strong applicability in the psychological field (Nguyen, 2007) and recently has been used successfully to explore the effects of Multisystemic Therapy (MST) on recidivism rates (Schaeffer & Borduin, 2005).

The current study applies survival analysis to explore outcome differences between treatment groups. The survival function for the current research estimates the likelihood that the participant will not reoffend within the time period. Survival analysis conversely also examines the *hazard*, the occurrence of the event of interest. A *hazard rate* is the likelihood of the event occurring within the time period given that it has not occurred at any of the prior time points while a *hazard ratio* (or *hazard function*) is "the estimate of the ratio of the hazard rate in one group (ex., the treatment group) to the hazard rate in another group (ex., the placebo group), for a coded covariate" (Garson, 2009a, Cox Regression; Functions; Hazard rates and hazard ratios, ¶1). When the

covariate is continuous, the hazard function "is the ratio of the hazard rate given a one unit increase in the covariate to the hazard rate without such an increase" (Garson, 2009a, Cox Regression; Functions; Hazard rates and hazard ratios, ¶1). In the current research, reoffending is the *hazard,* the likelihood of reoffending within one measured period of time is the *hazard rate,* and the *hazard ratio* is the estimate of the ratio of the rate of reoffending in the intervention group to the ratio of reoffending in the comparison group.

Hypothesis 1: Specific individual juvenile offender characteristics are likely to be related to the intervention outcome.

Hypothesis 1a: The gender of the juvenile offender will be related to intervention outcome.

Pre-intervention analyses. To understand the relation between intervention and gender, it is useful to review any gender differences at the start of the intervention. Thus, prior to the main analyses of gender and intervention outcome, pre-intervention gender differences are explored. As shown in Table 24, gender was significantly related to pre-intervention Felony and Total Charges but no other juvenile offender characteristics. Figure 4 shows the cross tabulation of gender and pre-intervention assault charges (N = 261). Of interest is the lack of relation between gender and pre-intervention assault charges. Of the female participants (n = 77), 54.5 percent had accrued assault charges charges compared to 60.9 percent of male participants (n = 184).

Analyses of the juvenile offenders' self-reported anger at the beginning of the STAR intervention program revealed significant relations between gender and all four AARS Anger scales (see Table 24). A multivariate analysis of variance with gender as the predictor variable and the four anger scales as dependent variables revealed

Table 24

Correlations between Juvenile Offender Demographic Characteristics and Pre-Intervention Self-Reported Anger[a]

Variables	1	2	3	4	5	6	7	8	9	10	11	12	13
1. Gender	–	-.01	.10	-.05	-.07	.18**	.06	.23***	.06	-.29**	-.30***	.25**	-.30**
2. Ethnic Minority		–	-.22***	-.12	.12*	-.08	.20**	.12	-.05	.05	-.05	-.18*	.07
3. Socioeconomic Status			–	.23**	.18***	.09	.10	.03	-.08	-.08	.01	.23**	-.15
4. Age at 1st STAR Session				–	.83***	-.03	-.02	-.10	.10	-.10	-.16	.03	-.12
5. Age at 1st Offense					–	-.11	-.07	.14	.09	-.10	-.13	.05	-.12
6. Pre-Intervention Felony Charges						–	.07	.57***	.14	.06	.03	.13	-.05
7. Pre-Intervention Assault Charges								.14	-.04	-.06	.05	-.11	.15
8. Pre-Intervention Total Charges								–	.01	.05	-.06	.19*	-.10
9. Friends on Probation									–	.22*	.03	-.14	.21*
10. Instrumental Anger											.63***	-.38***	.81***
11. Reactive Anger												-.25**	.72***
12. Anger Control													-.66***
13. Total Anger													

[a]*n*'s range from 100 to 270

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

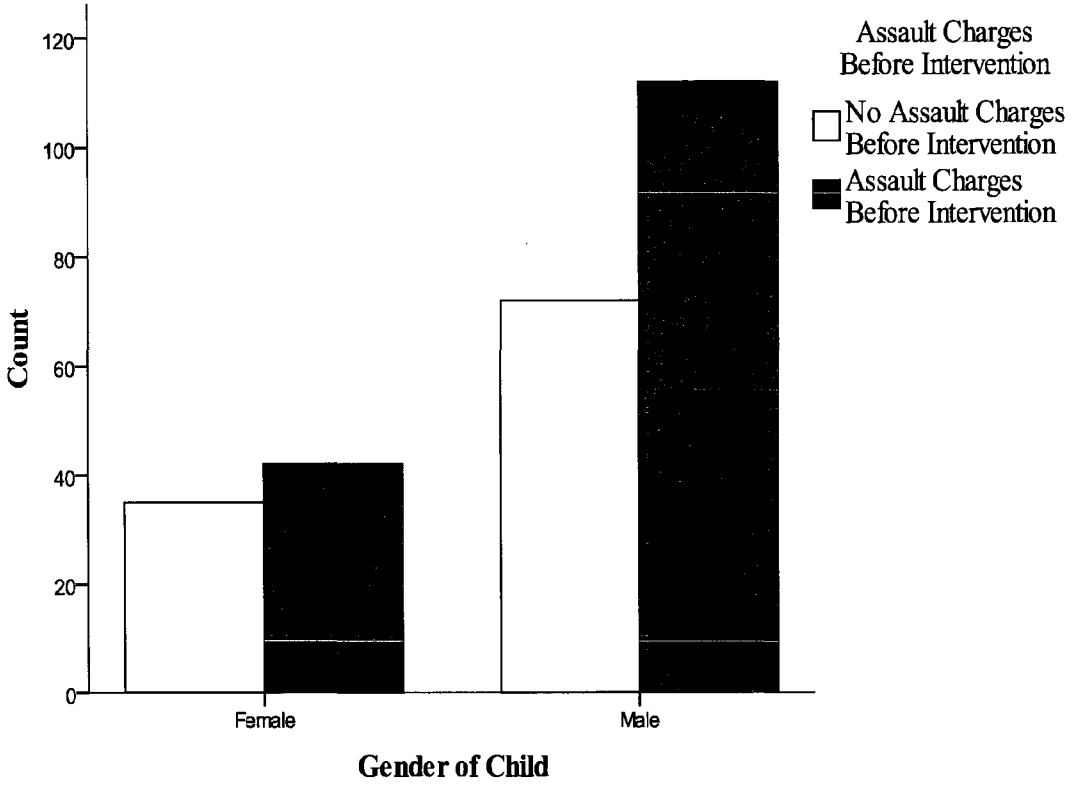

Figure 4: *Pre-Intervention Assault Charges by Juvenile Offender Gender*

significant differences between male and female juvenile offenders for all four scales with females reporting higher mean Instrumental, Reactive, and Total Anger and lower Anger Control mean scores (see Table 25). As with the pre-intervention self-reported anger measures, Pearson product correlations also were used to explore the relation between juvenile offender characteristics and parent-reported pre-intervention behaviours (see Table 26). Unlike the relations between gender and juvenile offender pre-intervention self-reported anger, gender was not related to any parent-reported pre-intervention behaviours.

Changes over intervention by gender. For a subset of STAR intervention completers, pre- and post-intervention data allowed for an examination of the perceived change over the course of treatment. An exploration of the relation between juvenile offender demographic characteristics and anger changes was conducted and the Pearson product correlations are presented in Table 27. There were no observed relations between juvenile offender gender and changes in self-reported anger.

To further explore the relations between juvenile offender gender and changes over intervention in self-reported anger, a one-way analysis of variance (ANOVA) was performed with gender as the independent variable and the changes over the course of intervention in the four anger scales as the dependent variables. Due to the failure of many participants to complete both pre- and post-intervention anger measures, the analysis consisted of a reduced set of participants ($N = 71$). The female group consisted of 18 participants while the male group consisted of 53 participants. Although the variation in group sizes is a violation of one of the assumptions of the ANOVA, SPSS

Table 25

Differences by Gender in Self-Reported Pre-Intervention AARS Anger Scales (n = 135)

	Female (n = 37)		Male (n = 98)			
	Mean	SD	Mean	SD	F	p
Instrumental Anger	49.46	4.36	46.52	4.33	12.35	.001
Reactive Anger	57.22	10.95	50.49	8.98	13.32	<.001
Anger Control	44.81	8.80	49.56	8.23	8.61	.004
Total Anger	52.97	7.34	48.39	6.39	12.73	.001

Table 26

Correlations between Juvenile Offender Demographic Characteristics and Pre-Intervention Parent Reported Behaviours[a]

Variables	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
1.Gender		-.01	.10	-.05	-.07	.18**	.06	.21**	.06	-.07	.01	-.04	-.01	-.03	-.07
2. Ethnic Minority		–	-.22***	-.12	.12*	-.08	.20**	.12	-.05	-.12	-.03	-.03	-.11	-.10	.14
3. Socioeconomic Status			–	.23**	.18***	.09	.10	.03	-.08	-.06	-.09	-.09	-.11	-.14	.22*
4. Age at 1st STAR Session				–	.83***	-.03	-.02	-.10	.10	-.13	-.30***	-.30***	-.23**	-.25*	.20*
5. Age at 1st Offense						-.11	-.07	.14	.09	-.14	-.25**	-.23**	-.18	-.22*	.19*
6. Pre-STAR Felonies						–	.07	.57***	.14	-.12	-.18*	-.21*	-.09	-.20*	.03
7. Pre-STAR Assaults								.14	-.04	-.15	.07	.05	-.07	-.08	.12
8. Pre-STAR Total Charges								–	.01	-.05	-.16	-.22*	-.10	-.18*	.038.
9. Friends on Probation									–	.06	-.01	-.00	.06	.02	-.02
10. Rule-Breaking Behavior										–	.74***	.58***	.90***	.83***	-.49***
11. Aggressive Behavior											–	.64***	.91***	.85***	-.48***
12. Social Problems													.64***	.75***	-.33***
13. Externalizing Problems													–	-.93***	-.54***
14. Total Problems														–	-.48***
15. School Competence															–

[a] *n* 's range from 99 to 270

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

Table 27

Correlations between Juvenile Offender Demographic Characteristics and Changes after Intervention in Self-Reported Anger [a]

Variables	1	2	3	4	5	6	7	8	9	10	11	12
1. Gender	–	-.01	.10	-.05	-.07	.18**	.23***	.06	-.08	-.11	-.02	-.06
2. Ethnic Minority		–	-.22***	-.12	.12*	-.08	.12	-.05	-.20	.02	-.00	-.07
3. Socioeconomic Status			–	.23**	.18***	.09	.03	-.08	-.09	-.01	-.01	-.08
4. Age at 1st STAR Session				–	.83***	-.03	-.10	.10	-.04	-.26*	.00	-.09
5. Age at 1st Offense					–	-.11	.14	.09	-.05	-.17	.09	-.09
6. Pre-STAR Felony Charges						–	.57***	.14	-.09	.02	.02	.05
7. Pre-STAR Total Charges							–	.01	-.20	-.14	.04	-.11
8. Friends on Probation								–	.05	.02	-.08	.02
9. Instrumental Anger Change									–	.39**	-.10	.63***
10. Reactive Anger Change										–	-.30*	.69***
11. Anger Control Change											–	-.57***
12. Total Anger Change												–

[a] *n*'s range from 62 to 270

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

automatically corrects for unbalanced ANOVA designs with the preferred statistical output of the Welch's variance-weighted ANOVA utilized (Garson, 2009d).

The Welch Robust Tests of Equality of Means revealed no significant differences between groups (Instrumental Anger Change, $F(1, 30) = 0.40, p = .53$; Reactive Anger Change, $F(1, 32) = 0.88, p = .36$; Anger Control Change, $F(1, 36) = 0.04, p = .85$; Instrumental Anger Change, $F(1, 25) = 0.18, p = .67$). Thus, the ANOVA test of between group differences failed to show an effect for any of the dependent variables. Due to the small number of female participants for whom change data were available, an analysis of interaction effects between gender and ethnicity was not performed.

The completion by some parents of pre-and post- intervention CBCL behaviour scales allowed for an examination of parents' perception of change over the course of intervention. As shown in Table 28, the only noted relation between gender and the parent-reported behaviours was with the Total Problems scale. The positive relation indicated that parents of male participants reported larger changes than did parents of female participants.

To further explore the relations between juvenile offender gender and changes over intervention in parent-reported behaviours, a one-way analysis of variance (ANOVA) was performed with gender as the independent variable and the changes over the course of intervention in the six parent-reported behaviour scales as the dependent variables. Due to the failure of many participants' parents to complete both pre- and post-intervention behaviour measures, the analysis consisted of a reduced set of participants ($N = 69$). The female group consisted of 16 participants while the male

Table 28

Correlations between Juvenile Offender Demographic Characteristics and Changes after Intervention in Parent Reported Behaviours [a]

Variables	1	2	3	4	5	6	7	8	9	10	11	12	13	14
1. Gender	–	-.01	.10	-.05	-.07	.18**	.21**	.06	.16	.13	.14	.19	.27*	-.21
2. Ethnic Minority		–	-.22***	-.12	.12*	-.08	.12	-.05	.08	.01	-.03	.11	.10	.06
3. Socioeconomic Status			–	.23**	.18***	.09	.03	-.08	.09	.04	.03	-.02	-.07	.12
4. Age at 1st STAR Session					.83***	-.03	-.10	.10	-.01	-.09	-.05	.05	.08	-.01
5. Age at 1st Offense					–	-.11	.14	.09	-.02	-.04	.01	.02	.08	-.04
6. Pre-STAR Felony Charges						–	.57***	.14	.03	-.08	-.13	.03	-.00	.19
7. Pre-STAR Total Charges							–	.01	.01	-.07	-.10	.02	-.00	.10
8. Friends on Probation								–	.20	.06	.06	.25	.27	.07
9. Rule-Breaking Behavior Change									–	.54***	.51***	.82***	-.26	-.24
10. Aggressive Behavior Change										–	.48***	.73***	-.42**	-.45**
11. Social Problems Change												.52***	-.13	-.07
12. Externalizing Problems Change												–	-.42**	-.35**
13. Total Problems Change													–	.36**
14. School Competence Change														–

[a] *n*'s range from 42 to 270

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

group consisted of 53 participants for the five behaviour problem scales. For the School Competence scale, the participant group consisted of 13 females and 43 males. As noted in the previous section, SPSS automatically corrected for the unbalanced ANOVA design with the preferred statistical output of the Welch's variance-weighted ANOVA utilized (Garson, 2009d).

The Levene Test of Homogeneity of Variance revealed similar variances between groups for all measures with the exception of the School Competence change (Levene (1, 54) = 4.80, p = .03). As a result of the unequal group sizes and the lack of homogeneity of variance between genders for this scale, the changes in school competency measure was dropped from the main analysis. For the remaining five scales, the Welch Robust Test of Equality of Means was conducted with results (Rule-Breaking Behavior Change, $F(1, 19) = 1.08, p = .31$; Aggressive Behavior Change, $F(1, 19) = 0.78, p = .39$; Social Problems Change, $F(1, 28) = 1.54, p = .23$; Externalizing Problems Change, F(1, 17) = 1.27, p = .28) indicating similar sample means between genders, although there was a trend toward significant differences between groups for the changes in total problems over the course of the intervention ($F(1, 19) = 3.47, p = .08$). Parents of male participants reported a mean change of 6.36 t-score points (SD = 7.24) while parents of female participants reported a mean change of 0.94 t-score points (SD = 10.94). Due to the small number of female participants for whom change data were available, an analysis of interaction effects between gender and ethnicity was not performed.

STAR completion and gender. A binary logistic regression was used to test the hypothesis that juvenile offender demographic characteristics would predict the successful completion of the STAR intervention program. The data set consisted of 169

participants of whom 116 had successfully completed the intervention program. The predictors included the categorical variables of gender, ethnicity, and pre-intervention assualt charges and the continuous predictor variables of socioeconomic status, age at intervention, age of onset, total felony charges prior to intervention, and total charges prior to intervention. Due to the small number of respondents reporting data regarding friends on probation, this variable was explored separately.

For the current analysis, the Hosmer and Lemeshow chi square test for overall goodness of fit revealed that the model adequately fit the data, $\chi^2 = 4.90, p = .77$. The model summary reported a Nagelkerke R-square value of .207 with the omnibus test of model coefficients indicating that the model predictors were jointly able to predict successful STAR completion, $\chi^2 = 21.48, p = .006$. As shown in Table 29, Wald statistics, which allow for the significance testing of the individual logistic regression coefficients for each of the eight independent variables (Garson, 2009b), revealed that the gender of the juvenile offender did not predict STAR completion.

Recidivism rates and gender. To explore the relations between juvenile offender characteristics and recidivism rates, a univariate linear regression analysis was conducted with the days after intervention completion up to 365 as the dependent variable and juvenile offender characteristics as the predictor variables. Participants who did not reoffend prior to having a 17th birthday within the year after intervention were eliminated from the current analysis. The analysis was conducted with 99 participants. The model summary showed that the model was unable to account for a significant amount of change in the outcome variable, $R = .31$. Change statistics revealed that the model failed

Table 29

Logistic Regression of Juvenile Offender Demographic Predictors for STAR Intervention Completion (n = 169)

Variable	B	SE	Wald	*p*	(Exp)B	95% CI for (Exp)B
Gender	.11	.42	0.06	.804	1.11	0.49 - 2.54
Ethnicity	.64	.38	2.90	.089	1.89	0.91 - 3.95
Socioeconomic Status	.00	.00	1.37	.242	1.00	1.00 - 1.00
Age at STAR Intervention	.00	.00	0.15	.697	1.00	1.00 - 1.00
Age at First Offense	.00	.00	0.03	.874	1 00	1.00 - 1.00
Pre-Intervention Felony Charges	.63	.23	7.46	.006	1.87	1.20 - 2.94
Pre-Intervention Assault Charges	-.25	.38	0.42	.517	0.78	0.37 - 1.66
Pre-Intervention Total Charges	-.61	.17	12.09	.001	0.55	0.39 - 0.77

Table 30

Predictive Value of Juvenile Offender Characteristics on Recidivism Rates up to 1 Year after Intervention (n = 99)

Variable	B	SE	*t*	*p*
Gender	-6.40	29.23	-0.22	.83
Ethnic Minority	16.50	25.46	-0.65	.52
Socioeconomic Status	0.00	0.00	0.42	.67
Age at Intervention	-0.00	0.08	-0.04	.97
Age at 1st Offense	-0.05	0.07	-0.69	.89
Pre-Intervention Felony Charges	-6.13	14.28	-0.43	.67
Pre-Intervention Assault Charges	15.89	26.54	0.60	.55
Pre-Intervention Total Charges	-14.74	11.98	-1.23	.22

to explain the variance in recidivism rates, $R^2 = .098$, F (8, 91) = 1.24, $p = .29$. As shown in Table 30, an examination of the individual characteristics revealed that none of the juvenile offender characteristics, including gender, was predictive of recidivism rates.

Summary of juvenile delinquency and gender. In review, the male juvenile offenders entered the intervention program with more felony and total charges on average than did their female peers while differences in numbers of assault charges did not vary between genders. Prior to intervention, female juvenile offenders reported higher Instrumental, Reactive, and Total Anger and lower Anger Control than did their male peers; however, parents of females did not report behaviours that differed from the parent-report of male juvenile offenders. Over the course of intervention, there were no significant differences in mean changes in self-reported anger; nor were there significant differences in the parent-report of changes in behaviours over the course of intervention. There were no differences by gender in intervention completion or recidivism rates.

Hypothesis 1b: Juvenile offender ethnicity will be related to intervention outcome.

Pre-intervention analyses. As shown in Table 24 on page 114, ethnicity was related to many of the other juvenile offender characteristics including socioeconomic status, age at first intervention session, age at first offense, and pre-intervention assault charges. A Pearson chi-square test revealed that Minority-American juvenile offenders were more likely than their European-American peers to have pre-intervention assault charges (see Figure 5). Fifty-one percent of the European-American juvenile offenders had pre-intervention charges for assault, in contrast to 70.7 percent of the Minority-American participants.

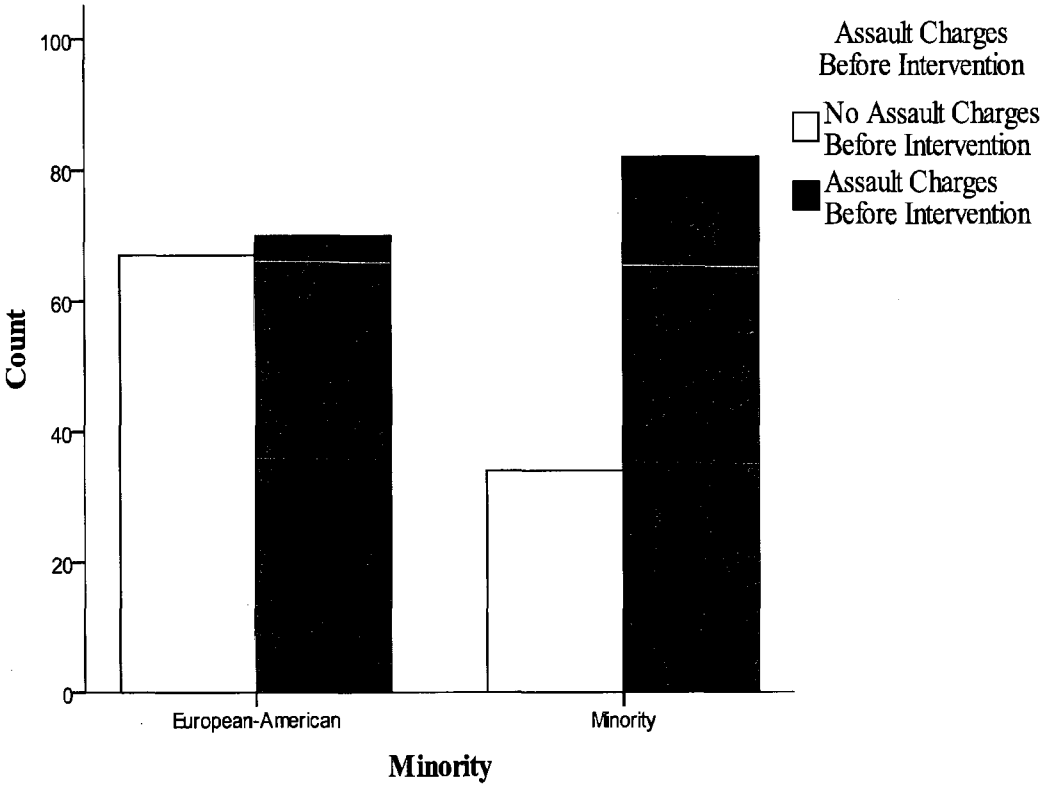

Figure 5: *Pre-Intervention Assault Charges by Ethnicity*

Minority-American participants were a mean of 121.32 days younger than their European-American counterparts at the time of their first court contact and133.94 days younger than their European- American counterparts at the time of their first intervention session. The observed negative correlation between ethnicity and Anger Control indicates that lower self-reported Anger Control was associated with those who identified themselves as being Minority-Americans (see Table 24 on page 114). Analyses of the relations between juvenile offender characteristics and pre-intervention parent-reported behaviours failed to reveal any relations between pre-intervention parent-reported behaviours and ethnicity (see Table 26 on page 118).

Changes over intervention by ethnicity. An exploration of the relation between the juvenile offender characteristics and changes over the course of intervention in self-reported anger failed to reveal any relations between the juvenile offenders' ethnicity and changes in self-reported anger (see Table 27 on page 119). To further explore the relations between juvenile offender ethnicity and changes over intervention in self-reported anger, a one-way analysis of variance (ANOVA) was performed with ethnicity as the independent variable and the changes over the course of intervention in the four self-reported anger scales as the dependent variables. Due to the failure of many participants to complete both pre- and post-intervention anger measures, the analysis consisted of a reduced set of participants ($N = 70$). The European-American group consisted of 38 participants while the Minority-American group consisted of 32 participants.

The ANOVA test of between group differences failed to show an effect for any of the dependent variables (Instrumental Anger Change, $F(1, 68) = 2.69, p = .11$; Reactive

Anger Change, $F(1, 68) = 0.02, p = .90$; Anger Control Change, $F(1, 68) = 0.00, p = .90$; Instrumental Anger Change, $F(1, 68) = 0.31, p = .58$) indicating that there were no significant differences in mean changes in self-reported anger over the course of intervention. As noted in the analysis of gender, an analysis of interaction effects between gender and ethnicity was not performed due to the small number of female participants for whom change data were available.

As with the analyses of self-reported changes in anger, Pearson product correlations between ethnicity and parent-reported changes in behaviours over the course of intervention were conducted (see Table 28 on page 121). There were no observed correlations between ethnicity and parent-reported changes in behaviours. To further explore the relations between juvenile offender ethnicity and changes over intervention in parent-reported behaviours, an ANOVA was performed with ethnicity as the independent variable and the changes over the course of intervention in the six parent-reported behaviour scales as the dependent variables.

Due to the failure of many participants' parents to complete both pre- and post-intervention behaviour measures, the analysis consisted of a reduced set of participants. The European-American group consisted of 40 participants while the Minority-American group consisted of 28 participants ($N = 68$) for the five problem behaviour scales. For the School Competence scale, the group consisted of 34 European-Americans and 21 Minority-Americans. As noted previously, SPSS automatically corrected for the unbalanced ANOVA design, with the preferred statistical output of the Welch's variance-weighted ANOVA utilized (Garson, 2009d).

The Welch Robust Test of Equality of Means was conducted with results (Rule-Breaking Behavior Change, $F(1, 59) = 0.40, p = .53$; Aggressive Behavior Change, $F(1, 65) = 0.003, p = .96$; Social Problems Change, $F(1, 61) = 0.04, p = .84$; Externalizing Problems Change, $F(1, 65) = 0.87$, $p = .35$, Total Problems Change, $F(1, 60) = 0.66, p = .42$; School Competence Change, $F(1, 43) = 0.22, p = .65$) failing to reveal differences between groups for any of the dependent variables. As previously noted, an analysis of the interaction effects between gender and ethnicity was not performed due to the small number of female participants for whom change data were available.

STAR completion and ethnicity. As described in the section exploring the relation between gender and STAR completion, a binary logistic regression analysis explored the predictive value of juvenile offender characteristics on STAR completion. The omnibus test of model coefficients indicated that the model predictors were jointly able to predict successful STAR completion; as shown in Table 29 on page 124, there was a trend toward statistical significance for the predictive value of juvenile offenders' ethnicity on successful STAR completion. The odds ratio, (Exp)B, of 1.89 indicates that Minority-American juvenile offenders were nearly twice as likely to complete STAR as their European-American peers.

Recidivism rates and ethnicity. As described in the section reviewing the relation between gender and recidivism rates and as shown in Table 30 on page 125, an examination of the individual juvenile offender characteristics revealed that none of the juvenile offender characteristics, including ethnicity, was predictive of recidivism rates.

Summary of juvenile delinquency and ethnicity. In summation, Minority-American participants made up a significant minority (43.1 %) of the juvenile offender

participants. Analyses of pre-intervention differences revealed that ethnicity was associated with lower socioeconomic status, younger age of first offense and age at intervention, more felony charges, and more assault charges. In addition, Minority-American juvenile offenders reported lower average pre-intervention Anger Control than did their European-American peers.

Over the course of intervention, there were no observed differences between European-American and Minority-American juvenile offenders in reported changes of anger or behaviours. Despite Minority-Americans making up the majority of the Comparison group of those who were referred to treatment but did not complete, there was no significant difference in completion rates by ethnicity. Nor were there any significant differences in recidivism rates.

Hypothesis 1c: The socioeconomic status of the juvenile offender will be related to intervention outcome.

Pre-intervention analyses. Socioeconomic status differences were observed in relation to several pre-intervention juvenile offender variables. Exploring the mean difference in socioeconomic status between European-Americans and Minority-Americans revealed that European-American juvenile offender participants resided in areas with a mean per capita income US$4,135.22 greater than their Minority-American counterparts. Socioeconomic status also was related to age of first court contact and age at intervention. Residency in areas with lower per capita income was associated with earlier court contact and earlier intervention (see Table 24 on page 114).

Analyses of the juvenile offenders' self-reported anger at the beginning of the STAR intervention program revealed that pre-intervention self-reported Anger Control

was correlated with socioeconomic status with higher self-reported Anger Control associated with residences in areas with greater per capita income (see Table 24 on page 114). Analyses of the relations between juvenile offender characteristics and pre-intervention parent-reported behaviours revealed that socioeconomic status was positively related to pre-intervention School Competence with residency in areas with higher median per capita income associated with higher school competency ratings (see Table 26 on page 118).

Changes over intervention by socioeconomic status. An exploration of the relation between the juvenile offender characteristics and changes over the course of intervention in self-reported anger failed to reveal any relation between the juvenile offender's socioeconomic status and changes in self-reported anger (see Table 27 on page 119). A multivariate logistic regression was used to test the hypothesis that socioeconomic status would predict the amount of change in anger reported by STAR completers. The data set consisted of 69 participants who had completed both pre- and post-intervention anger scales. Parameter estimates revealed that the Beta coefficients were not significant for any of the four dependent variables (Instrumental Anger Change, $\beta < .001, p = .48$; Reactive Anger Change, $\beta < .001, p = .92$; Anger Control Change, $\beta < .001, p = .96$; Total Anger Change, $\beta < .001, p = .51$) indicating that socioeconomic status did not predict any measurable variance in the amount of anger changes the juvenile offenders reported experiencing over the course of the intervention.

Exploring the correlations between juvenile offender characteristics and changes in parent-reported behaviours, Pearson product correlations revealed no relations (see Table 28 on page 121). In addition to the Pearson product correlation analyses, a

multivariate logistic regression was used to test the hypothesis that socioeconomic status would predict the amount of change in behaviours reported by the parents of the STAR completers. The data set consisted of the parent reports of 54 participants who had completed both pre- and post-intervention behaviour scales. Parameter estimates revealed that the Beta coefficients were not significant for any of the six dependent variables (Rule-Breaking Behavior Change, $\beta < .001, p = .55$; Aggressive Behavior Change, $\beta < .001, p = .66$; Social Problems Change, $\beta < .001, p = .74$; Externalizing Problems Change, $\beta < .001, p = .73$; Total Problems Change, $\beta < .001, p = .98$; School Competence Change, $\beta < .001, p = .47$) indicating that socioeconomic status did not predict any measurable variance in the amount of behaviour changes the juvenile offenders' parents reported over the course of the intervention.

STAR completion and socioeconomic status. A binary logistic regression analysis explored the predictive value of juvenile offender characteristics on STAR completion (see Table 32). Despite the omnibus test of model coefficients indicating that the model predictors were jointly able to predict successful STAR completion, socioeconomic status was not shown to be predictive of STAR completion.

Recidivism rates and socioeconomic status. To explore the relations between juvenile offender characteristics and recidivism rates, a univariate linear regression analysis was conducted with the days after intervention completion up to 365 as the dependent variable and juvenile offender demographic characteristics as the predictor variables. The model was unable to account for a significant amount of change in the outcome variable and change statistics revealed that the model failed to explain the variance in recidivism rates. As shown in Table 30 on page 125, an examination of the

individual characteristics revealed that none of the juvenile offender characteristics, including socioeconomic status, was predictive of recidivism rates.

Summary of juvenile delinquency and socioeconomic status. In review, socioeconomic status was related to ethnicity with Minority-American juvenile offenders more likely to live in areas with lower median income than their peers of European-American descent. Residency in areas with lower median per capita income was associated with earlier age at first offense and age at intervention and lower parent-reported pre-intervention School Competency ratings. Socioeconomic status was not associated with changes over intervention, intervention completion, or recidivism rates.

Hypothesis 1d: The age of the juvenile offender will be related to intervention outcome.

Pre-intervention analyses. Beyond the correlation between age at intervention and age at first offense, age was not related to any other juvenile offender characteristics except ethnicity. As noted previously and reported in Table 24 on page 114, younger age at first offense and age at intervention both were negatively related to ethnicity with Minority-American juvenile offenders younger on average at first offense and intervention than their European-American peers.

Analyses of the correlation of juvenile offenders' self-reported anger at the beginning of the STAR intervention program and juvenile offender characteristics failed to reveal any observed relations between age and self-reported pre-intervention anger (see Table 24 on page 114). In contrast, however, analyses of the relations between juvenile offender characteristics and pre-intervention parent-reported behaviours revealed that both juvenile offender age at intervention and age at first offense were significantly

related to all parent-reported pre-intervention behaviours (see Table 26 on page 118). The relations were negative for all scales with the exception of School Competence, indicating that as age at intervention and age at first offense increased, the parent-reported pre-intervention Rule Breaking Behaviors, Aggressive Behaviors, Social Problems, Externalizing Problems, and Total Problems scores decreased. The positive relation between School Competence and age at intervention and age at first offense indicate that as age increased, so too did parent's reporting of their adolescents' school competency. Overall, the relation suggests that parents of younger children reported more significant pre-intervention problem behaviours than did parents of older children.

Changes over intervention by age. As shown in Table 27 on page 119, there was an observed negative correlation between participant age at intervention and changes over the course of intervention in Reactive Anger. As the age of participant increased, the mean amount of change in self- reported Reactive Anger decreased. A multivariate logistic regression tested the hypothesis that age at first offense would predict the amount of change in anger reported by STAR completers. The data set consisted of 65 participants for whom both age at first STAR session and pre- and post-intervention anger scales were available. Consistent with the Pearson correlation analyses, parameter estimates revealed that age at first STAR session predicted some variance in the amount of change reported in Reactive Anger ($\beta = -.006, p = .03$) with the negative coefficient indicating that younger age at the first STAR session was associated with greater changes in self-reported Reactive Anger. The Beta coefficients were not significant for the other three dependent variables (Instrumental Anger Change, $\beta < .001, p = .70$; Anger Control Change, $\beta < .001, p = .99$; Total Anger Change, $\beta = -.001, p = .47$).

A second multivariate logistic regression explored the predictive value of age at first offense on the reported changes in anger over the course of intervention. For this analysis, data were available for 71 participants. Parameter estimates revealed that the Beta coefficients were not significant for any of the four dependent variables (Instrumental Anger Change, $\beta < .001$, $p = .69$; Reactive Anger Change, $\beta = -.004$, $p = .18$; Anger Control Change, $\beta = .002$, $p = .50$; Total Anger Change, $\beta = -.001$, $p = .47$) indicating that age at first offense did not predict any measurable variance in the amount of anger changes the juvenile offenders reported experiencing over the course of the intervention.

As shown in Table 28 on page 121, Pearson product correlations between juvenile offender age at intervention, age at first offense, and parent-reported changes in behaviours over the course of intervention failed to reveal any relations among the variables. A multivariate logistic regression tested the hypothesis that age at first STAR session would predict the amount of change in behaviours reported by the parents of the STAR completers. The data set consisted of the parent reports of 55 participants who had completed both pre- and post-intervention behaviour scales. Parameter estimates revealed that the Beta coefficients were not statistically significant for any of the six dependent variables (Rule-Breaking Behavior Change, $\beta < .001$, $p = .60$; Aggressive Behavior Change, $\beta = -.002$, $p = .43$; Social Problems Change, $\beta < .001$, $p = .63$; Externalizing Problems Change, $\beta < .001$, $p = .94$; Total Problems Change, $\beta < .001$, $p = .95$; School Competence Change, $\beta < .001$, $p = .92$) indicating that age at first STAR session did not explain any measurable variance in the amount of behaviour change the juvenile offenders' parents reported over the course of the intervention. Similarly, the parameter

estimates of a second multivariate regression analysis ($N = 50$) exploring the predictive value of age at first offense on changes in parent-reported behaviours were not statistically significant (Rule-Breaking Behavior Change, $\beta < .001, p = .69$; Aggressive Behavior Change, $\beta = -.002, p = .73$; Social Problems Change, $\beta < .001, p = .86$; Externalizing Problems Change, $\beta < .001, p = .90$; Total Problems Change, $\beta = .001, p = .73$; School Competence Change, $\beta = .002, p = .72$).

STAR completion and juvenile offender age. While the binary logistic regression omnibus test of model coefficients indicated that juvenile offender characteristics were jointly able to predict STAR completion, neither age at first offense nor age at intervention were predictive on their own of STAR completion (see Table 29 on page 124).

Recidivism rates and juvenile offender age. As described in the section reviewing the relation between gender and recidivism rates and as shown in Table 30 on page 125, a univariate linear regression analysis was conducted with the days after intervention completion up to 365 as the dependent variable and juvenile offender demographic characteristics as the predictor variables. The model was unable to account for a significant amount of change in the outcome variable, and change statistics revealed that the model failed to explain the variance in recidivism rates. An examination of the individual characteristics revealed that none of the juvenile offender characteristics, including age at first offense and age at intervention, were predictive of recidivism rates.

Summary of juvenile delinquency and age. In summation, younger ages at first offense and intervention were negatively related to ethnicity with Minority-American juvenile offenders being younger on average at first offense and intervention than their

European-American peers. Although age was not related to differences in self-reported anger, parents of younger children reported more severe pre-intervention behaviours than did parents of older children.

Over the course of the intervention, there was an observed negative relation between participant age at intervention and self-reported changes in Reactive Anger, with greater changes reported as ages decreased. Neither age at intervention nor age at first offense were found to be related to the likelihood of STAR completion nor were either observed to be related to recidivism rates.

Hypothesis 1e: Juvenile offender severity of delinquency will be related to intervention outcome.

Pre-intervention analyses. As noted in the participant section (see Table 4 on page 73), juvenile offenders who completed the STAR intervention had fewer pre-intervention total charges than did juvenile offenders in the other groups, with no significant differences between the Comparison, CHOICE and Combined treatment groups for pre-intervention charges. To explore the relations among pre-intervention juvenile offender characteristics, Pearson product correlations were run (see Table 24 on page 114). As noted previously, pre-intervention felony and total charges were related to gender with male participants having higher mean pre-intervention charges than female participants. In addition, Minority-American juvenile offenders were more likely than their European-American peers to have pre-intervention felony charges.

As shown in Table 24 on page 114, there was a positive correlation between juvenile offenders' total charges and self-reported pre-intervention Anger Control with more total charges prior to intervention associated with higher levels of self-reported

Anger Control. Table 26 on page 118 reveals several significant negative correlations between pre-intervention charges and parent-reported behaviours. Entering intervention with more felony charges was associated with lower parent-reported Aggressive Behavior, Social Problems, and Total Problems. Additionally, entering intervention with more total charges was associated with lower parent-reported Social and Total Problems.

Changes over intervention by severity of delinquency. As shown in Table 27 on page 119, there were no observed relations between juvenile offender pre-intervention felony or total charges and changes over the course of intervention in self-reported anger. A multivariate logistic regression tested the hypothesis that pre-intervention felony charges would predict variance in the amount of change in anger reported by STAR completers. The data set consisted of 65 participants for whom both pre-intervention felony charges and pre- and post-intervention anger scales were available. Parameter estimates revealed that the Beta coefficients were not significant for any of the four dependent variables (Instrumental Anger Change, $\beta = -.44$, $p = .61$; Reactive Anger Change, $\beta = .24$, $p = .87$; Anger Control Change, $\beta = .19$, $p = .55$; Total Anger Change, $\beta = -.37$, $p = .70$), indicating that pre-intervention felony charges did not explain any measurable variance in the amount of anger changes the juvenile offenders reported experiencing over the course of the intervention. Similarly, the parameter estimates of a second multivariate regression analysis ($N = 65$) exploring the predictive value of pre-intervention total charges on changes in juvenile offender reported Anger were not statistically significant (Instrumental Anger Change, $\beta = -.76$, $p = .11$; Reactive Anger Change, $\beta = -1.29$, $p = .26$; Anger Control Change, $\beta = .34$, $p = .73$; Total Anger Change, $\beta = -.67$, $p = .37$).

As with the analyses of changes over intervention in self-reported anger, Pearson product correlation analyses were conducted with juvenile offender characteristics and changes over intervention in parent-reported behaviours (see Table 28 on page 121). There were no observed relations between pre-intervention felony or total charges and any juvenile offender characteristics. A multivariate logistic regression tested the hypothesis that pre-intervention felony charges would predict the amount of change in behaviours reported by the parents of the STAR completers. The data set consisted of the parent-reports of 51 participants who had completed both pre- and post-intervention behaviour scales. Parameter estimates revealed that the Beta coefficients were not statistically significant for any of the four dependent variables (Rule-Breaking Behavior Change, $\beta = .06, p = .96$; Aggressive Behavior Change, $\beta = -.84, p = .56$; Social Problems Change, $\beta = -1.42, p = .18$; Externalizing Problems Change, $\beta = .08, p = .95$; Total Problems Change, $\beta = -1.29, p = .36$; School Competence Change, $\beta = 1.40, p = .21$), indicating that pre-intervention felony charges did not explain any measurable variance in the amount of behaviour changes the juvenile offenders' parents reported over the course of the intervention. Similarly, the parameter estimates of a second multivariate regression analysis ($N = 51$) exploring the predictive value of pre-intervention total changes in parent-reported behaviours failed to reveal any significant variations (Rule-Breaking Behavior Change, $\beta = .42, p = .18$; Aggressive Behavior Change, $\beta = .003, p = .95$; Social Problems Change, $\beta = -.29, p = .74$; Externalizing Problems Change, $\beta = .65, p = .56$; Total Problems Change, $\beta = -.35, p = .76$; School Competence Change, $\beta = .56, p = .54$).

STAR completion and severity of delinquency. As described in the section exploring the relation between gender and STAR completion, a binary logistic regression analysis explored the predictive value of juvenile offender characteristics on STAR completion. As shown in Table 29 on page 124, Wald statistics indicated that both pre-intervention felony and total charges contributed to the prediction value of the model. The predictor variables and odds ratios indicated that the likelihood of successfully completing STAR increased with the number of pre-intervention felony charges while increases in the number of total charges decreased the likelihood of successful STAR completion.

Recidivism rates and severity of delinquency. As reported in the preliminary analyses, multivariate analyses of variance with planned post hoc analysis were performed between intervention groups (STAR Completers, CHOICE Completers, Combined Intervention Completers, Comparison) with socioeconomic status, age at first offense, age at intervention, felony charges, and total charges as the dependent variables (see Table 4 on page 73). While there were no differences between groups for felony charges, there were significant differences between groups for total charges. As shown in Table 4, post hoc analyses using the Bonferroni method to guard against Type I error indicated a trend toward STAR completers having fewer pre-intervention total charges than did the non-completers in the Comparison group; however, there was no significant difference between the Comparison, CHOICE, and Combined groups for total charges before intervention.

To further explore the relations between juvenile offender characteristics and recidivism rates, a univariate linear regression analysis was conducted with the days after

intervention completion up to 365 as the dependent variable and juvenile offender demographic characteristics as the predictor variables. Both the model summary and change statistics revealed that the model failed to explain the variance in recidivism rates. As shown in Table 30 on page 125, an examination of the individual characteristics revealed that none of the juvenile offender characteristics, including pre-intervention Felony and Total Charges, were predictive of recidivism rates.

Summary of juvenile delinquency and pre-intervention charges. In summation, pre-intervention differences in juvenile offender severity of delinquency were associated with gender and ethnicity. Male juvenile offenders had more felony and total charges on average than did their female peers and Minority-American juvenile offenders were more likely to have higher rates of felony charges than their European-American peers. At the start of intervention, juvenile offenders with more total charges reported greater Anger Control and their parents reported fewer Social and Total Problems. Entering intervention with more felony charges was associated with lower parent-reported Aggressive Behaviours, Social Problems, and Total Problems.

Despite many differences prior to intervention associated with severity of delinquency, pre-intervention charges were not predictive of reported changes in anger and behaviours over the course of intervention. While the likelihood of successfully completing STAR decreased with the number of total pre-intervention charges, the likelihood of successful completion increased with the number of pre-intervention felony charges. Tthere were no observed relations between pre-intervention charges and the recidivism rates of STAR participants.

Hypothesis 1f: Juvenile offender association with delinquent peers will be related to intervention outcome. Hypothesis one posited that juvenile offender characteristics, including peer delinquency, were related to the outcome of intervention. As a means of calculating peer delinquency, the present sample utilized the juvenile offenders' response to the question "how many of your friends are on probation?" to create a dichotomous variable describing the presence or absence of one or more friends on probation.

Pre-intervention analyses. As shown in Table 24 on page 114, there were no relations between the report of having one or more friends on probation and any other juvenile offender characteristic. Analyses of the juvenile offenders' self-reported anger at the beginning of the STAR intervention program revealed positive relations between the reporting of having one or more friends on probation and self-reported pre-intervention Instrumental and Total Anger, indicating that juvenile offenders who reported having at least one friend on probation were more likely to have higher self-reported pre-intervention Instrumental and Total Anger (see Table 24 on page 114). Analyses of the relations between juvenile offender characteristics and pre-intervention parent-reported behaviours failed to reveal any relation between pre-intervention parent-reported behaviours and juvenile offenders' report of friends on probation (see Table 26 on page 118).

Changes over intervention by peer delinquency. An exploration of the relation between the juvenile offender characteristics and changes over the course of intervention in self-reported anger failed to reveal any relations between the juvenile offenders' report of having friends on probation and changes in self-reported anger (see Table 27 on page 119). To further explore the relation between juvenile offender ethnicity and

changes over intervention in self-reported anger, a one-way analysis of variance (ANOVA) was performed with the dichotomous variable of friends on probation as the independent variable and the changes over the course of intervention in the four self-reported anger scales as the dependent variables. Due to the failure of many participants to report the information, the analysis consisted of a reduced set of participants ($N = 62$) with 34 participants denying having any friends on probation and 28 participants indicating that they did. The ANOVA test of between group differences failed to show an effect for any of the dependent variables (Instrumental Anger Change, $F(1, 60) = 0.16, p = .69$; Reactive Anger Change, $F(1, 60) = 0.03, p = .87$; Anger Control Change, $F(1, 60) = 0.41, p = .52$; Instrumental Anger Change, $F(1, 60) = 0.03, p = .86$), indicating that there were no significant differences in mean changes in self-reported anger over the course of intervention between participants who denied and reported having one or more friend on probation.

As with the analyses of self-reported changes in anger, Pearson product correlations between friends on probation and parent-reported changes in behaviours over the course of intervention were conducted and revealed no relation (see Table 28 on page 121). To further explore the relation between juvenile offender report of having friends on probation and changes over intervention in parent-reported behaviours, an ANOVA was performed with the dichotomous variable of friends on probation as the independent variable and the changes over the course of intervention in the six parent-reported behaviour scales as the dependent variables. Due to the failure of many participants' parents to complete both pre- and post-intervention behaviour measures, the analysis consisted of a reduced set of participants. For the five problem scales, the group consisted

of 51 participants, 30 of whom denied having any friends on probation and 21 of whom indicated having one or more friends on probation. For the School Competence scale, the group consisted of 27 participants who denied having friends on probation and 15 participants who reported having one or more friends on probation. As noted previously, SPSS automatically corrected for the unbalanced ANOVA design, with the preferred statistical output of the Welch's variance-weighted ANOVA utilized (Garson, 2009d). The test of homogeneity of variance using the Levene statistic indicated significant variance between groups for changes in Rule Breaking (*Levene* (1, 49) = 5.13, p = .03) and School Competence (*Levene* (1, 40) = 5.57, p = .02). As a result of the violations of the statistical assumptions, these two measures were dropped from the main analyses. For the remaining four scales, the Welch Robust Test of Equality of Means was conducted. Although the results failed to show significant differences in the amount of parent-reported behaviour changes (Aggressive Behavior Change, $F(1, 47) = 0.21, p = .65$; Social Problems Change, $F(1, 48) = 0.21, p = .65$; Externalizing Problems Change, F(1, 39) = 3.09, p = .09, Total Problems Change, F(1, 34) = 3.51, $p = .07$), there were trends toward significant differences for both Externalizing and Total Problem changes. Parents of juvenile offenders who reported having one or more friends on probation reported mean Externalizing Problem changes of 7.67 (SD = 6.82) t-score points compared to mean changes of 4.43 (SD = 5.92) t-score points for parents of juvenile offenders who reported having no friends on probation. Similarly, parents of juvenile offenders who reported having one or more friends on probation reported mean Total Problem changes of 8.24 (SD = 7.80) t-score points compared to mean changes of 4.50 (SD = 5.71) t-score points for parents of juvenile offenders who reported having no friends on probation.

STAR completion and peer delinquency. Due to the small number of respondents who provided information regarding the presence or absence of one or more friends on probation, analyses of this predictor variable were run separately from the main analyses of STAR completion. A cross tabulation of Friends on Probation by STAR Completion was performed using only those participants who had supplied information regarding peers on probation, had been referred to STAR, and had not been placed in residential treatment prior to the program's completion (n = 123). A Pearson chi square test failed to reveal an association between having friends on probation and STAR completion (x^2 = 2.88, p = .09).

Recidivism rates and peer delinquency. Due to the small number of respondents who provided information regarding the presence or absence of one or more friends on probation, analyses of this predictor variable were run separately from the main analyses of recidivism. An independent samples t-test was conducted with the reporting of having one or more friends on probation as the dichotomous predictor variable and days after intervention until reoffense up to 365 as the outcome variable. Participants who came of age prior to reoffending in the year after intervention were eliminated from the dataset. The result was an analysis of 39 participants who reported having no friends on probation and 37 who reporting having one or more friends on probation. There was a trend toward a significant difference between groups, $t(1,74) = 1.69, p = .10$. The trend was for juvenile offenders who did not report having a friend on probation to have longer periods after intervention before reoffense, with a mean difference of 28.67 days and a standard error difference of 28.83 days.

Summary of juvenile delinquency and friends on probation. In summary, juvenile offenders with one or more friends on probation were more likely to be of European-American background than of an ethnic minority background. In addition, report of having one or more friends on probation was associated with higher self-reported pre-intervention Instrumental and Total Anger.

Regarding changes over the course of intervention, although some trends were noticed, there were no observed relations between reporting having friends on probation and changes in self-reported anger or parent-reported behaviors. Similarly, although there were trends toward differences between groups in completion and mean recidivism rates, the results were not statistically significant.

Hypothesis 2: The type of treatment provided will be related to the outcome of treatment.

Hypothesis 2a: The ratio of leaders to juvenile offenders will be related to the outcome of treatment with better outcome for adolescents in groups with higher leader to adolescent ratios.

Intervention outcome was operationalized as both treatment completion and the amount of change in self-reported and parent-reported behaviours over the course of treatment. A binary logistic regression with STAR completion as the dependent variable and leader to juvenile offender ratio as the predictor variable supported the hypothesis that smaller adolescent to leader ratio would be associated with better outcome. The data set consisted of 199 participants of whom 127 had successfully completed the intervention program. For the current analysis, the Hosmer and Lemeshow chi-square test for overall goodness of fit revealed that the model adequately fit the data., $\chi^2 = 6.35, p = .39$. The model summary reported a Nagelkerke R-square value of .05 with the omnibus

test of model coefficients indicating that the model was able to predict successful STAR completion, $\chi^2 = 7.52, p = .006$.

The Wald statistic indicated that leader to juvenile offender ratio contributed to the prediction value of STAR completion, Wald = 6.81, $p = .009$. The parameter estimate for the predictor variable was B = -2.88. The odds ratio revealed that as the ratio of leader to juvenile offender increased, the likelihood of successfully completing the STAR program decreased. Thus, in groups in which the leaders were responsible for greater numbers of juvenile offenders, the likelihood of completion increased.

A regression analysis conducted using the GLM multivariate analysis option of SPSS 17 explored the effect of leader to juvenile offender ratio on change in self-reported anger for the 66 participants for whom the data were available. As shown in Table 31, leader to juvenile offender ratio did not predict change in any of the self-reported anger scores.

A second regression analysis conducted using the GLM multivariate analysis option of SPSS 17 explored the effect of juvenile offender to leader ratio on change in parent reported behaviours for the 55 participants for whom the data were available. As shown in Table 32, leader to juvenile offender ratio did not predict change in any of the parent reported behaviours. Thus, with the current data set there was no evidence that smaller leader to juvenile offender ratios improved the amount of change observed over the course of intervention.

Table 31

Predictive Value of the Intervention Group Ratio of Leader to Juvenile Offenders on Changes in Self-Reported Anger Predictors for STAR Intervention Completion (n = 66)

	B	SE	*t*	*p*	η_p^2
Instrumental Anger Change	-2.18	4.71	-0.46	.65	.00
Reactive Anger Change	3.32	9.98	0.33	.74	.00
Anger Control Change	-13.64	8.15	-1.67	.10	.04
Total Anger Change	5.03	6.91	0.73	.47	.01

Table 32

Predictive Value of the Intervention Group Ratio of Leader to Juvenile Offenders on Changes in Parent-Reported Behaviours for STAR Intervention Completion (n = 55)

Variable	B	SE	*t*	*p*	ηp2
Rule-Breaking Behavior Change	-5.24	6.67	-0.79	.44	.01
Aggressive Behavior Change	-1.90	9.28	-0.21	.84	.00
Social Problems Change	-2.33	9.08	-0.26	.80	.00
Externalizing Problems Change	-2.37	6.71	-0.35	.73	.00
Total Problems Change	2.27	8.94	0.25	.80	.00
School Competence Change	-4.49	7.16	-0.68	.53	.01

Hypothesis 2b: Completion of the STAR treatment program will result in better juvenile offender outcomes.

Juvenile offender outcome was measured with multiple informants. For many of the juvenile offenders who completed the STAR program, both self-reported pre- and post-intervention anger measures and parent-reported pre- and post-intervention behaviour measures were available. In addition, Oakland County Family Court records of juvenile offenses within the year after intervention provided an objective means of comparing STAR Completers to a non-completer Comparison group.

Changes over intervention. For both self-report and parent-report measures, paired-samples t-tests were conducted to examine changes over the course of the intervention. As shown in Table 33, there were significant changes in Anger Control and Total Anger over the course of treatment as well as a trend toward significant changes in Reactive Anger. There were no changes in Instrumental Anger over the course intervention. Paired-samples t-tests of parent report of pre- and post-intervention juvenile offender behaviours showed changes over the course of treatment for all behaviours (see Table 34). The greatest amount of change was reported in Total Problems followed by Externalizing Problems; the least amount of change was reported in Social Problems.

Recidivism analyses. As described at the introduction of the Main Analyses section, survival analysis consists of a set of analytical procedures, including Cox regression analysis, that allow for the examination of the relation between time and the variable of interest (Garson, 2008b; Nguyen, 2007). The Cox regression model is a semi-parametric model based upon the assumption of proportional hazards, which assumes that

Table 33

Juvenile Offender Self-Report Pre- and Post-Intervention AARS Anger Scales: Paired Samples and Differences (N = 71)

	Paired Samples		Paired Differences		
	Pre-Intervention Mean	Post-Intervention Mean	Mean	t	*p*
Instrumental Anger	46.76	46.49	0.27	0.51	.61
	(4.32)	(4.85)	(4.41)		
Reactive Anger	51.41	49.10	2.31	1.81	.07
	(9.73)	(7.88)	(10.73)		
Anger Control	48.80	52.35	-3.55	-3.31	.001
	(8.28)	(8.99)	(9.03)		
Total Anger	49.01	46.34	2.68	3.32	.001
	(6.97)	(6.62)	(6.80)		

Standard Deviations presented in parentheses

Table 34

Parent-Report Pre- and Post-Intervention CBCL Behavior Scales: Paired Samples and Differences (N = 69)

	Paired Samples		Paired Differences		
	Pre-Intervention Mean	Post-Intervention Mean	Mean	t	*p*
Rule-Breaking Behavior	60.99 (8.47)	57.93 (7.01)	3.06 (5.96)	4.27	<.001
Aggressive Behavior	61.99 (10.47)	57.75 (8.14)	4.23 (6.19)	5.68	<.001
Social Problems	57.30 (7.20)	55.04 (6.27)	2.26 (5.98)	3.14	.002
Externalizing Problems	60.41 (11.88)	55.51 (11.60)	4.90 (7.75)	5.25	<.001
Total Problems	57.88 (12.14)	52.67 (12.29)	5.22 (8.40)	5.16	<.001
School Competence	39.54 (9.22)	42.14 (8.80)	-2.61 (6.10)	-3.20	.002

Standard Deviations presented in parentheses

the hazard ratio remains constant over time (Garcon, 2008b). Because the results of Hypothesis 1 revealed that successful completion of the STAR intervention program was related to participants' pre-intervention Total Charges, Total Felony Charges, and Aggressive Behaviours, these three variables were entered into the Cox regression analysis as covariates utilizing the forward conditional model. One year recidivism rates were available for 124 participants who maintained their status as minors in the family court system in the one-year period following their completion of the STAR program and who were not placed into residential treatment during the intervention program. The elimination of any participant who was placed into treatment during the course of the intervention assured that none of the participants in the non-completion group failed to complete the intervention due to their placement in residential treatment. The data set consisted of 124 participants divided into STAR completers ($n = 88$) and STAR non-completers ($n = 36$).

The conditional forward Cox regression analysis with the covariates of pre-intervention Total Charges, Felony Charges, Aggressive Behavior, and the theoretical predictor variable of STAR completion resulted in a statistically significant, $\chi^2 = 9.17, p = .002$, omnibus test of the model coefficients, -2 Log Likelihood (416.41). However, only the predictor variable of STAR completion was entered into the model, with the predictor having a regression coefficient of .88 and a standard error of 0.30, Wald = 8.61, p = .003. Due to the recoding of the star completion variable, the positive odds ratio, B(Exp) = 2.41, indicated that at any given time the STAR non-completers were nearly 2 ½ times more likely to reoffend than were the STAR completers. See Figure 6 for a comparison of hazard functions for STAR completers and non-completers.

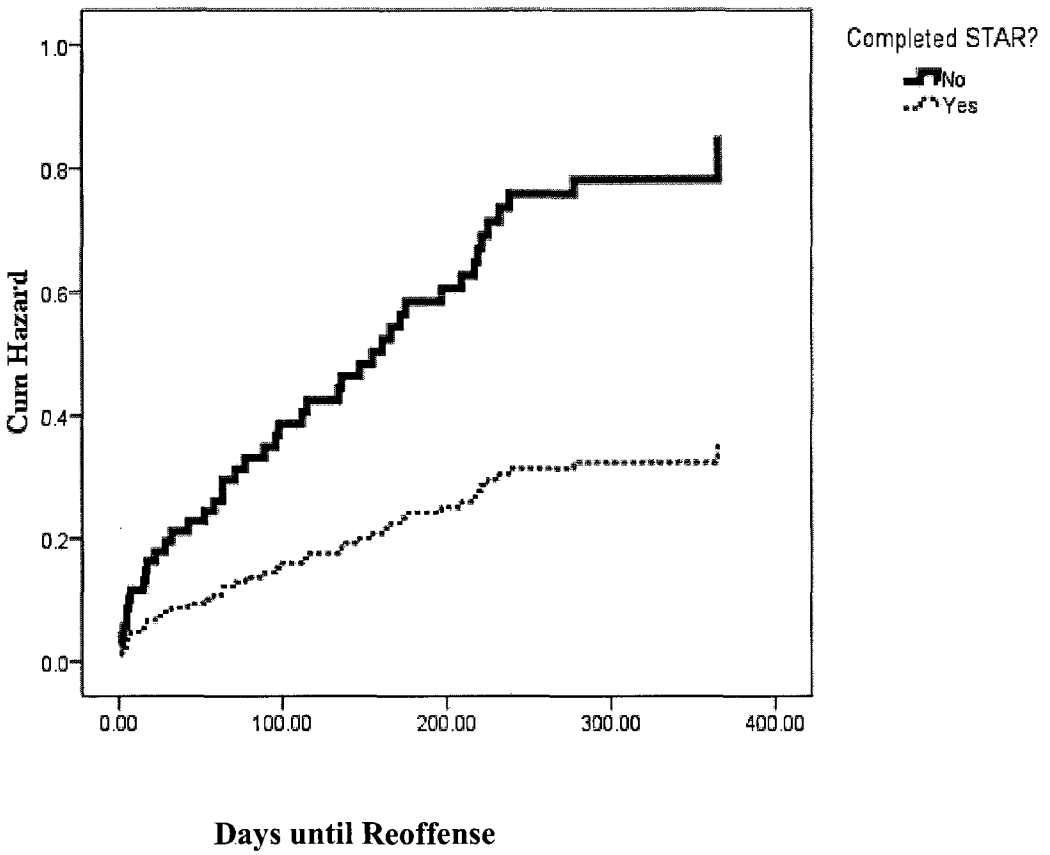

Figure 6: *Hazard Function of Reoffending for STAR Completers and Non-Completers (n = 124)*

The Kaplan-Meier survival analysis is a descriptive procedure that allows for the generation of tables and plots of survival and hazard functions for event history data (Garson, 2008). The Kaplan-Meier does not allow for the inclusion of covariates. Because the Cox regression indicated that the potential continuous data covariates were not contributing to the predictive value of the model, the data were reentered into Kaplan-Meier survival analysis as a means of obtaining a survival table for the STAR completer and non-completer groups.

As with the Cox regression model, the overall model (Mantel-Cox Log Rank) found significant differences between STAR completers and noncompleters recidivism rates, $\chi^2 = 9.20, p = .002$. The survival table calculated with the Kaplan-Meier analysis indicated that at the end of one year, 69.3 percent of the STAR completers had not reoffended, in contrast to 47.2 percent of the non-completers. Table 35 provides descriptive information of survival times.

As noted previously, 76 participants were excluded from the one year recidivism analyses because they had come of legal age within the year following intervention without reoffending in the family court system. Thus, to further explore recidivism rates, a second Kaplan-Meier analysis was conducted that included all participants who were minors and/or had accrued charges in the family court within the 90 days following the date of the intervention completion. As with the 365 days analyses, participants who were placed into custody during the course of treatment were eliminated from the dataset.

By reducing the recidivism date from 365 days to 90 days, the dataset increased from 124 total participants to 181, with 128 participants who completed the STAR program and 53 who did not. At 90 days after the date of STAR completion, 93.8 percent

Table 35

Description of Survival Time in Days for STAR completers and Non-completers

	Mean Estimate	Standard Error	95% CI
STAR Non-Completers	202.86	26.67	150.59 – 255.13
STAR Completers	302.72	11.96	279.28 – 326.15
Overall	273.73	12.21	249.79 – 297.66

of the STAR completers had not yet reoffended. In contrast, 77.4 percent of the non-completers comparison group had not yet reoffended. As with the 365 day recidivism analysis, the overall model (Mantel-Cox Log Rank) found significant differences between STAR completers and noncompleters recidivism rates, $\chi^2 = 10.62, p = .001$. Thus, the consistency in findings at 90 days and 365 days indicates that individuals who complete the STAR intervention program are less likely to reoffend within the year after intervention than are those participants who do not complete the program.

Hypothesis 2c: Parents' completion of the CHOICE program will result in better outcome for juvenile offenders.

A conditional forward Cox regression analysis was conducted with pre-intervention Total Charges and Felony Charges entered as potential covariates along with the dichotomous CHOICE completion as the predictor variable. Participants categorized as STAR completers were eliminated from the current data set, as were those for whom full one year recidivism data were unavailable due to graduation out of the family court system and those who were placed in residential treatment during the course of intervention. The resultant participant pool consisted of 35 participants who did not experience any intervention (Comparison) and 63 participants whose parents successfully completed the CHOICE program.

The omnibus test of model coefficients found significant differences, -2 Log Likelihood (333.69) for a two step model with pre-intervention Total Charges entered on the first step and CHOICE intervention received on the second step, $\chi^2 = 26.11, p < .001$. Pre-intervention Felony Charges were not found to be a significant contributor to the model, Rao score = 0.02, $p = .90$. The regression analysis resulted in a statistically

significant, $\chi^2 = 9.17$, $p = .002$, omnibus test of the model coefficients, utilizing Total Charges on the first step and Intervention Received on the second. The regression coefficient for the Total Charges was 0.25 with a standard error of 0.05, Wald = 21.73, <.001, and an odds ratio statistic, Exp(B) = 1.28. The odds ratio for the continuous variables indicates that the risk of reoffending at any time for an individual with an increase of 1 in the total number of pre-intervention charges increases by 28 percent. The regression coefficient for CHOICE intervention received (B = 0.77) also was significant, Wald = 5.66, p = .02, with an odds ratio of 2.17. Because the CHOICE intervention variable was recoded for analysis, the positive relation and odds ratio indicate that at any moment in time, the children of the non-completers were more than twice as likely to reoffend as were the juvenile offenders whose parents had completed the CHOICE program. Figure 7 displays the hazard functions taken at the mean of Total Charges for both CHOICE completers and non-completers over the course of the year following intervention. These data support the hypothesis that outcome would be better for juvenile offenders whose parents completed the CHOICE intervention program than for those whose parents did not.

Hypothesis 2d: Combining treatment programs will result in better juvenile offender outcomes than either adolescent or parental treatment alone.

A conditional forward Cox regression analysis was conducted with pre-intervention Total Charges entered as a potential covariate along with the Intervention Received as the predictor variable. As a categorical variable, Intervention Received was dummy coded with Combined treatment received as the reference category for the two single interventions (i.e., STAR, CHOICE). Participants who did not successfully

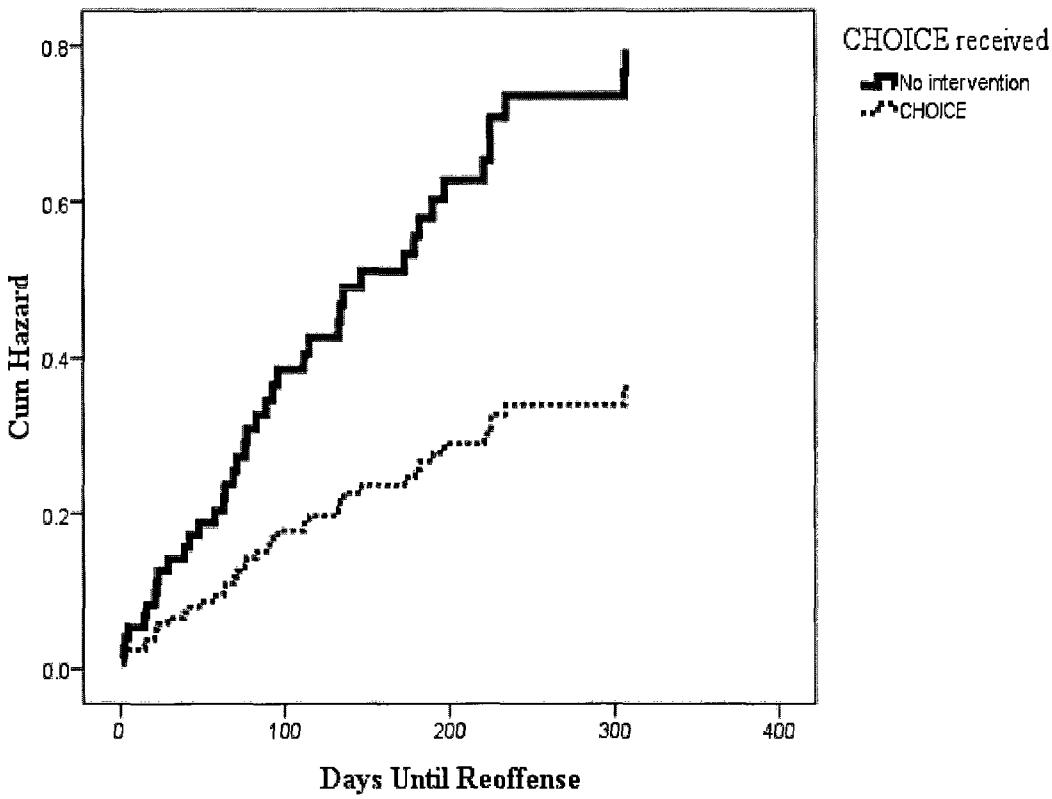

Figure 7: *Hazard Function of Reoffending for CHOICE Completers and Non-Completers (n = 98)*

complete any intervention were eliminated from the current data set, as were those for whom full one year recidivism data were unavailable due to graduation out of the family court system and those who were placed in residential treatment during the course of intervention. The resultant participant pool consisted of 64 STAR completers, 42 participants whose parents successfully completed CHOICE, and 20 participants who successfully completed both interventions Combined.

Although the omnibus test of model coefficients found significant differences, -2 Log Likelihood (408.54) for a one step model, $\chi^2 = 29.73, p < .001$, only total charges contributed to the predictive value of the model. With inadequate differences between intervention groups to predict significant differences in recidivism rates there were no observed differences between intervention groups for recidivism rates (see Table 36). Thus, with the current data set, it was not possible to conclude that combining the intervention programs significantly improved treatment outcome over either intervention program provided separately (see Figure 8).

Additional Analyses

Windell Social Skills Questionnaire for Teens (WSSQT). The Windell Social Skills Questionnaire for Teens (WSSQT) is a preliminary scale providing descriptive information of STAR participants' perceptions of their own social skills which, because it has not previously been shown to have validity and reliability, was not included in the main analyses portion of the current study. Analyses of internal consistency were excellent with a pre-intervention Cronbach alpha level of .94 and a post-intervention Cronbach alpha level of .91.

Table 36

Predictive Values of Treatment Received and Pre-Intervention Total Charges for Recidivism Rates up to 1Year after Intervention (n = 126)

Variable	β	SE	Wald	*p*	(Exp)β	95% CI for (Exp)β
Intervention Received			1.39	.50		
STAR compared to Combined	0.55	0.47	1.37	.24	1.73	0.69 – 4.36
CHOICE compared to Combined	0.34	0.47	0.54	.46	1.41	0.57 – 3.51
Total Charges	0.28	0.05	25.75	<.001	1.32	1.18 – 1.47

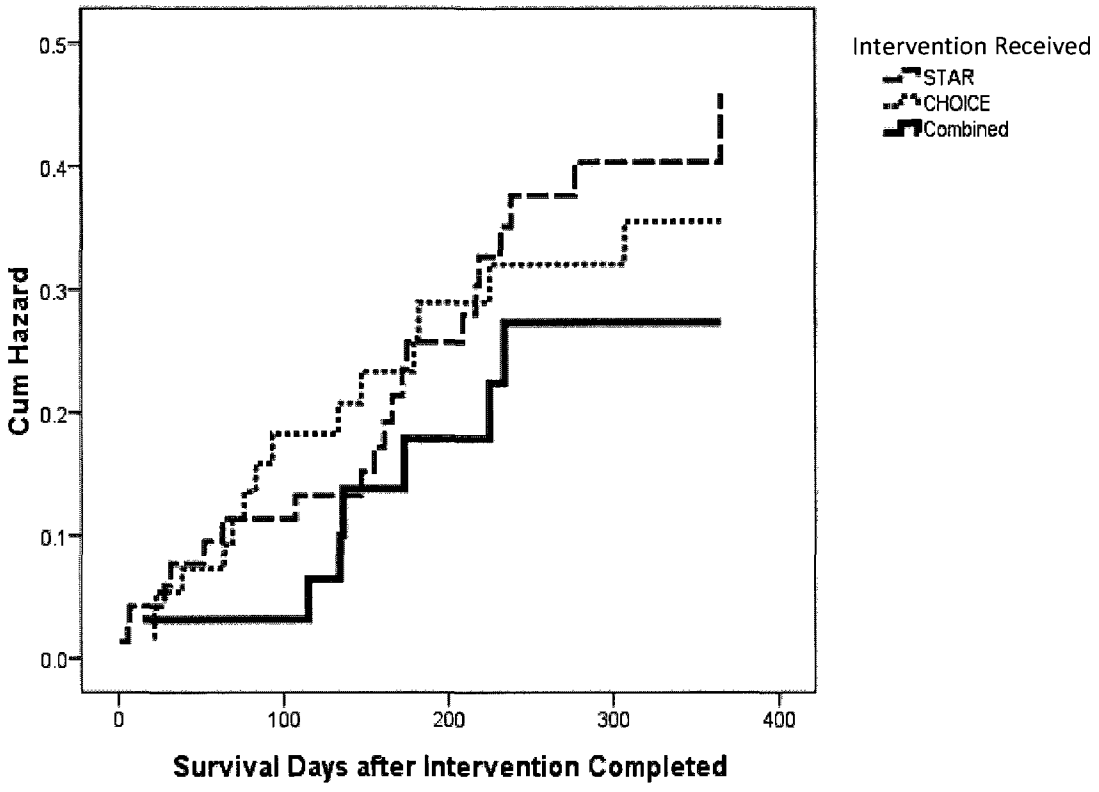

Figure 8: *Hazard Function of Reoffending at Mean of Covariates for STAR, CHOICE and Combined Treatments (n = 126)*

As a measure of the convergent validity of the WSSQT, the WSSQT pre-intervention total score was correlated with the parent-reported pre-intervention competency scales of the CBCL. As shown in Table 37, the juvenile offender-reported scale was positively related to all CBCL competency scores except for the Activities scale. These findings lend credence to the validity of the WSSQT as a measure of social skills in juvenile offenders.

As shown in Table 38, Pearson product correlation analyses indicated that juvenile offenders' WSSQT scores were related positively with socioeconomic status (r = .28, p = .005), age at first STAR session (r = .40, p < .001), age at first offense (r = .31, p = .002), and negatively related to friends on probation (r = -.30, p = .005). Thus, higher self-reported social skills were related to residences in higher median per capita income areas and later age at both first offense and intervention while those with higher self-reported social skills were less likely to report having a friend on probation.

A GLM multivariate test of the effects of pre-intervention WSSQT score on changes in self-reported anger was conducted. The test of overall model significance failed to show an effect, F (4, 48) = 1.19, p = .33, of the predictor variable on the total amount of anger change; however, there was a significant effect of pre-intervention WSSQT score on changes in Reactive Anger, F (4, 48) = 5.25, p = .03, (see Table 39). The predictor variable indicated that with increases in self-reported pre-intervention social skills there were decreases in the amount of reported Reactive Anger change (B = -.20, t = -2.17 p = .04).

A second GLM multivariate test of the effects of pre-intervention WSSQT score was conducted to examine the effect on changes in parent-reported behaviours over

Table 37

Correlations of the Pre-Intervention WSSQT with the Competency Scales of the Pre-Intervention CBCL[a]

	1	2	3	4	5
1. WSSQT	-	.17	.29**	.39***	.27*
2, CBCL Activities Competence		-	.30***	.30***	.80***
3. CBCL Social Competence			-	.21*	.71***
4. CBCL School Competence				-	.58***
5. CBCL Total Competence					-

Note: CBCL = Achenbach Child Behavior Checklist, WSSQT = Windell Social Skills Questionnaire for Teens

[a] *n*'s range from 83 to 142

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

Table 38

Correlations between Juvenile Offender Characteristics and Self-Report WSSQT[a]

Variables	1	2	3	4	5	6	7	8	9
1. Gender	–	-.01	.10	-.05	-.07	.18**	.23***	.06	.12
2. Ethnic Minority		–	-.22***	-.12	.12*	-.08	.12	-.05	.14
3. Socioeconomic Status			–	.23**	.18***	.09	.03	-.08	.28**
4. Age at 1st STAR Session				–	.83***	-.03	-.10	.10	.40***
5. Age at 1st Offense					–	-.11	.14	.09	.31**
6. Pre-Intervention Felony Charges						–	.57***	.14	.01
7. Pre-Intervention Total Charges							–	.01	.16
8. Friends on Probation								–	-.30*
9. WSSQT									–

Note: WSSQT = Windell Social Skills Questionnaire for Teens

[a]*n*'s range from 99 to 276

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

Table 39

Windell Social Skills Questionnaire for Teens as a Predictor of Changes in Self Reported Anger Predictors for STAR Intervention Completion (n = 53)

	B	SE	*t*	*p*	η_p^2
Instrumental Anger Change	-0.04	0.04	-0.80	.43	.01
Reactive Anger Change	-0.20	0.09	-2.17	.04	.08
Anger Control Change	0.08	0.09	0.87	.39	.02
Total Anger Change	-0.08	0.07	-1.18	.24	.03

intervention. The test of overall model significance failed to show an effect (F (4, 48) = 1.19, p = .33) for any of the parent-reported behaviours (Rule-Breaking Behavior Change, $F(1, 37) = 0.02$, p = .89; Aggressive Behavior Change, $F(1, 37) = 0.65$, p = .43; Social Problems Change, $F(1, 37) = 0.48$, p = .491; Total Problems Change, $F(1, 37) = 0.60$, p = .44; School Competence Change, $F(1, 37) = 0.40$, p = .53), although there was a trend toward significance for changes in Externalizing Problems, $F(1, 37) = 3.14$, p = .09.

A logistic regression with pre-intervention WSSQT score as the predictor variable and STAR completion as the outcome variable, utilizing only those participants who were not placed into residential treatment during STAR intervention (n = 101), indicated that pre-intervention WSSQT scores failed to predict successful program completion, B = -0.02, Wald = 0.94, p = .33. A linear regression with pre-intervention WSSQT score as the predictor variable and recidivism rates after STAR intervention also failed to show any relation between the two variables, with a Beta coefficient of 0.10 (t = 0.76, p = .45). Thus, while the WSSQT demonstrated excellent internal consistency and showed some relations to other juvenile offender characteristics, it failed to predict intervention outcome.

Court employee surveys. To gain additional insight regarding the future direction of intervention programs in the court systems, court employees were asked to share their opinions and observations regarding the relative importance of various juvenile offender and parent characteristics to successful treatment as well as their opinions regarding the importance of various intervention objectives. Responses were calculated on a scale of 0 to 3 (0 = not at all important, 1 = a little important, 2 = somewhat important, 3 = very

important). The responses were compiled and ranked in order of respondents' consensus value of each variable. Regarding the objectives of a court run juvenile offender group program, court employees who responded to the survey unanimously rated improved family relations as a very important goal. As shown in Table 40, increased Anger Control and reduced rule breaking behaviours also were highly valued objectives, both with mean scores of 2.73 out of 3. The goal of improved social skills gained some support, while increased emotional awareness and improved school performance were generally believed to be of less importance. Court employees also recommended that improved empathy, communication, and decision making skills would be valuable objectives to a court-run juvenile offender group program.

The respondents unanimously agreed that not every juvenile offender is a good potential candidate for a court-run juvenile offender group program. Table 41 reports the descriptive statistics of the importance that court employees placed on the juvenile offender characteristics that indicate that the juvenile is a good intervention candidate. The juvenile offenders' motivation for change was valued the most highly, followed closely by behavioural control and capacity for empathy. Little value was placed upon juvenile offenders' academic difficulties or socioeconomic status as being of importance for referral. Respondents were mixed in their opinions regarding the efficacy of assessing and labeling juvenile offenders as having psychopathic tendencies, but the majority (69.2 %) indicated that they did not endorse using the label.

Table 40

Importance Ratings of Court-Run Juvenile Offender Group Objectives by Court Employees (n = 26)

	Mean	Standard Deviation	Range
Increased Anger Control	2.73	0.45	2 - 3
Improved Social Skills	2.19	0.85	1 - 3
Increased Emotional Awareness	1.85	0.61	1 - 3
Reduced Rule-Breaking Behaviours	2.73	0.45	2 - 3
Improved School Performance	1.65	0.90	1 - 3
Improved Family Relations	3.00	0.00	3

Table 41

Importance Ratings of Juvenile Offender Program Participants' Characteristics by Court Employees (n = 26)

	Mean	Standard Deviation	Range
Intelligence Level	2.08	0.27	1 - 3
Socioeconomic Status	0.31	0.47	0 - 1
Parental Support	2.65	0.49	2 - 3
Academic Difficulties	1.50	0.71	0 - 2
Emotional Awareness	2.31	0.47	1 - 3
Behavioural Control	2.85	0.37	1 - 3
Impulsivity	2.58	0.50	1 - 3
Empathy	2.81	0.49	1 - 3
Motivation for Change	2.92	0.27	1 - 3
Substance Abuse	2.19	0.57	1 - 3

As shown in Table 42, the respondents unanimously agreed that improved discipline techniques, increased positive reinforcement of desired behaviours, improved communication, and improved family relations were very important goals of court-run group program for parents of juvenile offenders. Garnering slightly less support was the goal of increased emotional awareness.

Regarding referrals to a court-run parenting program, respondents were unanimous in their belief that not all juvenile offenders' parents are good potential candidates. Respondents were then asked to place value on both the parent and juvenile offender characteristics that are of importance in choosing good candidates for a court-run parenting program (see Table 43). The parent characteristics most valued included motivation for change, absence of substance abuse, and empathy. The juvenile offenders' motivation for change also was highly valued as an influencing characteristic in determining the potential goodness-of-fit for a parent participant in a court-run group program. Regarding the relation between substance abuse and outcome, one respondent added "the role of addiction/chemical dependency and the related family dynamics and behavioral patterns are often underestimated. ...It is difficult to address any other problems until the whole family is sober." Respondents were less likely to view family composition and socioeconomic status as playing roles of importance in determining good parenting program candidates. Nor did they believe that juvenile offender intelligence, impulsivity, or academic difficulties were of much value in choosing good candidates for a parenting program.

Table 42

Importance Ratings of Court-Run Group Program for Parents Objectives by Court Employees (n = 26)

	Mean	Standard Deviation	Range
Improved Discipline Techniques	3.00	0.00	3
Increased Use of Positive Reinforcement	3.00	0.00	3
Improved Communication Skills	3.00	0.00	3
Increased Emotional Awareness	2.64	0.49	1 - 3
Improved Family Relations	3.00	0.00	3

Table 43

Importance Ratings of Parenting Program Participant Characteristics by Court Employees (n = 26)

	Mean	Standard Deviation	Range
Parent Characteristics			
Intelligence Level	1.69	0.68	0 - 3
Socioeconomic Status	0.35	0.49	0 – 1
Marital Status	0.65	0.56	0 - 2
Emotional Awareness	2.12	0.33	1 - 3
Motivation for Change	2.96	0.20	2 - 3
Empathy	2.42	0.50	1 - 3
Substance Abuse	2.62	0.57	1 - 3
Juvenile Offender Characteristics			
Severity of Symptoms	2.58	0.58	1 - 3
Impulsivity	0.96	1.13	0 - 3
Intelligence Level	0.81	0.98	0 - 2
Academic Difficulties	0.58	0.76	0 - 3
Emotional Awareness	1.19	0.90	0 - 3
Behavioural Control	1.85	1.23	0 - 3
Empathy	1.46	0.95	0 - 3
Motivation for Change	2.04	1.34	0 - 3
Substance Abuse	1.73	1.22	0 - 3

CHAPTER IV

Discussion

The cost of juvenile delinquency to society is heavy. Finding and implementing effective and practical interventions benefits both the individual and the community. The first purpose of the current study was to gain an understanding of the characteristics that are likely to be related to intervention outcome. Based on previous research, it was hypothesized that the individual juvenile offender characteristics likely to be related to the intervention outcome would be gender, ethnicity, socioeconomic status, age, and peer group delinquency. While each of these characteristics was related to differences in juvenile offenders at the onset of intervention, they appeared to play little role in the outcome of treatment in the current sample.

The second purpose of the study was to explore the outcome of court-run interventions for juvenile offenders and their caregivers that are currently in place in the Oakland County Family Court. To do so, STAR intervention leader to juvenile offender ratios were examined in relation to outcome measures, juvenile offender recidivism rates were compared between intervention completers and non-completers for both the STAR juvenile offender group and the CHOICE parenting group, and the two intervention groups were compared to a combined intervention group with regard to juvenile offender recidivism rates. The results indicated that participants in both STAR and CHOICE had longer periods of time prior to reoffending than did those who did not complete the program. The analyses failed to show any significant differences between the type of intervention received and intervention outcome, however.

The following section reviews the contributions of the current study to the field of psychology with a focus on juvenile delinquency research and offers specific suggestions to the juvenile justice system for the implementation and oversight of programs designed to reduce juvenile delinquency. Included is an appraisal of the limitations of the current research and suggestions for future research.

The main goal of the current study was to increase knowledge of the individual characteristics that are likely be related to intervention outcome for juvenile offenders. The findings not only contribute theoretically to the general fields of psychology and criminal justice, but also have implications for applied practice. To best understand the findings, the following discussion is separated into sections that describe the relations observed between the various juvenile offender characteristics and the intervention program.

The role of gender in intervention. Previous research has found that females referred by the juvenile justice system for treatment report significantly more mental health symptomatology than do their male counterparts (Gavazzi, Bostic, Lim, & Yarcheck, 2008; Graves, Frabutt, & Shelton, 2007). At pre-intervention, the females in the current study reported higher Instrumental, Reactive, and Total Anger and lower Anger Control than did their male peers. However, parents of females did not report behaviours that differed from the parent-report of male juvenile offenders. The female juvenile offenders entered the intervention program with fewer felony and total charges on average than did their male peers while differences in numbers of assault charges did not vary between genders.

Comparing responsiveness to the treatment program between male and female participants, neither gender was found to be more likely to complete the STAR intervention than the other, nor was gender related to recidivism rates. Over the course of intervention, there were no significant differences in mean changes in self-reported anger; nor were there significant differences in the parent-report of changes in behaviours over the course of intervention. Nor were there differences by gender in intervention completion or recidivism rates. Thus, the male and female juvenile offenders in this sample entered into intervention with distinct profiles and exited the program with having experienced similar treatment responses.

The role of ethnicity in intervention. The US Census statistics (US Census Bureau; Census 2000) report that 81 percent of Oakland County residents are of European-American descent and 16.4 percent are Minority-Americans (9.9 percent African-American, 4 percent Asian, and 2.5 percent Hispanic). Consistent with the national trend for Minority-Americans to be overrepresented in the juvenile justice system (Puzzanchera, 2009; Leiber, 2002), Minority-American juvenile offenders were disproportionately represented (43.1 percent) as compared to Oakland County demographics.

Ethnicity was associated with lower socioeconomic status; thus the findings should be interpreted with the knowledge that one factor might influence the other. Minority-American juvenile offenders were more likely to have been younger at the age of first offense and age at intervention. Consistent with the findings of Vaughn and colleagues (2008), Minority-American juvenile offenders were more likely to have accrued felony charges and to have been charged with a crime against persons than were

the juvenile offenders of European-American descent. Pre-intervention self-report data from the adolescents also indicated that juvenile offenders of ethnic minority backgrounds reported lower pre-intervention Anger Control than their European-American peers.

Regarding intervention outcome, Minority-Americans made up the majority of the non-completers with a trend toward significant differences in completion rates by ethnicity; however, there were no significant differences in recidivism rates. Over the course of intervention, there were no observed differences between European-American and Minority-American juvenile offenders in reported changes of anger or behaviours. Thus, while the juvenile offenders of ethnic minority appeared to enter the intervention with greater delinquency symptoms, there was little evidence that there were differences in outcome.

The role of socioeconomic status in intervention. Court employees who completed the survey indicated that socioeconomic status should play little role in the selection of intervention candidates. Previous research has found mixed results when exploring the relation between socioeconomic status and juvenile delinquency (Caspi et al, 1993; Loeber et al., 2001). As noted previously, juvenile offenders of ethnic minority backgrounds were more likely to live in areas with lower median income than their peers of European-American descent. Additionally, lower socioeconomic status was related to lower self-reported social skills, earlier age at first offense and age at intervention; while higher socioeconomic status was associated with higher parent-reported pre-intervention school competency ratings.

Despite the differences in pre-intervention variables associated with juvenile offenders' socioeconomic status, there were no differences in intervention outcome, with socioeconomic status playing no observable role in intervention completion or recidivism rates. Nor was socioeconomic status associated with changes over intervention. Thus, despite the indication that lower socioeconomic status might put juveniles at risk for greater and earlier onset of delinquency, these juvenile offenders appear to respond to intervention as well as their higher socioeconomic status peers.

The role of age in intervention. In the current sample, the juvenile offenders whose parents were referred to CHOICE were younger at the time of their first court contact and at the time of referral than were STAR referral participants. It seems likely that with younger children, Court personnel perceived parents as being of greater importance in the juvenile offenders' intervention than with older children. This would be consistent with the theory that parent-based interventions are likely to have greater impact on younger rather than on older adolescents who generally are more socially independent and less likely to rely predominantly upon their parents for guidance and support (McCart et al., 2006). Consistent with this theory was the positive relation between age and self-reported social skills.

Preliminary analyses revealed an association between both age of first offense and age of intervention with all parent-reported behaviours. Overall, the relations indicated that parents of younger children reported more significant pre-intervention problematic behaviours than did parents of older children. This is consistent with previous research that indicates earlier offenders are more likely to be of the more severe type (Frick &

Loney, 1999; Loeber, 1991; Moffit, 1993; Patterson et al., 1998; Piquero & Chung, 2001; Robins, 1966).

Also observed was a negative relation between participant age at intervention and self-reported changes in Reactive Anger, with less change reported as age increased. Reactive anger often results in impulsive aggressive responses that often are followed by remorse and regret (Karnik & Steiner, 2007). Changes in Reactive Anger are a primary objective of the STAR intervention program, in which one focus is teaching the juvenile offenders to stop and assess the situation before responding. Because there were no observed relations between age factors and pre-intervention anger, one plausible explanation for the relation between age and changes in Reactive Anger might be that the younger juvenile offenders are more receptive to adopting new learned responses to aggressive behaviours. Neither age at intervention nor age at first offense was found to affect the likelihood of STAR completion nor was either related to recidivism rates.

Peer influence: Deviancy training. Previous research has provided evidence that affiliation with deviant peers is a strong predictor of adolescent delinquency (Dishion & Andrews, 1995; Dishion et al., 1997; Elliott & Menard, 1996; Kendal, 1978; Moss et al., 2003; Patterson, Capaldi, & Bank, 1991). Juvenile offenders who reported having one or more friends on probation comprised 46.9 percent of the current population. Analyses revealed no association between having friends on probation and any of the other examined juvenile offender characteristics with the exception of an observed negative relation between self-reported social skills and report of having one or more friend on probation.

Juvenile offenders who reported having at least one friend on probation were more likely to report having higher pre-intervention instrumental and total anger. Although some trends were noticed, there were no observed relations between reported friends on probation and completion rates, changes in self-reported anger, changes in parent-reported behaviors, or recidivism rates.

Pre-intervention charges. As noted earlier, both gender and ethnicity were associated with higher rates of pre-intervention charges. Male juvenile offenders had more felony and total charges than did females, while Minority-American juvenile offenders were more likely to have higher rates of felony offenses and assault charges. There also was a relation between pre-intervention total charges and pre-intervention self-reported Anger Control with juvenile offenders with more total offenses reporting higher rates of pre-intervention Anger Control.

Pre-intervention charges were found to be predictive of successful STAR intervention completion. An unusual finding was observed, however, regarding the direction of the findings. While the likelihood of successfully completing STAR decreased with the number of total pre-intervention charges, the likelihood of successful completion increased with the number of pre-intervention felony charges. Speculation leads to the inquiry of whether juvenile offenders with felony charges might be facing greater consequences if they should fail to adhere to their probation recommendations. While this is one possible explanation for the unexpected findings, the current data do not provide sufficient information to explore this possibility. While total pre-intervention charges were predictive of recidivism rates for juvenile offenders whose parents

completed the CHOICE program, pre-intervention charges were not predictive of recidivism rates after STAR.

Beyond exploring the role of juvenile offender characteristics in intervention outcome, the current study aimed to examine the effectiveness of the intervention programs run by Oakland County Family Court personnel as a means of addressing juvenile delinquency. The following sections review the findings regarding the court run anger management program, STAR, and the parenting program, CHOICE. In addition, for the Combined group that had both adolescent participation in STAR and parent participation in CHOICE, the results of the combined intervention are explored. Based upon the findings, recommendations for intervention are advanced.

STAR intervention program. The STAR intervention program currently is run at three locations in Oakland County, Michigan. Preliminary analyses explored potential group differences by location, finding that median per capita income varied by location, as did the mean size of the group, the mean number of leaders, and the mean number of participants. The STAR intervention groups varied in size and leader to juvenile offender ratios. The mean ratio was 0.26, just over four juvenile offenders for every group leader, with a range from 0.08 to 1.00. Despite the hypothesis that juvenile offenders who attended STAR intervention groups with higher leader to juvenile offender ratios would have better outcome, juvenile offenders who attended groups with smaller leader to juvenile offender ratios were more likely to complete the program. It is possible that smaller ratios led to greater camaraderie between juvenile offenders, which encouraged continued attendance. There were no observed differences in recidivism rates. Although there were no groups with more than 12 participants per leader, despite cautions against

the potential for deviancy training (Dishion et al., 1997), the current findings indicate that the participants might benefit from the support provided with the larger group size.

As a whole, STAR intervention completers and their parents reported significant improvements over the course of intervention. For self-reported anger, changes were in the direction of increased Anger Control. Thus, juvenile offenders are reporting that they have incorporated some of the objectives of the intervention program into their emotional response style.

Parents of STAR intervention completers also reported significant improvements in juvenile offenders' behaviours over time. The least amount of change was observed in social problems and school competency. Greater changes were reported for aggressive, externalizing, and total problems. Thus, it appears that parents observed greater decreases in disruptive, acting-out behaviours than they did in interpersonal problems and academic performance. Because STAR's primary focus is improving behavioural control and impulsive responses to anger-inducing stimuli, the pattern of observed behaviour changes seems consistent with the program's objectives.

Because the current study did not have a randomly assigned control group, STAR non-completers who were not placed into residential treatment facilities during the course of intervention were utilized as a comparison to the STAR completers in an examination of recidivism up to one year after the date of planned treatment completion. The differences in outcome were considerable, with STAR completers less likely to reoffend in the following year and having longer times until reoffense. One year after intervention, nearly seven out of 10 STAR completers had not accrued any additional charges in contrast to the nearly one in two non-completers who had not reoffended.

STAR completers remained in the community without accruing additional charges a mean of nearly 100 days longer than their non-completing peers. The differences in likelihood of reoffending were greatest between the two groups in the first one hundred days after intervention completion. These differences are consistent with the STAR completers' self- and parent- report of increased anger control and decreased aggressive and externalizing behaviours.

CHOICE intervention program. The current data set of 281 participants contained 107 CHOICE referred parent participants, 62 of whom had juvenile offender children who were not referred to STAR and 45 of whom were referred to both treatment groups. Those referred to the CHOICE-only group were considerably more likely to successfully complete the treatment recommendations than were the juvenile offenders referred to STAR and those referred to both interventions. The juvenile offenders whose parents were referred to CHOICE were younger at the age of first offense and age at intervention than were the juvenile offenders with STAR-only referrals.

Comparisons of completion groups indicated that the CHOICE completion group consisted of fewer Minority-American juvenile offenders than did the STAR, Combined or Comparison groups. The CHOICE completion group consisted of parents of juvenile offenders who were a mean 0.65 years younger at the age of first offense than were the juvenile offender STAR completers.

Comparing juvenile offenders whose parents completed CHOICE with those juvenile offenders who did not complete intervention indicated that both total pre-intervention charges and CHOICE intervention successfully predicted outcome. As pre-intervention charges increased, the likelihood of reoffending also increased, with an odds

ratio indicating a 25 percent increased likelihood with each additional charge. Parents who successfully completed the CHOICE group, however, had juveniles who were more than twice as likely to survive the year after intervention without reoffending. The findings provide preliminary evidence of the effectiveness of the CHOICE program in reducing recidivism rates in juvenile offenders.

Combined treatment intervention. Previous research supports the hypothesis that combining problem-solving skills training for children with parent management training generally improves outcome over either treatment individually (Kazdin, 2003). As a result, it was hypothesized that combining the STAR intervention program with the parenting intervention, CHOICE, would result in better outcome than either program alone. For the current study, recidivism rates did not vary, however, between any of the three treatment options (STAR, CHOICE, or Combined). It is possible that the failure of the combined intervention to add to the average length of recidivism rate might be related to the age of the participants in the current group. Kazdin and Wassell (2000) reported large treatment effects for child behaviour change for a combined treatment intervention for children ages 7 to 14 and their parents. The current group consisted of older children, with a mean age of 15 years. It is possible that with older children the additive effects of including parenting interventions with the child interventions are diminished.

Multisystemic Therapy (MST), a combined treatment approach that effectively addresses delinquent behaviours, seeks additional support not only from other family members, but also from friends and community members to further aid in intervention. Perhaps in order to increase the length of time before recidivism rates above those

observed with either STAR or CHOICE alone, a combined intervention program would need to incorporate community support for reduced delinquency.

Limitations of the current study. The American Psychological Association (APA) Division 12 Task Force (Chambless et al., 1996) and the Blueprints program established at the University of Colorado's Center for the Study and Prevention of Violence in conjunction with the Colorado Division of Criminal Justice (Elliott, 2000) both have established and disseminated criteria for identifying promising interventions.

To determine the efficacy of a treatment intervention, the APA Division 12 Task Force requires that independent studies must be conducted with nonrandomized treatment and comparison groups. The sample must be clearly specified and described, and a treatment manual, which might allow for ease of treatment adherence and replication, while not required, is preferred (Lonigan et al., 1998). Similar to the requirements of the APA Division 12 Task Force, the Blueprint program established evaluation standards for identifying effective violence prevention programs including a strong research design with random assignment, low participant attrition, and adequate measurement of outcome that is conducted with quality, consistency, and timeliness. The program should evidence deterrent effects for delinquency, drug use, or violence over a sustained period of time and should be replicated at multiple sites (Elliott, 2000).

The use of archival data in the current study provided the opportunity to examine a large number of juvenile offenders over a relatively long period of time, but also limited the research design. Participant groups were pre-formed and not randomly assigned, with no measure or control for community-based intervention services that might have been obtained simultaneously or subsequent to court-ordered treatment. The non-random

selection was especially problematic regarding the comparison group that consisted of self-selected non-completing participants, with no measure or control for potential interventions received outside of the court system. As a result, the observed differences between STAR and CHOICE intervention completers and non-completers cannot be attributed to the intervention without the caveat that it might be the result of an unidentified predictor that differed between groups. Weisz and Weiss (1989) have argued that because children who drop out of treatment often have negligible differences from those who complete treatment, the use of intervention noncompleters as a comparison group, although not ideal, might be an acceptable alternative.

The use of archival data also resulted in a dataset that contained missing data. As a result, the number of participants varied for each analysis. The reduced group sizes limited the power of the analyses and prohibited an exploration of interaction effects (Cohen, 1992). Additionally, with the current sample, there were some measurable differences between treatment groups. For example, compared to STAR completers, noncompleters had more total charges while age differences were observed between STAR and CHOICE groups. While steps were taken to identify and control for any pre-intervention group differences, there were some areas in which potential predictor variables were either not measured or possibly insufficiently measured. For example, despite recognition of the importance of peer groups in delinquent behaviour, the ability to accurately measure peer delinquency in the dataset was limited. A subset of participants reported information regarding whether any of their friends were on probation, but the capacity of this information to discriminate between juvenile offenders with delinquent and non-delinquent peer groups is unknown.

Also problematic was the index used to measure socioeconomic status. While median per capita income based on residency was used as a mean of approximating the juvenile offenders' socioeconomic status, Hollingshead (1975) cautions that residency data is an inadequate predictor of the nuclear family's socioeconomic status. Hollingshead recommended a four factor model in which education, occupation, sex, and marital status are identified and an aggregate score calculated. Unfortunately, the dataset failed to provide sufficient information to calculate socioeconomic status according to Hollingshead's model.

While some predictors might have been inadequately measured, other potential predictors were not measured at all. This was especially problematic for those variables pertaining to juvenile offenders' parents, for whom little information was available. The current dataset provided no information on parent demographics or parenting styles. Therefore, while parental factors such as parental antisocial behaviour, unemployment, and criminality, as well as parenting-style factors such as inconsistent disciplinary practices, poor family management practices, harsh disciplinary practices, child maltreatment, low levels of parental involvement, and parent-child separation (DeMatteo & Marczyk, 2005; Fergusson & Horwood, 1999; Hawkins et al., 2000; Heaven et al., 2004; Moore, Pauker, & Moore, 1984; Patterson, 1993) all have been shown to affect juvenile delinquency, none of these were included in the data analyses. Despite court employee survey respondents' expressed belief that juvenile offenders and parents' substance abuse and motivation for change are likely to influence intervention outcome, the dataset also failed to measure these factors.

In addition to potential contributing factors that might have gone unrecognized in the current data set, there also were potential outcome variables that were not explored. For example, Court employee survey respondents recommended that court-run juvenile offender programs focus on improved family relations, reduced rule-breaking behaviours, and increased Anger Control. The STAR intervention program currently focuses on improving juvenile offenders' emotional awareness, increased behavioural controls, and reduced aggression. Family relations are a secondary focus, theorized to improve in response to improved juvenile behaviours. Curtis and colleagues (2004), however, warn that treatments that focus solely on juvenile offender behaviours run the risk of exacerbating problems in family relations if the juvenile's acting-out is serving as a uniting force in the family system. Because the current research did not measure family functioning, it is impossible to calculate what if any impact improvements in the juvenile offender's behaviours had on the family system.

Psychometrically, the use of repeated administrations of the same measures as a way of identifying and quantifying change over intervention has limitations. With repeated measures, it is common for extreme data variables to drift toward the population mean, a phenomenon known as *regression toward the mean* (Krause, 2009). When the participants are motivated to appear to have benefited from the intervention, as likely is the case with juvenile offenders on probation and their parents, there is the potential for over-reporting of improvement. With the current dataset, the failure of the juvenile offender- and parent-reported changes to demonstrate a relation to post-intervention recidivism rates further calls into question the true measure of the usefulness of the

intervention. Thus, the reported changes over intervention should be interpreted with caution.

There was no evidence in the current sample to support the hypothesis that combining treatment interventions would result in better outcome for juvenile offenders. Kazdin and Wassell (2000) reported large treatment effects for child behaviour change for a combined treatment intervention for children ages 7 to 14 and their parents. It is possible that with the current group, whose ages ranged from 9 to 18, with a mean of 15 years 7 months, the additive effects were insufficient. It also is possible that the size of the participant groups was insufficient to reveal smaller differences.

Multisystemic therapy, a form of wrap-around treatment providing services that focus on the individual, family, peers, school, and community (Henggeler, Melton, & Smith, 1992) has garnered considerable notice as an empirically supported treatment for delinquency that is efficacious in reducing delinquent behaviours and improving family relations (Burns et al., 1999; Farrington & Welsh, 1999; Karnik & Steiner, 2007; Kazdin & Weisz, 1998; van der Merwe & Dawes, 2007). For the current study, perhaps the combined treatments' failure to adequately address the roles of peers, school, and community in the successfulness of the interventions contributed to the lack of an observed difference from the separate treatments.

Directions for future research. Although the research findings were promising, further research would allow greater understanding of the relations between juvenile offender characteristics and court-run intervention programs. A follow-up study in which juvenile offenders are randomly assigned to treatment or a wait-list control group would eliminate many of the limitations of the current study. Including measures to explore the

role of parenting variables, substance abuse, and motivation for change likely would add insight and potential explanations of observed variance in outcome.

There were significant differences in several areas between the female and male juvenile offenders. With an increased presence of females in the family court system, future research that expands comparisons between the genders for both pre-intervention and outcome variables would add valuable information for successful application of treatment.

Also of interest were indications that Minority-American juveniles might be at greater risk of delinquency at an earlier age than their European-American peers. Additionally, Minority-Americans are disproportionately represented in the juvenile justice system. It is, therefore, of great importance to meet the needs of the participants, including minimizing possible deterrents to successful treatment interventions (e.g., change of residency, lack of transportation, parental resistance). Doing so might allow for some practical adaptations that improve treatment efficacy.

An unexpected and surprising finding was the difference in directions of effects of pre-intervention felony charges and total charges on treatment completion, with increases in pre-intervention felony charges being predictive of STAR completion while increases in total pre-intervention charges were predictive of failure to complete the STAR intervention program. While it is possible that juvenile offenders with felony charges might be incurring more pressure to adhere to the terms of intervention with greater consequences for failure, this was speculation. Additional studies that attempt to account for external pressures for compliance would help to clarify this unexpected finding.

In conclusion, despite limitations of the research, the results indicate that both court-run adolescent focused anger management and parent-focused parenting groups are associated with reductions in juvenile offender delinquency. Juvenile offender characteristics were found to be predictive of some changes over intervention in self-reported anger and parent-reported behaviours. With the exception of the number of charges juvenile offenders had accrued prior to intervention, however, there appeared to be few differences between juvenile offenders in their response to treatment as measured by the treatment completion and rates of recidivism. While not conclusive, the results indicate that a broad range of juvenile offenders have the potential to benefit from court-run intervention.

References

Achenbach, T. M. (1991). *Manual for the Child Behavior Checklist/4-18 and 1991 profile.* Burlington, VT: University of Vermont, Department of Psychiatry.

Agnew, R. (1985). A revised strain theory of delinquency. *Social Forces, 64(1),* 151-167.

Agnew, R. (2001). Building on the foundation of general strain theory: Specifying the types of strain most likely to lead to crime and delinquency. *Journal of Research in Crime and Delinquency, 38(4),* 319-361.

American Psychiatric Association (1987). *Diagnostic and Statistical Manual of Mental Disorders, Third Edition, Revised.* Washington, DC: American Psychiatric Association.

American Psychiatric Association (2000). *Diagnostic and Statistical Manual of Mental Disorders, Fourth Edition, Text Revision.* Washington, DC: American Psychiatric Association

Ayers, C. D., Williams, J. H., Hawkins, J. D., Petterson, P. L., Catalano, R. F., & Abbott, R. D. (1999). Assessing correlates of onset, escalation, deescalation, and desistence of delinquent behavior. *Journal of Quantitative Criminology, 15(3),* 277-306.

Blair, R. J. R., Mitchell, D. G. V., Leonar, A., Budhani, S., Peschardt, K. S., & Newman, C. (2004). Passive avoidance learning in individuals with psychopathy: Modulation by reward but not by punishment. *Personality and Individual Difference, 37,* 1179-1192.

Boivin, M., Vitaro, F. & Poulin, F. (2005). Peer relationships and the development of aggressive behavior in early childhood. In R. E. Tremblay, W. W. Hartup & J. Archer (Eds.), *Developmental origins of aggression.* (pp. 376-397). New York, NY, US: Guilford Press.

Brestan, E. V., & Eyberg, S. M. (1998). Effective psychosocial treatments of conduct-disordered children and adolescents: 29 years, 82 studies, 5,272 kids. *Journal of Clinical Child Psychology, 27(2),* 180-189.

Burney, D. M. (2001). *Adolescent Anger Rating Scale (AARS): Professional Manual.* Lutz, FL: Psychological Assessment Resources, Inc.

Burney, D. M., & Kromrey, J. (2001). Initial development and score validation of the Adolescent Anger Rating Scale. *Education and Psychological Measurement, 61(3),* 446-460.

Burns, B. J., Hoadwood, K., & Mrazek, P. J. (1999). Effective treatment for mental disorders in children and adolescents. *Clinical Child and Family Psychology Review, 2,* 199-254.

Cadoret, R. J., Yates, W. R., Troughton, E., Woodworth, G., & Stewart, M. A. (1995). Adoption study demonstrating two genetic pathways to drug abuse. *Archives of General Psychiatry, 52,* 42-52.

Capaldi, D. M., & Patterson, G. R. (1991). Relation of parental transitions to boys adjustment problems: I. A linear hypothesis. II. Mothers at risk for transitions and unskilled parenting. *Developmental Psychology, 27,* 489-504.

Capaldi, D. M., & Patterson, G. R. (1994). Interrelated influences of contextual factors on antisocial behavior in childhood and adolescence for males. In D. C. Fowles,

P. Sutker, & S. H. Goodman (Eds.), *Progress in experimental personality and psychopathology research* (pp. 165-198). New York: Springer.

Capaldi, D. M., & Stoolmiller, M. (1999). Co-occurrence of conduct problems and depressive symptoms in early adolescent boys: III. Prediction to young-adult adjustment. *Development and Psychopathology, 11,* 59-84.

Caspi, A., Elder, G. H., & Bem, D. J. (1987). Moving against the world: Life-course patterns of explosive children. *Developmental Psychology, 23,* 308-313.

Caspi, A., Lynam, D., Moffitt, T. E., & Silva, P. A. (1993). Unraveling girls' delinquency: Biological, dispositional, and contextual contributions to adolescent misbehavior. *Developmental Psychology, 29(1),* 19-30.

Center for the Study and Prevention of Violence (2006). *Blueprints fact sheet: Blueprints for violence prevention selection process.* Retrieved on August 5, 2009 from http://www.colorado.edu/cspv/publications/factsheets/blueprints/FS-BP01.pdf.

Chamberlain, P. (2003). Treating chronic juvenile offenders: Advances made through the Oregon multidemensional treatment foster care model. *Law and public policy.* Washington, DC: American Psychological Association.

Chamberlain, P., & Reid, J. B. (1994). Differences in risk factors and adjustment for male and female delinquents in treatment foster care. *Journal of Child and Family Studies, 3,* 23-39.

Chamberlain, P., & Smith, D. K. (2003). Antisocial behavior in children and adolescents: The Oregon multidimensional treatment foster care model. In A. E. Kazdin & J. R. Weisz (Eds.), *Evidence-based psychotherapies for children and adolescents* (pp. 282-300). New York: The Guilford Press.

Chambless, D. L., Sanderson, W. C., Shoham, V., Johnson, S.B., Pop[e, K.S., Crits-Cristoph, P., Baker, M., Johnson, B., Woods, S.R., Sue, S., Beutler, L., Williams, D.A., & McCurry, S. (1996). An update on empirically validated therapies. *The Clinical Psychologist, 49,* 5-18.

Chorpita, B.F., Yim, L.M., Donkervoet, J.C., Arensdorf, A., Amundsen, M.J., McGee, C., Serrano, A., Yates, A., & Morelli, P. (2002). Toward large-scale implementation of empirically supported treatments for children: A review and observations by the Hawaii Empirical basis to Services Task Force. *Clinical Psychology: Science and Practice, 9(2),* 165-190.

Chow, J. C. Jaffee, K., & Snowden, L. (2003). Racial/ethnic disparities in the use of mental health services in poverty areas. *American Journal of Public Health, 93(5),* 792-797.

Cleckley, H. (1976). *The mask of sanity* (5th ed.). St. Louis, MO: Mosby.

Colledge, E., & Blair, R. J. R. (2001). The relationship in children between the inattention and impulsivity components of attention deficit and hyperactivity disorder and psychopathic tendencies. *Personality and Individual Differences, 30,* 1175-1187.

Coordinating Council on Juvenile Justice and Delinquency Prevention (1996). *Combating violence and delinquency: The national juvenile justice action plan summary.* Retreived February 6, 2007, from http://www.ncjrs.gov/pdffiles/jjplansm.pdf.

Cohen, J. (1988). *Statistical power analysis for the behavioral sciences* (2nd ed.). Hillsdale, NJ: Lawrence Earlbaum Associates.

Cohen, J. (1992). A power primer. *Psychological Bulletin, 112 (1),* 155-159.

Cohen, M. A. (1998). The monetary value of saving a high-risk youth. *Journal of Quantitative Criminology, 14(1),* 5-33.

Craig, M. C., Catani, M., Deeley, Q., Latham, R., Daly, E., Kanaan, R., Picchioni, M., McGuire, K., Fahy, T., & Murphy, D.G.M. (2009). Altered connections on the road to psychopathy, *Molecular Psychiatry.* doi:10.1038/mp.2009.40.

Crick, N. R., & Dodge, K. A. (1996). Social information-processing mechanisms in reactive and proactive aggression. *Child Development, 67,* 993-1002.

Curtis, N. M., Ronan, K. R., & Borduin, C. M. (2004). Multisystemic treatment: A meta-analysis of outcome studies. *Journal of Family Psychology, 18(3),* 411-419.

Dandreaux, D. M., & Frick, (2009). Developmental pathways to conduct problems: A further test of the childhood and adolescent-onset distinction. *Journal of Abnormal Child Psychology, 37(3),* 375-385.

Danforth, J. S., Harvey, E., Ulaszek, W. R., & McKee, T. E. (2006). The outcome of group parent training for families of children with attention-deficit hyperactivity disorder and defiant/aggressive behavior. *Journal of Behavior Therapy and Experimental Psychiatry, 37,* 188-205.

DeMatteo, D. & Marczyk, G. (2005). Risk factors, protective factors, and the prevention of antisocial behavior among juveniles. In K. Heilbrun, N. E. Sevin Goldstein, &, R. E. Redding (Eds.) *Juvenile Delinquency: prevention, assessment, and intervention* (pp. 19-44). New York: Oxford University Press.

Digman, J. M. (1990). Personality structure: Emergence of the five-factor model. *Annual Review of Psychology, 41,* 417-440.

Dishion, T. J. & Andrews, D. W. (1995). Preventing escalation in problem behaviors with high-risk young adolescents: Immediate and 1-year outcomes. *Journal of Consulting and Clinical Psychology, 66,* 139-151.

Dishion, T. J. & Dodge, K. A. (2005). Peer Contagion in interventions for children and adolescents: Moving towards an understanding of the ecology and dynamics of change. *Journal of Abnormal Child Psychology, 33(3),* 395-400.

Dishion, T. J., Eddy, J. M., Haas, E., Li, F., & Spracklen, K. (1997). Friendship and violent behavior during adolescence. *Social Development, 6(2),* 207-223.

Dishion, T. J., McCord, J., & Poulin, F. (1999). When interventions harm: Peer groups and problem behaviors. *American Psychologist, 54,* 755-764.

Dishion, T. J., Patterson, G. R., & Griesler, P. C. (1994). Peer adaptation in the development of antisocial behavior: A confluence model. In L. R. Huesmann (Ed.), *Aggressive behavior: Current perspectives* (pp. 61-95). New York: Plenum.

Dodge, D. A., & Coie, J. D. (1987). Social-information processing factors in reactive and proactive aggression in children's peer groups. *Journal of Personality and Social Psychology, 53,* 1146-1158.

Dodge, K. A., Lochman, J. E., Harnish, J. D., Bates, J. E., & Pettit, G. S. (1997). Reactive and proactive aggression in school children and psychiatrically impaired chronically assaultive youth. *Journal of Abnormal Psychology, 106*(1), 37-51.

Durlak, J. A., Fuhrman, T., & Lampman, C. (1991). Effectiveness of cognitive-behavior therapy for maladapting children: A meta-analysis. *Psychological Bulletin, 110,* 204-214.

Elliot, D. S. (2000). Editor's introduction. In D.S. Elliott (Ed.) *Blueprints for Violence Prevention: Book Three Functional Family Therapy* (pp. xi-xxi). Institute of Behavioral Science, Regents of the University of Colorado. Golden, CO: Venture Publishing.

Elliot, D. S., & Menard, S. (1996). Delinquent friends and delinquent behavior: Temporal and developmental patterns. In J. D. Hawkins (Ed.) *Delinquency and crime: Current theories* (pp. 28-67).Cambridge, UK: Cambridge University Press.

Elliott, D. S., Huizinga, D., & Menard, S. (1989). *Multiple problem youth: Delinquency, substance use, and mental health problems.* New York: Springer-Verlag.

Essau, C. A., Sasagawa, S. & Frick, P. J. (2006). Callous-unemotional traits in a community sample of adolescents. *Assessment, 13(4),* 454-469.

Eyberg, S. M., Nelson, M. N., & Boggs, S. R. (2008) Evidence-based psychosocial treatments for children and adolescents with disruptive behavior. *Journal of Clinical Child & Adolescent Psychology, 37(1),* 215-237.

Farrell, A. D., & Flannery, D. J. (2006). Youth violence prevention: Are we there yet? *Aggression and Violent Behavior, 11,* 138-150.

Farrington, D. P., Gallagher, B., Morley, L., St. Ledger, R., & West, D. J. (1990). Minimizing attritional in longitudinal research: Methods of tracing and securing cooperation in a 24-year follow-up study. In D. Magnusson & L. Bergman (Eds.), *Data quality in longitudinal research* (pp. 122-147). Cambridge: Cambridge University Press.

Farrington, D. P., & Welsh, B.C. (1999). Delinquency prevention using family-based interventions. *Children and Society, 13,* 287-303.

Farrington, D. P., & Welsh, B.C. (2003). Family-based prevention of offending: A meta-analysis. *Australian and New Zealand Journal of Criminology, 36,* 127-151.

Farrington, D. P., & West, D. J. (1993). Criminal, penal and life histories of chronic offenders: Risk and protective factors and early interventions. *Criminal Behaviour and Mental Health, 3(4),* 492-523.

Feindler, E. L. (1987). Clinical issues and recommendations in adolescent anger-control training. *Journal of Child & Adolescent Psychotherapy, 4(4),* 267-274.

Feindler, E. L., Ecton, R. B., Kingsley, D., & Dubey, D. R. (1986). Group anger-control training for institutionalized psychiatric male adolescents. *Behavior Therapy, 17(2),* 109-123.

Feindler, E. L., Marriott, S. A., & Iwata, M. (1984). Group Anger Control training for junior high school delinquents. *Cognitive Therapy and Research, 8(3),* 299-311.

Feindler, E.L. & Scalley, M. (1998). Adolescent anger-management groups for violence reduction. In K.C. Stoiber & T. R. Tratochwill (Eds.) *Handbook of group intervention for children and families* (pp. 100-119). Needham Heights, MA: Allyn & Bacon.

Fergusson, D. M. & Horwood, L. J. (1999). Prospective childhood predictors of deviant peer affiliations in adolescence. *Journal of Child Psychology and Psychiatry, 40(4),* 581-592.

Fergusson, D. M. & Horwood, L. J. (1999). Prospective childhood predictors of deviant peer affiliations in adolescence. *Journal of Child Psychology and Psychiatry, 40(4),* 581-592.

Feld, B.C. (2009). Violent girls or relabeled status offenders? An alternative interpretation of the data. *Crime and Delinquency, 55(2),* 241-265.

Fischer, P.A., & Chamberlain, P. (2000). Multidemensional treatment foster care: A program for intensive parenting, family support, and skill building. *Journal of Emotional & Behavioral Disorders, 8,* 155-164.

Fonagy, M., & Kurtz, Z. (2002). Disturbance of conduct. In P. Fonagy, M. Target, D. Cottrell, J Phillips, & Z. Kurtz (Eds.), *What works for whom? A critical review of treatments for children and adolescents* (pp. 106-192). New York: Guilford Press.

French, M.T., Zavala, S. K., McCollister, K. E., Waldron, H. B., Turner, C. W., & Ozechowski, T. J. (2008). Cost-effectiveness analysis of four interventions for adolescents with substance use disorder. *Journal of Substance Abuse Treatment, 34(3),* 272-281.

Frick, P. J. (1993). Childhood conduct problems in a family context. School Psychology Review, 22,376-385.

Frick, P. J. (1998). *Conduct disorders and severe antisocial behavior.* New York: Plenum Publishing Corporation.

Frick, P. J., Cornell, A. H., Barry, C. T., Bodin, S. D., & Dane, H. D. (2003). Callous-unemotional traits and conduct problems in the prediction of conduct problem severity, aggression, and self-report of delinquency. *Journal of Abnormal Child Psychology, 31(4),* 457-470.

Frick, P. J., & Loney, B. R. (1999). Outcomes of children and adolescents with oppositional defiant disorder and conduct disorder. In H. C. Quay & A. E. Hogan

(Eds.), *Handbook of disruptive behavior disorders.* (pp. 507-524). Dordrecht, Netherlands: Kluwer Academic Press.

Frick, P. J., Stickle, T. R., Dandreaux, D. M., Farrell, J. M., & Kimonis, E. R. (2005). Callous-unemotional traits in predicting the severity and stability of conduct problems and delinquency. *Journal of Abnormal Child Psychology, 33(4),* 471-487.

Garland, D. (2001). *The culture of control: Crime and social order in contemporary society.* Chicago: University of Chicago Press.

Garson, G. D. (2008a) Cox Regression: Statnotes, from North Carolina State University, Public Administration Program. Retrieved June 20, 2009 from http://faculty.chass.ncsu.edu/garson/PA765/cox.htm.

Garson, G. D. (2008b) Event History Analysis (Survival Analysis): Statnotes, from North Carolina State University, Public Administration Program. Retrieved June 20, 2009 from http://faculty.chass.ncsu.edu/garson/PA765/event.htm

Garson, G. D. (2008c) Kaplan-Meier Survival Analysis: Statnotes, from North Carolina State University, Public Administration Program. Retrieved July 5, 2009 from http://faculty.chass.ncsu.edu/garson/PA765/kaplanmeier.htm

Garson, G. D. (2009a) Cox Regression: Statnotes, from North Carolina State University, Public Administration Program. Retrieved July 5, 2009 from http://faculty.chass.ncsu.edu/garson/PA765/cox.htm

Garson, G. D. (2009b) Logistic Regression: Statnotes, from North Carolina State University, Public Administration Program. Retrieved June 20, 2009 from http://faculty.chass.ncsu.edu/garson/PA765/logistic.htm

Garson, G. D. (2009c) Multivariate GLM & MANOVA: Statnotes, from North Carolina State University, Public Administration Program. Retrieved June 26, 2009 from http://faculty.chass.ncsu.edu/garson/PA765/manova.htm

Garson, G. D. (2009d) Univariate GLM, ANCVA, & ANCOVA: Statnotes, from North Carolina State University, Public Administration Program. Retrieved September 18, 2009 from http://faculty.chass.ncsu.edu/garson/PA765/anova.htm

Gavazzi, S. M. (2006). Gender, ethnicity and the family environment: Contributions to assessment efforts within the realm of juvenile justice. *Family Relations, 55,* 190-199.

Gavazzi, S. M., Bostic, .J. M., Lim, J.Y., Yarcheck, C. M. (2008). Examining the impact of gender, race/ethnicity, and family factors on mental health issues in a sample of court-involved youth. *Journal of Marital and Family Therapy, 34(3),* 353-368.

Gavazzi, M. R., Bostic, J. M., Lim, J., & Yarcheck, C. M. (2008). Examining the impact of gender, race/ethnicity, and family factors on mental health issues in a sample of court-involved youth. *Journal of Marital and Family Therapy, 34(3),* 353-368.

Goldstein, A. P., Glick, B., & Gibbs, J. C. (1998). *Aggression replacement training, revised edition: A comprehensive intervention for aggressive youth.* Champaign, IL: Research Press.

Gottfredson, M. R. (2005). Offender classifications and treatment effects in developmental criminology: A propensity/event consideration. *The Annals of the American Academy of Political and Social Science, 602,* 46-56.

Granic, I. & Patterson, G. R. (2006). Toward a comprehensive model of antisocial development: A dynamic systems approach. *Psychological Review, 113(1),* 101-131.

Graves, K. N., Frabutt, J. M., & Shelton, T. L. (2007). Factors associated with mental health and juvenile justice involvement. *Youth Violence and Juvenile Justice, 5(2),* 147-167.

Greenwood, P.W. (2006). *Changing lives: delinquency prevention as crime-control policy.* Chicago, IL: The University of Chicago Press.

Grekin, E. R., Brennan, P. A., & Hammen, C. (2005). Parental alcohol use disorders and child delinquency: The mediating effects of executive functioning and chronic family stress. *Journal of Studies on Alcohol, 66(1),* 14-22.

Gretton, H. M., Hare, R. D., & Catchpole, R. E. H. (2004). Psychopathy and offending from adolescence to adulthood: A 10-year follow-up. *Journal of Consulting and Clinical Psychology, 72(4),* 636-645.

Guevara, L, Herz, D., & Spohn, C. (2008). Race, gender, and legal counsel. Differential outcomes in two juvenile courts. *Youth Violence and Juvenile Justice, 6(1),* 83-104.

Hare, R. D. (1986). The performance of psychopaths on cognitive task related to frontal lobe function. *Journal of Abnormal Psychology, 93,* 133-140.

Hare, R. D. (1991). *The Hare Psychopathy Checklist – Revised (PCL-R).* Toronto, Ontario, Canada: Multi-Health Systems.

Hare, R. D. (1998). Psychopathy, affect, and behavior. In D. J. Cooke, A. E. Forth, & R. D. Hare (Eds.), *Psychopathy: Theory, research, and implications for society* (pp. 105-138). Dordrecht, Netherlands: Kluwer Academic Press.

Hart, S. D., & Hare, R. D. (1997). Psychopathy: Assessment and association with criminal conduct. In D. M. Stoff, J. Brieling, & J. Maser (Eds.), *Handbook of antisocial behavior* (pp.22-35). New York: Wiley.

Heaven, P. C. L., Newbury, K., & Mak, A. (2004). The impact of adolescent and parental characteristics on adolescent levels of delinquency and depression. *Personality and Individual Differences, 36,* 173-185.

Henggeler, S. W., Melton, G. B., & Smith, L. A. (1992). Family preservation using multisystemic therapy: An effective alternative to incarcerating serious juvenile offenders. *Journal of Consulting and Clinical Psychology, 60,* 953-961.

Henry, B., Caspi, A., Moffitt, T. E., & Silva, P. A. (1996). Temperamental and familial predictors of violent and nonviolent criminal convictions: Age 3 to age 18. *Developmental Psychology, 32(4),* 614-623.

Hinshaw, S. P., & Anderson, C. A. (1996). Conduct and oppositional defiant disorders. In E. J. Mash & R. Barkley (Eds.), *Child Psychopathology* (pp. 113-152). New York: The Guilford Press.

Hinshaw, S. P., & Lee, S. S. (2003). Conduct and oppositional defiant disorders. In E. J. Mash & R. Barkley (Eds.), *Child Psychopathology, 2nd edition* (pp. 144-198). New York: The Guilford Press.

Hoagwood, K., Hibbs, E., Brent, D., & Jensen, P. (1995). Introduction to the special section: Efficacy and effectiveness studies of child and adolescent psychotherapy. *Journal of Consulting and Clinical Psychology, 63(5),* 683-687.

Hollingshead, A. B. (1975). *Four factor index of social status.* Unpublished manuscript retrieved on July 4, 2009 from http://www.yale.edu/sociology/faculty/docs/hollingshead_socStat4factor.pdf

Howell, J. C. (2003). *Preventing and reducing juvenile delinquency: A comprehensive framework.* Thousand Oaks, CA: Sage Publishing.

Huizinga, D. (1991). Assessing violent behavior with self-reports. In J. S. Milner (Ed.), Neuropsychology of aggression. Boston: Kluwer Academic.

Johansson, P., & Kempf-Leonard, K. (2009). A gender-specific pathway to serious, violent, and chronic offending? Exploring Howell's risk factors for serious delinquency. *Crime and Delinquency, 55(2),* 216-240.

John, O.P., & Srivastava, S. (1999). The Big Five trait taxonomy: History, measurement, and theoretical perspectives. In L. A. Pervin & O. P. John (Eds.), *Handbook of personality. Theory and research* (2nd ed., pp. 102-138). NY; Guilford Press.

Kandel, D. B. (1978). Homophily, selection, and socialization in adolescent friendships. *The American Journal of Sociology, 84(2),* 427-436.

Karnik, N. S., & Steinter, H. (2007). *Evidence for interventions for young offenders.* Child and Adolescent Mental Health, 12(4), 154-159.

Karver, M. S., Handelsman, J. B., Fields, S., & Bickman, L. (2006). Meta-analysis of therapeutic relationship variables in youth and family therapy: The evidence for

different relationship variables in the child and adolescent treatment outcome literature. *Clinical Psychology Review, 26,* 50-65.

Kazdin, A. E. (1978). Evaluating the generality of findings in analogue therapy research. *Journal of Consulting and Clinical Psychology, 46(4),* 673-686.

Kazdin, A. E. (1987). Treatment of antisocial behavior in children: Current status and future directions. *Psychological Bulletin, 102(2),* 187-203.

Kazdin, A. E. (1995). *Conduct disorders in childhood and adolescence,* (2nd ed). Developmental clinical psychology and psychiatry series, Vol. 9. Thousand Oaks, CA: Sage Publications, Inc.

Kazdin, A. E. (2003). Problem-solving skills training and parent management training for conduct disorder. In A. E. Kazdin & J. R. Weisz (Eds.), *Evidence-based psychotherapies for children and adolescents* (pp. 241-262). New York: The Guilford Press.

Kazdin, A. E., & Wassell, G. (2000). Therapeutic changes in children, parents, and families resulting from treatment of children with conduct disorder. *Journal of the American Academy of Child and Adolescent Psychiatry, 39(4),* 414-420.

Kazdin, A. E., & Weisz, J. R. (1998). Identifying and developing empirically supported child and adolescent treatments. *Journal of Consulting and Clinical Psychology, 66,* 19-36.

Keltner, D., Moffitt, T. E., & Stouthamer-Loeber, M. (1995). Facial expressions of emotion and psychopathology in adolescent boys. *Journal of Abnormal Psychology, 104,* 644-652.

Kempf-Leonard, K., & Johansson, P. (2007). Gender and runaways: Risk factors, delinquency, and juvenile justice experiences. *Youth Violence and Juvenile Justice, 5,* 308-327.

Kierkus, C. A., & Hewitt, J. D. (2009). The contextual nature of the family structure/delinquency relationship. *Journal of Criminal Justice, 37,* 123-132.

Kimonis, E. R., Frick, P. J., & Barry, C. T. (2004). Callous-unemotional traits and delinquent peer affiliation. *Journal of Consulting and Clinical Psychology, 72(6),* 956-966.

Kimonis, E. R., Frick, P. J., Fazekas, H., & Loney, B. R. (2006). Psychopathy, aggression, and the processing of emotional stimuli in non-referred girls and boys. *Behavioral Sciences and the Law, 24,* 21-37.

Kruh, I. P., Frick, P. J., & Clements, C.B. (2005). Historical and personality correlates to the violence patterns of juveniles tried as adults. *Criminal Justice and Behavior, 92,* 69-96.

Kramer, T. L., Phillips, S. D. Hargis, M.B., Miller, T. L., Burns, B. J., & Robbins, J. M. (2004). Disagreement between parent and adolescent reports of functional impairment. *Journal of Child Psychology and Psychiatry, 45(2),* 248-259.

Krause, M. S. (2009). Reversion toward the mean independently of regression toward the mean. *Methodology: European Journal of Research Methods for the Behavioral and Social Sciences, 5(1),* 3-6.

Lahey, B. B., Waldman, I. D., & McBurnett, K. (1999). The development of antisocial behavior: An integrative causal model. *Journal of Child Psychology and Psychiatry, 40(5),* 669-682.

Landenberger, N. A., & Lipsey, M. W. (2005). The positive effects of cognitive-behavioral programs for offenders: A meta-analysis of factors associated with effective treatment. *Journal of Experimental Criminology, 1(4),* 451-476.

Laub, J. H. & Sampson, R. J. (2003). *Shared beginnings, divergent lives: Delinquent lives to age 70.* Cambridge, MA: Harvard University Press.

Leiber, M. J. (2002). Disproportionate minority confinement (DMC) of youth: An analysis of state and federal efforts to address the issue. *Crime & Delinquency, 48(1),* 3-45.

Leve, L. D. & Chamberlain, P. (2004). Female juvenile offenders: Defining an early-onset pathway for delinquency. *Journal of Child and Family Studies, 13(4),* 439-452.

Leve, L. D. & Chamberlain, P. (2005). Association with delinquent peers: Intervention effects for youth in the juvenile justice system. *Journal of Abnormal Child Psychology, 33(3),* 339-347.

Lipsey, M.W. (1992). Juvenile delinquency treatment: A meta-analytic inquiry into the variability of effects. In T.D. Cook, H Cooper, D.S. Corda, H Hartmann, L.V. Hedges, R.J. Light, T. A. Louis, & Fl Musteller (Eds.), *Meta-analysis for explanation: A casebook* (pp. 83-125). New York: Russell Sage.

Lochman, J. E., Barry, T. D., & Pardini, D. A. (2003). Anger control training for aggressive youth. In A.E. Kazdin & J. R. Weisz (Eds.), *Evidence-Based Psychotherapies for Children and Adolescents* (pp.263-281). New York: The Guilford Press.

Loeber, R. (1982). The stability of antisocial and delinquent child behavior: a review. *Child Development, 53,* 1431-1446.

Loeber, R. (1990). Development and risk factors of juvenile antisocial behavior and delinquency. *Clinical Psychology Review, 10,* 1-42.

Loeber, R. (1991). Antisocial behavior: More enduring than changeable? *Journal of the American Academy of Child and Adolescent Psychiatry, 30(3),* 393-397.

Loeber, R., Farrington, D. P., & Petechuk, D. (2003) Child delinquency: Early intervention and prevention. Child Delinquency Bulletin Series, US Department of Justice.

Loeber, R., Farrington, D. P., Stouthamer-Loeber, M., Moffitt, T. E., Caspi, A., & Lynam, D. (2001). Male mental health problems, psychopathy, and personality traits: Key findings from the first 14 years of the Pittsburgh Youth Study. *Clinical Child and Family Psychology Review, 4(4),* 271-297.

Loeber, R. & Stouthamer-Loeber, M. (1986). Family factors as correlates and predictors of juvenile conduct problems and delinquency. In M. Tonry & N. Morris (Eds.), *Crime and justice* (Vol. 7, pp. 29-149). Chicago: University of Chicago Press.

Lonigan, C.J., Elbert, J.C., & Johnson, S.B. (1998). Empirically supported psychosocial interventions for children: An overview. *Journal of Clinical Child Psychology, 27(2),* 138-145.

Lynam, D. R. (1996). Early identification of chronic offenders: Who is the fledgling psychopath? *Psychological Bulletin, 120,* 209-234.

Lynam, D. R. (1997). Pursuing the psychopath: Capturing the fledgling psychopath in a normological net. *Journal of Abnormal Psychology, 106,* 425-438.

Lynam, D. R. (1998). Early identification of the fledgling psychopath: Locating the psychopathic child in the current nomenclature. *Journal of Abnormal Psychology, 107,* 566-575.

Lynam, D. R., Caspi, A., Moffitt, T. E., Loeber, R., & Stouthamer-Loeber, M. (2007). Longitudinal evidence that psychopathy scores in early adolescence predict adult psychopathy. *Journal of Abnormal Psychology, 116(1),* 155-165.

Lynam, D. R., Caspi, A., Moffitt, T. E., Raine, A., Loeber, R., & Stouthamer-Loeber, M. (2005). Adolescent psychopathy and the Big Five: Results from two samples. *Journal of Abnormal Child Psychology, 33(4),* 431-443.

Lynam, D. R.,, Loeber, R., & Stouthamer-Loeber, M. (2008). The stability of psychopathy from adolescence into adulthood: The search for moderators. *Criminal Justice and Behavior, 35(2),* 228-243.

Matarazzo, A. (2006). Court referrals for a group of youth and young adults. *Canadian Social Trends, 82,* 2- 7. Retreived January 9, 2007, from http://www.statcan.ca/english/freepub/11-008-XIE/11-008-XIE2006006.pdf .

Marsee, M. A., Silverthorn, P., & Frick, P. J. (2005). The association of psychopathic traits with aggression and delinquency in non-referred boys and girls. *Behavioral Sciences and the Law, 23,* 803-817.

McCart, M. R., Priester, P. E., Davies, W. H., & Azen, R. (2006). Differential effectiveness of behavioral parent-training and cognitive-behavioral therapy for antisocial youth: A meta-analysis. *Journal of Abnormal Child Psychology, 34(4),* 527-543.

McCord, J. (1978). A thirty-year follow-up of treatment effects. *American Psychologist, 33(3),* 284-289.

Millon, T., Simonson, E., Birket-Smith, M., & Davis, R. D. (Eds.). (1998). Psychopathy: Antisocial, criminal, and violent behavior. New York: Guilford Press.

Moffitt, T. E. (1990). Juvenile delinquency and attention-deficit disorder: Developmental trajectories from age 3 to 15. *Child Development, 61,* 893-910.

Moffitt, T. E. (1993). Adolescent-limited and life-course-persistent antisocial behavior: a developmental taxonomy. *Psychological Review, 100(4),* 674-701.

Moffitt, T. E. (1994). Natural histories of delinquency. In E. Weitekamp & H. J. Kerner (Eds.), *Cross-national longitudinal research on human development and criminal behavior* (pp. 3-61). Dordrecht, Netherlands: Kluwer Academic Press.

Moffitt, T. E., & Caspi, A. (2001). Childhood predictors differentiate life-course persistent and adolescence-limited antisocial pathways among males and females. *Development and Psychopathology, 13,* 355-375.

Moffitt, T. E., Caspi, A., Harrington, H., & Milne, B. J. (2002). Males on the life-course-persistent and adolescence-limited antisocial pathways: Follow-up at age 26 years. *Development and Psychopathology, 14,* 179-207.

Moore, R., Pauker, J. D., & Moore, T. E. (1984). Delinquent recidivists: Vulnerable children. *Journal of Youth and Adolescence, 13(5),* 451-457.

Moss, H. B., Lynch, K. G., & Hardie, T. L. (2003). Affiliation with deviant peers among children of substance dependent fathers from pre-adolescence into adolescence: Associations with problem behaviors. *Drug and Alcohol Dependence, 71,* 117-125.

Nix, R. L., Pinderhughes, E. E., Dodge, K. A., Bates, J. E., Pettit, G. S., & McFadyen-Ketchum, S. A. (1999). The relationship between mothers' hostile attribution tendencies and children's externalizing behavior problems: The mediating role of mothers' harsh discipline practices. *Child Development, 70,* 896-909.

Oakland County Court (2003, October). *Oakland County Court Services for Children and Family* [pamphlet].

Oakland County Court (2009). *2008 Annual Report sixth Judicial Circuit Court Oakland County Probate Court.* Retrieved June 4, 2009, from Oakland County http://www.oakgov.com/circuit/assets/docs/annual-reports/2008-ann-rept-full.pdf

Patterson, G. R. (1979). A performance theory for coercive family interactions. In R. B. Cairns (Ed.), *The analysis of social interactions: Methods, issues, and illustrations* (pp. 119-162). Hillsdale, NJ: Erlbaum.

Patterson, G. R. (1982). *Coercive family process: A social learning approach (Vol. 3).* Eugene, Oregon: Castalia.

Patterson, G. R. (1986). *Performance models for antisocial boys.* American Psychologist, 41(4), 432-444.

Patterson, G. R. (1993). Orderly change in stable world: The antisocial trait as a chimera. *Journal of Consulting and Clinical Psychology, 61,* 911-919.

Patterson, G. R., Capaldi, D., & Bank, L. (1991). An early starter model for predicting delinquency. In D. J. Pepler & K. H. Rubin (Eds.), *The development and treatment of childhood aggression* (pp. 139-168). Hillsdale, NJ: Erlbaum.

Patterson, G. R., Forgatch, M. S., Yoerger, K. L., & Stoolmiller, M. (1998). Variables that initiate and maintain an early-onset trajectory for juvenile offending. *Development and Psychopathology, 10,* 531-547.

Patterson, G. R., & Moore, D. R. (1979). Interactive patterns as units of behavior. In M. D. Lamb, S. J. Suomi, & G. R. Stephenson (Eds.), *Social interaction analysis: Methodological issues* (pp. 77-96). Madison, WI: University of Wisconsin Press.

Patterson, G. R., Reid, J.B., Jones, R., & Conger, R. E. (1975) *A social learning approach to family intervention: Families with aggressive children (Vol. 1).* Eugene, OR: Castalia.

Patterson, G. R., & Stouthamer-Loeber, M. (1984). The correlation of family management practices and delinquency. *Child Development, 55(4),* 1299-1307.

Pearson, F. S., Lipton, D. S., Cleland, C. M., & Yee, D. S. (2002). The effects of behavioral/cognitive-behavioral programs on recidivism. *Crime and Delinquency, 48(3),* 476-496.

Piquero, A. R., & Brame, R. W. (2008). Assessing the race-crime and ethnicity-crime relationship in a sample of serious adolescent delinquents. *Crime & Delinquency, 54(3),* 390-422.

Piquero. A. R., & Chung, H. L. (2001). On the relationships between gender, early onset, and the seriousness of offending. *Journal of Criminal Justice, 29,* 189-206.

Poulin, F. & Boivin, M. (1999). Proactive and reactive aggression and boys' friendship quality in mainstream classrooms. *Journal of Emotional and Behavioral Disorders, 7(3),* 168-177.

Poulin, F. & Boivin, M. (2000). The role of proactive and reactive aggression in the formation and development of boys' friendships. *Developmental Psychology, 36*(2), 233-240.

Price, J. M., & Dodge, K. A. (1989). Reactive and proactive aggression in childhood: Relations to peer status and social context dimensions. *Journal of Abnormal Child Psychology, 17(4),* 455-471.

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,* 310-342.

Prosecuting Attorneys Association of Michigan. (2008). *Glossary of Michigan Criminal Terms*. Retrieved on March 21, 2009 from: http://www.michiganprosecutor.org/Define.htm.

Pulkkinen, L., Lyyra, A., & Kokko, K. (2009). Life success of males on nonoffender, adolescence-limited, persistent, and adult-onset antisocial pathways: Follow-up from age 8 to 42. *Aggressive Behavior. Special Issue: Life Span Longitudinal studies of Aggressive and Criminal Behavior, 35(2),* 117-135.

Puzzanchera, C., Stahl, A. L., Finnegan, T. A., & Snyder, H. N. (2004). *Juvenile Court Statistics 2000.* Pittsburgh, PA: National Center for Juvenile Justice.

Puzzanchera, C. (2009, April). *Juvenile arrests 2007* [Office of Juvenile Justice and Delinquency Prevention Bulletin]. Retrieved May 31, 2009, from the U.S. Department of Justice Office of Justice Programs: http://www.ncjrs.gov/pdffiles1/ojjdp/225344.pdf

Rainey, V.C. (1950). *Training in clinical psychology.* Englewood Cliffs, NJ: Prentice-Hall.

Ramsey, E., Patterson, G. R., & Walker, H. M. (1990). Generalization of the antisocial trait from home to school settings. *Journal of Applied Developmental Psychology, 11,* 209-223.

Redding, R. E., Goldstein, N. E. S., & Heilbrun, K. (2005). Juvenile delinquency: Past and present. In K. Heilbrun, N. E. Sevin Goldstein, &, R. E. Redding (Eds.) *Juvenile Delinquency: prevention, assessment, and intervention* (pp. 3-18). New York: Oxford University Press.

Robins, L. N. (1966). *Deviant children grown up: A sociological and psychiatric study of sociopathic personality.* Oxford, England: Williams & Wilkins.

Robins, L. N. (1978). Aetiological implications in studies of childhood histories relating to antisocial personality. In R. D. Hare & D. Schalling (Eds.), Psychopathic behavior: Approaches to research (pp. 255-272). Chichester, England: Wiley

Robins, L. N. (1991) Conduct disorder. *Journal of Child Psychology and Psychiatry and Allied Disciplines, 32(1),* 193-212.

Rosenbaum, J. L. (1989). Family dysfunction and female delinquency. *Crime and Delinquency, 35,* 31-44.

Sampson, R. J. & Laub, J. H. (1990). Crime and deviancy over the life course: The salience of adult social bonds. *American Sociological Review, 55(5),* 609-627.

Schoenwald, S. K, & Henggeler, S. W. (2005). Multisystemic therapy for adolescents with serious externalizing problems. In J.L. Lebow (Ed.), *Handbook of Clinical Family Therapy.* (pp. 103-127). Hoboken, NJ: John Wiley & Sons, Inc.

Serketich, W. J., & Dumas, J. E. (1996). The effectiveness of behavioral parent training to modify antisocial behavior in children: A meta- analysis. *Behavior Therapy, 27,* 171-186.

Shete, S., Beasley, T. M., Etxel, C. J., Fernandez, J. R., Chen, J., Allison, D.B. & Amos, C. I. (2004). Effect of winsorization on power and type I error of variance components and related methods of QTL detection. *Behavior Genetics, 34(2),* 153-159.

Silverman, W.K., & Hinshaw, S. P. (2008). The second special issue on evidence-based psychosocial treatments for children and adolescents: A 10-year update. *Journal of Clinical Child and Adolescent Psychology, 37(1),* 1-7.

Silverthorn P., & Frick, P. J. (1999). Developmental pathways to antisocial behavior: The delayed-onset pathway in girls. *Development and Psychopathology, 11(1),* 101-126.

Silverthorn, P., Frick, P. J., & Reynolds, R. (2001). Timing of onset and correlates of severe conduct problems in adjudicated girls and boys. *Journal of Psychopathology and Behavioral Assessment, 23 (3),* 171-181.

Snyder, H. N. (2001). Epidemiology of official offending. In R. Loeber & D. P. Farrington (Eds.), *Child Delinquents: Development, Intervention, and Service Needs* (pp. 25-46). Thousand Oaks, CA: Sage Publications.

Snyder, J. (2002). Reinforcement and coercion mechanism in the development of antisocial behavior: Peer relationships. In J. B. Reid, G. R. Patterson, & J. Snyder (Eds.), *Antisocial behavior in children and adolescents: A developmental analysis*

and model for intervention (pp. 101-122). Washington, DC: American Psychological Association.

Snyder, J., Cramer, A., Afrank, J., & Patterson, G. R. (2005). The contributions of ineffective discipline and parental hostile attributions of child misbehavior to the development of conduct problems at home and school. *Developmental Psychology, 41(1),* 30-41.

Snyder, J., Reid, J. B., & Patterson, G. R. (2003). A social learning model of child and adolescent antisocial behavior. In B. B. Lahey, T. E. Moffitt, & A. Caspi (Eds.), *The causes of conduct disorder and juvenile delinquency* (pp. 27-48). New York: Guilford Press.

Snyder, J. & Patterson, G. R. (1995). Individual differences in social aggression: A test of a reinforcement model of socialization in the natural environment. *Behavior Therapy, 26,* 371-391.

Sobol, S. B. (1978). Throwing the baby out with the bathwater: The hazards of follow-up research. *American Psychologist, 33(3),* 290-291.

Steffensmeier, D., Schwartz, J., Zhong, S. H. & Ackerman, J. (2005). An assessment of trends in girls' violence using diverse longitudinal sources: Is the gender gap closing? *Criminology, 43,* 355-405.

Sullivan, C. J. (2006). Early adolescent delinquency: Assessing the role of childhood problems, family environment, and peer pressure. *Youth violence and juvenile justice, 4(4),* 291-313.

Tackett, J. L., Krueger, R. F., Sawyer, M. G., & Graetz, B. W. (2003). Subfactors of DSM-IV conduct disorder: Evidence and connections with syndromes from the

Child Behavior Checklist. *Journal of Abnormal Child Psychology, 31(6),* 647-654.

Tracy, P.E., Kempf-Leonard, K., & Abramoske-James, S. (2009). Gender differences in delinquency and juvenile justice processing: Evidence from national data. *Crime and Delinquency, 55(2),* 171-215.

United Nations, (2003). Juvenile delinquency, chapter 7 (pp. 188-211). *World Youth Report, 2003* Retrieved January 9, 2007, from http://www.un.org/esa/socdev/unyin/documents/ch07.pdf

US Census Bureau, Census 2000, Per Capita Income generated using American Factfinder, April 4, 2009, from http://factfinder.census.gov/home/saff/main.html?_lang=en

Van der Merwe, A. & Dawes, A. (2007). Youth violence: A review of risk factors, causal pathways, and effective intervention. *Journal of Child and Adolescent Mental Health, 19(2),* 95-113.

Vaughn, M. G., Wallace, J. M., Jr., Davis, L.E., Fernandes, G. T., & Howard, M. O. (2008). Variations in mental health problems, substance use, and delinquency between African American and Caucasian juvenile offenders: Implications for reentry services. *International Journal of Offender Therapy and Comparative Criminology, 52(3),* 311-329.

Vuchinich, S., Bank, L., & Patterson, G. R. (1992). Parenting, peers, and the stability of antisocial behavior in preadolescent boys. *Developmental Psychology, 28(3),* 510-521.

Webster-Stratton, C., & Reid, M. J. (2003). The incredible years parents, teachers, and children training series: A multifaceted approach for young children with conduct problems. In A. E. Kazdin & J. R. Weisz (Eds.), *Evidence-based psychotherapies for children and adolescents* (pp. 224-240). New York: The Guilford Press.

Weiss, B., Caron, A., Ball, S., Tapp, J., Johnson, M., & Weisz, J. R. (2005). Iatrogenic effects of group treatment for antisocial youth. *Journal of Consulting and Clinical Psychology, 73(6),* 1036-1044.

Weisz, J. R. & Weiss, B. (1989). Assessing the effects of clinic-based psychotherapy with children and adolescents. *Journal of Consulting and Clinical Psychology,57(6),* 741-746.

White, J. L., Moffitt, T. E., Caspi, A., Bartusch, D. J., Needles, D. J., & Stouthamer-Loeber, M. (1994). Measuring impulsivity and examining its relationship to delinquency. *Journal of Abnormal Psychology, 103(2),* 192-205.

Wilson, D. B., Boufard, L. A., & MacKenzie, D. L., (2005). A quantitative review of structured, group-oriented, cognitive-behavioral programs for offenders. *Journal of Criminal Justice and Behavior, 32(2),* 172-204.

Windell, J. (2004). *Windell Social Skills Questionnaire for Teens.* (unpublished).

Wong, D. S. W. (2000). Juvenile crime and responses to delinquency in Hong Kong. *International Journal of Offender Therapy and Comparative Criminology, 44(3),* 279-292.

Zuckerman, M. (1999). *Vulnerability to psychopathology: A biosocial model.* Washington, DC: American Psychological Association.

Appendix A

STAR and CHOICE Contact Information

For additional information regarding the intervention programs instituted at the Oakland County Court Family Division Psychological Clinic, please contact:

Oakland County Circuit Court

Family Division Psychological Clinic

1200 North Telegraph Road

Pontiac, Michigan, USA, 48341-0452

Attn: James Windell

Location: Court House Building, East Wing, Second Floor

Phone/Receptionist: 248-858-0065

Fax: 248-858-1126

Appendix B

Charges Accrued by Juvenile Offenders

Charge Code	Level	Status	Offense Description
257.256	Misdemeanor	Non-Status	Unlawful Use of License Plate
257.301	Misdemeanor	Non-Status	Operating a Motor Vehicle without a License
257.324	Misdemeanor	Non-Status	Operating with a Forged or Altered License
257.602A3-A	Felony	Non-Status	Fleeing a Police Officer, 3rd Degree
257.624B1	Misdemeanor	Status	Alcohol- Possession by Minor in Motor Vehicle
257.6251-A	Misdemeanor	Non-Status	Operating Under the Influence of Liquor Above the Legal Limit
257.6256-A	Misdemeanor	Status	Operating Minor with any BAC
257.626	Misdemeanor	Non-Status	Reckless Driving
257.9041B	Misdemeanor	Non-Status	Allowing an Individual with a Suspended License to Operate a Motor Vehicle
333.74012	Felony	Non-Status	Delivery /Manufacturing of Marijuana
333.74012A4	Felony	Non-Status	Delivery/Manufacture of (Narcotic or Cocaine) Less than 50 Grams
333.74032B-A	Felony	Non-Status	Controlled Substances -Possession Analogues
333.74032D	Misdemeanor	Non-Status	Controlled Substances -Possession of Marijuana
436.17031	Misdemeanor	Status	Alcohol Possession by a Minor in a Motor Vehicle

Charge Code	Level	Status	Offense Description
436.17031A	Misdemeanor	Status	Alcohol- Purchase, Consumption, or Possession by a Minor
436.17031B	Misdemeanor	Status	Alcohol- Purchase, Consumption, or Possession by a Minor-2nd Offense Notice
712A.2(A)2-1	Misdemeanor	Status	Home Truancy
712A.2(A)2-2	Misdemeanor	Status	Home Incorrigibility
712A.2(A)4-1	Misdemeanor	Status	School Truancy
712A.2(A)4-2	Misdemeanor	Status	School Incorrigibility
722.642	Misdemeanor	Status	Tobacco -Possession/Use by Minors
722.752	Misdemeanor	Status	Violation of State Curfew
750.11	Felony	Non-Status	Breaking and Entering Building with Intent
750.110A2	Felony	Non-Status	Home Invasion, 1st Degree
750.110A3	Felony	Non-Status	Home Invasion, 2nd Degree
750.110A4	Felony	Non-Status	Home Invasion, 3rd Degree
750.115	Misdemeanor	Non-Status	Illegal Entering Without Permission
750.157N1	Felony	Non-Status	Financial Transaction Device, Stealing or Retaining without Consent
750.1671L	Misdemeanor	Non-Status	Disorderly Person -Jostling
750.17	Misdemeanor	Non-Status	Disturbing the Peace

Charge Code	Level	Status	Offense Description
750.184	Misdemeanor	Non-Status	Aiding an escape from
750.186A	Felony	Non-Status	Escape Juvenile Facility
750.211A2A	Felony	Non-Status	Explosives -Possession of a Molatov Cocktail/Other Explosive
750.2241A	Felony	Non-Status	Weapons-Dangerous Weapons Miscellaneous
750.227	Felony	Non-Status	Carrying a Concealed Weapon
750.228	Misdemeanor	Non-Status	Weapons Firearms-Safety Inspection Violation
750.234	Misdemeanor	Non-Status	Discharging a Weapon without Injury
750.234F	Misdemeanor	Non-Status	Possession of a Weapon by a Minor
750.24	Misdemeanor	Non-Status	Fire- False Alarm
750.335A	Misdemeanor	Non-Status	Indecent Exposure
750.338	Felony	Non-Status	Gross Indecency Between Males Committing/Procuring
750.338A	Felony	Non-Status	Gross Indecency Between Male & Female Committing/Procuring
750.338B	Felony	Non-Status	Gross Indecency Between Female Committing/Procuring
750.356A1	Felony	Non-Status	Larceny of a Motor Vehicle under $1000
750.356A2A	Misdemeanor	Non-Status	Breaking and Entering a Vehicle to Steal Property under $200
750.356A2A(A)	Misdemeanor	Non-Status	Attempted Breaking and Entering a Vehicle to Steal Property under $200

Charge Code	Level	Status	Offense Description
750.356A2B1	Misdemeanor	Non-Status	Breaking and Entering a Vehicle to Steal Property under $1000
750.356D	Misdemeanor	Non-Status	Retail Fraud/Shoplifting 2nd Degree
750.356D4	Misdemeanor	Non-Status	Retail Fraud/Shoplifting 3RD Degree
750.3564A	Misdemeanor	Non-Status	Larceny $200 or more less than $1000
750.3565	Misdemeanor	Non-Status	Larceny under $200
750.357	Felony	Non-Status	Larceny from a Person
750.36	Felony	Non-Status	Larceny in a Building
750.3625	Misdemeanor	Non-Status	Larceny by Conversion under $200
750.377A1B1	Felony	Non-Status	Malicious Destruction of Personal Property $1000 or more less than $20,000
750.377A1C1	Misdemeanor	Non-Status	Malicious Destruction of Property over $200
750.377A1D	Misdemeanor	Non-Status	Malicious Destruction of Property under $200
750.377B	Felony	Non-Status	Malicious Destruction of Fire or Police Property
750.3803A	Felony	Non-Status	Malicious Destruction of Building over $1000
750.3804A	Misdemeanor	Non-Status	Malicious Destruction of Building over $200 but less than $1000
750.3803	Felony	Non-Status	Malicious Destruction of Building over $200
750.3805	Misdemeanor	Non-Status	Malicious Destruction of Building less than $200

Charge Code	Level	Status	Offense Description
750.394	Misdemeanor	Non-Status	Throwing an Object at a Train or Motor Vehicle
750.411A1A	Misdemeanor	Non-Status	False Report of a Misdemeanor
750.411A3A	Misdemeanor	Non-Status	False Report or Threat of a Bomb/ Harmful Device
750.413	Felony	Non-Status	Motor Vehicle -Unlawful Driving Away
750.413(A)	Felony	Non-Status	Attempted Unlawful Driving Away an Automobile
750.414	Misdemeanor	Non-Status	Motor Vehicle Unlawful Use (Joyriding)
750.4362A	Felony	Non-Status	Poisoning Food/ Drink/ Medicine/ Water Supply
750.479A2	Felony	Non-Status	Fleeing a Police Officer, 4th Degree
750.479A3	Felony	Non-Status	Fleeing a Police Officer, 3rd Degree
750.49-b	Felony	Non-Status	Attending an animal fight
750.520B1A	Felony	Non-Status	Criminal Sexual Conduct -1st Degree (Victim under 13)
750.520C	Felony	Non-Status	Criminal Sexual Contact -2nd Degree
750.520C1A	Felony	Non-Status	Criminal Sexual Contact -2nd Degree (Victim under 13)
750.520D	Felony	Non-Status	Criminal Sexual Contact -3rd Degree (Multiple Variables)
750.520E1A	Felony	Non-Status	Criminal Sexual Conduct- 4TH Degree (Force or Coercion)
750.520G1	Felony	Non-Status	Criminal Sexual Conduct- Assault with Intent to Commit Sexual Penetration

Charge Code	Level	Status	Offense Description
750.520G2	Felony	Non-Status	Criminal Sexual Conduct- 2nd Degree Assault
750.529	Felony	Non-Status	Armed Robbery over $200
750.53	Felony	Non-Status	Unarmed Robbery
750.531B	Felony	Non-Status	Safe Breaking
750.535B	Felony	Non-Status	Weapons Firearms-Receiving and Concealing
750.5354	Misdemeanor	Non-Status	Stolen Property-Receiving and Concealing $200 or more but less than $1000
750.5355	Misdemeanor	Non-Status	Receiving and Concealing Stolen Property Motor Vehicle
750.5357	Felony	Non-Status	Receiving and Concealing Stolen Property under $200
750.540E	Misdemeanor	Non-Status	Telecommunication Services- Malicious Use
750.5405A		Non-Status	Interfering with Electronic Communications
750.552	Misdemeanor	Non-Status	Trespassing
750.72-B	Felony	Non-Status	Arson Dwelling House Curtilage
750.741A	Misdemeanor	Non-Status	Arson of Public Property under $200
750.741B1	Misdemeanor	Non-Status	Arson Personal Property over $200 but under $1000
750.771C1	Felony	Non-Status	Arson, Preparation to Burn Property Over $1000
750.81	Misdemeanor	Non-Status	Assault and Battery

Charge Code	Level	Status	Offense Description
750.81A	Misdemeanor	Non-Status	Aggravated Assault
750.81D1	Felony	Non-Status	Police Officer-Assault, Resist Obstruct
750.812	Misdemeanor	Non-Status	Domestic Violence
750.813	Misdemeanor	Non-Status	Domestic Violence 2nd Offense
750.82	Felony	Non-Status	Felonious Assault
750.84	Felony	Non-Status	Assault with intent to do Great Bodily Harm
750.88	Felony	Non-Status	Assault with intent to Rob While Unarmed
752.272	Misdemeanor	Non-Status	Chemical Agents- Prohibited Uses
752.7972A	Felony	Non-Status	Computers -Unauthorized Access
752.891	Misdemeanor	Non-Status	Possession of a BB Gun by a Minor
760.24	Misdemeanor	Non-Status	Fire- False Alarm
MOV	Violation	Non-Status	Violation of a Municipal Ordinance
MOV CURF	Violation	Status	Out Past Curfew
VCO	Violation	Non-Status	Violation of Court Order
VOP	Violation	Non-Status	Violation of Probation

Appendix C

Survey of Family Court Intervention Programs

Your opinions are important! As a Court employee, you have a unique knowledge of the potential strengths and weaknesses of Court-run intervention programs' abilities to touch the lives of juvenile offenders and their families. By completing this brief **anonymous** survey, you can contribute your unique perspective to the research literature. You also will be provided the opportunity to enter a raffle to **win a $50 Amazon.com gift certificate**!

1. In your opinion, how important should each of these goals be to a Court-run group juvenile offender intervention program? Place an "**x**" in the appropriate box for each characteristic.

Increased Anger Control

Very Important	Somewhat Important	A Little Important	Not at All Important

Improved Social Skills

Very Important	Somewhat Important	A Little Important	Not at All Important

Increased Emotional Awareness

Very Important	Somewhat Important	A Little Important	Not at All Important

Reduction of Rule Breaking Behaviors

Very Important	Somewhat Important	A Little Important	Not at All Important

Improved School Performance

Very Important	Somewhat Important	A Little Important	Not at All Important

Improved Family Relations

Very Important	Somewhat Important	A Little Important	Not at All Important

Other (Please Describe) _____

Very Important	Somewhat Important	A Little Important	Not at All Important

Other (Please Describe) _____

Very Important	Somewhat Important	A Little Important	Not at All Important

2. Do you believe that every juvenile offender is a good potential candidate for Court-run group juvenile offender intervention programs?

☐ Yes ☐ No ☐ Not Sure

3. How important do you believe the following characteristics are to a juvenile offender's likeliness to benefit from a Court-run group juvenile offender intervention program? Place an "x" in the appropriate box for each characteristic.

Intelligence Level

Very Important	Somewhat Important	A Little Important	Not at All Important

Socioeconomic Level

Very Important	Somewhat Important	A Little Important	Not at All Important

Parental Support

Very Important	Somewhat Important	A Little Important	Not at All Important

Academic Difficulties

Very Important	Somewhat Important	A Little Important	Not at All Important

Emotional Awareness

Very Important	Somewhat Important	A Little Important	Not at All Important

Behavioral Control

Very Important	Somewhat Important	A Little Important	Not at All Important

Impulsivity

Very Important	Somewhat Important	A Little Important	Not at All Important

Empathy for Others

Very Important	Somewhat Important	A Little Important	Not at All Important

Motivation for Change

Very Important	Somewhat Important	A Little Important	Not at All Important

Substance Abuse

Very Important	Somewhat Important	A Little Important	Not at All Important

4. Do you believe that juveniles should be assessed and labeled as juveniles with "psychopathic tendencies"?

☐ Yes ☐ No ☐ Not Sure

5. In your opinion, how important should each of these goals be to a Court-run parenting program for parents of juvenile offenders? Place an "x" in the appropriate box for each characteristic.

Improved Discipline Techniques

Very Important	Somewhat Important	A Little Important	Not at All Important

Increased Positive Reinforcement of Desired Behaviors

Very Important	Somewhat Important	A Little Important	Not at All Important

Improved Communication Skills

Very Important	Somewhat Important	A Little Important	Not at All Important

Increased Emotional Awareness

Very Important	Somewhat Important	A Little Important	Not at All Important

Improved Family Relations

Very Important	Somewhat Important	A Little Important	Not at All Important

Other (Please Describe) _____

Very Important	Somewhat Important	A Little Important	Not at All Important

Other (Please Describe) _____

Very Important	Somewhat Important	A Little Important	Not at All Important

6. Do you believe that every parent of a juvenile offender is a good potential candidate for Court-run group parenting program for parents of juvenile offenders?

☐ Yes ☐ No ☐ Not Sure

7. How important do you believe the following characteristics are to a parent's likeliness to benefit from a Court-run group parenting program for parents of juvenile offenders? Place an "x" in the appropriate box for each characteristic.

Parent's Intelligence Level

Very Important	Somewhat Important	A Little Important	Not at All Important

Family's Socioeconomic Level

Very Important	Somewhat Important	A Little Important	Not at All Important

Parent's Marital Status

Very Important	Somewhat Important	A Little Important	Not at All Important

Parent's Emotional Awareness

Very Important	Somewhat Important	A Little Important	Not at All Important

Parent's Motivation to Change

Very Important	Somewhat Important	A Little Important	Not at All Important

Parent's Empathy for Others

Very Important	Somewhat Important	A Little Important	Not at All Important

Parent's Motivation for Change

Very Important	Somewhat Important	A Little Important	Not at All Important

Juvenile's Severity of Symptoms

Very Important	Somewhat Important	A Little Important	Not at All Important

Juvenile's Level of Impulsivity

Very Important	Somewhat Important	A Little Important	Not at All Important

Juvenile Intelligence Level

Very Important	Somewhat Important	A Little Important	Not at All Important

Juvenile's Academic Difficulties

Very Important	Somewhat Important	A Little Important	Not at All Important

Juvenile's Emotional Awareness

Very Important	Somewhat Important	A Little Important	Not at All Important

Juvenile's Behavioral Control

Very Important	Somewhat Important	A Little Important	Not at All Important

Impulsivity

Very Important	Somewhat Important	A Little Important	Not at All Important

Empathy for Others

Very Important	Somewhat Important	A Little Important	Not at All Important

Motivation for Change

Very Important	Somewhat Important	A Little Important	Not at All Important

Juvenile's Substance Abuse

Very Important	Somewhat Important	A Little Important	Not at All Important

Parental Substance Abuse

Very Important	Somewhat Important	A Little Important	Not at All Important

Other (Please Describe) _____

Very Important	Somewhat Important	A Little Important	Not at All Important

Other (Please Describe) _____

Very Important	Somewhat Important	A Little Important	Not at All Important

8. What is your role in the juvenile justice system?

☐ Referee/Judge
☐ Administrative
☐ Prosecuting Attorney
☐ Defense Attorney
☐ Psychologist
☐ Social Worker/Case Worker
☐ Other (_____)

9. How long have you held this position?

☐ Less than 1 year
☐ 1-2 years
☐ 3-5 years
☐ 6-8 years
☐ 9-10 years
☐ More than 10 years

10. Is your position full-time or part-time?

☐ Full-time (40 or more hours per week)
☐ Part-time (less than 40 hours per week)

11. In your position, approximately what percentage of your work-week is spent in direct contact with juvenile offenders?

☐ 0%
☐ 1- 10%
☐ 51-60 %
☐ 61-70 %

- ☐ 11-20%
- ☐ 21-30 %
- ☐ 31-40 %
- ☐ 41-50 %
- ☐ 71-80 %
- ☐ 81-90 %
- ☐ 91-100 %

	Excluded (n = 48)		Included (n = 70)	
	Mean	SD	Mean	SD
Instrumental Anger	46.35	4.97	47.96	4.30
Reactive Anger	49.83	10.75	53.63	9.55
Anger Control	48.02	9.74	48.44	7.95
Total Anger	48.42	8.28	50.19	6.09

12. Please share any additional comments below.

Thank you for your time!

If you wish to participate in the raffle to win a $50 Amazon.com gift certificate…

Appendix D

Self-Reported Anger Scales of Juvenile Offenders Included and Excluded from Recidivism Analyses (N = 118)

	Excluded (n = 48)		Included (n = 70)	
	Mean	SD	Mean	SD
Instrumental Anger	46.35	4.97	47.96	4.30
Reactive Anger	49.83	10.75	53.63	9.55
Anger Control	48.02	9.74	48.44	7.95
Total Anger	48.42	8.28	50.19	6.09

Appendix E

Parent-Reported Behavior Scales of Juvenile Offenders Included and Excluded from Recidivism Analyses (N = 118)

	Excluded (n = 48)		Included (n = 70)	
	Mean	SD	Mean	SD
Rule-Breaking Behavior	61.05	8.87	64.26	8.11
Aggressive Behavior	58.76	8.37	65.21	9.82
Social Problems	55.39	6.78	59.13	7.68
Externalizing Behavior	58.41	11.24	64.65	11.07
Total Problems	54.76	12.44	61.54	11.02
School Competence	40.17	9.56	38.78	8.56

VITA AUCTORIS

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