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Keeping kids out of jail: Evaluating the impact of treatment intensity on long-term criminal outcomes for Stop Now And Plan® (SNAP) program participants

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Keeping kids out of jail: Evaluating the impact of treatment intensity on long-term criminal outcomes for Stop Now And Plan® (SNAP) program participants

By

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ABSTRACT

As an important area of concern for the public, preventing youth crime has become its own field of research in social science and law emphasizing development and implementation of evidence-based programs in youth justice. Stop Now and Plan®, or SNAP, is a program which employs a number of cognitive-behavioural techniques to teach high-risk children and their parents effective behaviour management strategies with the aim of reducing problematic behaviour in kids before they are old enough to be criminally charged. Previous evaluations support the effectiveness of core program components (children's and parents' groups) at reducing problem behaviour. Less research has been conducted on the effectiveness of the other program components directed at higher risk cases, namely Individual Befriending (IB), Family Counselling (FC), and School Liaison (SL). To evaluate the impact of these three program components on participants' treatment outcomes and later criminal involvement, the present study analysed data collected from past program participants. Within the target sample of SNAP group completers, no Plus components predicted change in CBCL scores or police contact and IB sessions predicted decreases in EARL scores. Analyses by gender indicated that for boys IB sessions predicted decreases in EARL, CBCL Aggression, and CBCL Externalizing scores; while SNAP child group sessions predicted decreased police contact and School Liaison sessions predicted increased police contact. For girls, total treatment received predicted decreases in CBCL Rule-breaking scores.

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CHAPTER I

Introduction

Youth crime continues to be an important issue for politicians and the public. Not only does crime in general affect the safety of our neighbourhoods, it also results in substantial tangible (financial) and intangible (emotional, mental, physical) costs that are incurred by victims, offenders, their families, and society as a whole (McCollister, French, & Fang, 2010; NCPC, 2012). Youth crime in particular is concerning because of the demonstrated implications that early criminal involvement has on criminal behaviour in adulthood (Farrington, 2005; Farrington, Piquero, & Jennings, 2013).

The proportion of adult offenders who demonstrate chronic involvement in crime is only 5 to 10 percent of the overall offender population; however, this group is responsible for a disproportionately large number of crimes and related costs (Farrington et al., 2013; Moffitt, 1993; Piquero, Farrington, & Blumstein, 2003; Wolfgang, Figlio, & Sellin, 1972). Based on an estimate from Day and Koegl's (2014) 15-year follow-up study of juvenile offenders, the average cost to society per chronic offender is approximately $1.7 million over fifteen years when taking into account costs to victims, the correctional system, the police and the courts (Day & Koegl, 2014). Therefore, if even 5% of the 94,000 Canadian youth accused of a criminal code offence last year end up becoming chronic offenders (Statistics Canada, 2015; Ward et al., 2010), the cost to society will be almost $8 billion. In addition to the large financial costs that result from crime, criminal involvement has also been shown to relate to poor vocational outcomes, increased rates of hospitalization for physical and mental illness, family dysfunction, and substance abuse (Day & Hunt, 1996; Loeber, 1990).

For decades, crime-reduction intervention strategies were initiated in response to increased incidences of crime and targeted known criminal offenders. However, it quickly became apparent to those delivering such programs that antisocial behaviours were difficult to change once they reach a certain level of severity (Loeber, 1990). Over the past two decades, greater emphasis has been placed on early intervention and prevention efforts to reduce crime by targeting individuals at risk of future criminal involvement before they are old enough to be charged by the police (age 12 in Canada), instead of waiting until the child receives an official police record (Day & Hunt, 1996; Loeber, 1990). This approach is supported by the finding that the costs of crime to society are highest for offenders aged fifteen to seventeen (Koegl, 2015). Therefore, the most cost-effective crime prevention programs should be those that intervene before the individual reaches adolescence.

Effective crime prevention efforts are those that can first identify individuals at risk of future criminal behaviour; and second, intervene successfully in a targeted manner (Augimeri, Enebrink, Walsh, & Jiang, 2010). One such program that has been proven effective in reducing contact with the criminal justice system is Stop Now and Plan®, or SNAP. In the following sections, research on risk factors for criminal behaviour, criminal trajectories of children and youth, and principles of effective correctional interventions for children and youth (including SNAP) are reviewed, and then new research examining the effectiveness of various SNAP program components at reducing problematic behaviour and police contact will be presented.

Assessing Risk of Future Criminal Behaviour

Risk factors are characteristics that predict future involvement in crime (Kazdin, Kraemer, Kessler, Kupfer, & Offord, 1997). Research on factors related to risk of future criminal involvement first began with adult offenders (Andrews, Bonta, & Hoge, 1990) and has since been extended to youthful offenders and children with behavioural problems, demonstrating consistent findings across gender and ethnic groups within North America (Farrington & Loeber, 1999; Loeber, 1990).

The research on childhood risk factors for criminal behaviour has identified the early onset (prior to age 6) of serious and persistent disruptive behaviour problems, typically defined as poor self-control, hyperactivity, inattention, impulsivity, authority conflict and aggression; as a leading risk factor for future violence and aggression (Day & Hunt, 1996; Loeber, Farrington, & Petechuk, 2003; Loeber, Burke, & Pardini, 2009; Moffitt, 1993; OJJDP, 1999). Serious problematic behaviour can be identified as early as 3 years of age (CDI, 2014a) and has been associated with serious and chronic criminal activity in adulthood (Farrington, 2000; Loeber & Farrington, 2000; Moffitt, 1993). In one longitudinal study of British citizens ($N = 3964$), Murray, Irving, Farrington, Colman, and Bloxson (2010) found that conduct problems at age 5 was the strongest predictor of conduct problems at age 10; and predicted at least one criminal conviction between the ages of 16 and 34 for both boys and girls ($OR_{girls} = 2.4$, CI [1.6, 3.7]; $OR_{boys} = 1.9$, CI [1.6, 2.2]). Therefore, early identification and intervention is critical to a crime prevention and behavioural intervention program's success (Welsh & Farrington, 2007).

Criminal Trajectories of Children At Risk

In Moffitt's (1993) landmark paper, she proposed a "dual taxonomy" of antisocial behaviour (p. 674). According to Moffitt (1993), there are two basic categories of individuals who participate in antisocial behaviour: (1) a relatively small group of individuals who participate in antisocial behaviour consistently throughout the lifespan; and, (2) a majority of individuals who demonstrate limited involvement in antisocial behaviour during their adolescent years only.

The first group was termed "life-course persistent" because their propensity for crime began early (as early as age 3) and remains evident at all stages of development (p. 679). In contrast, the term "adolescent-limited" was applied to those who experimented with antisocial or criminal acts during their teenage years, only to desist completely by early-to-mid adulthood (p. 685). Moffitt (1993) suggests that it is the small group of life-course persistent offenders (approximately 5%) who are responsible for a disproportionate amount of crime (over 50%). This finding has been supported in a number of other studies on criminal trajectories (e.g., Piquero, Farrington, & Blumstein, 2003). It can therefore be extrapolated that intervening with those children who are deemed at greatest risk of persistent offending (i.e., those who demonstrate early and serious disruptive behaviour problem) would have the greatest impact of crime reduction in the long run (Welsh & Farrington, 2007). In other words, investing in crime prevention programs geared towards early intervention with the highest risk children would give you the most "bang for your buck".

Because antisocial behaviour is known to peak in late adolescence/early adulthood (Hirschi & Gottredson, 1983; Moffitt, 1993), many interventions designed to

address criminal behaviour target individuals in this age range. However, those individuals at greatest risk of criminal involvement, the *life-course persisters*, have already accrued years of experience with behavioural difficulties, antisocial tendencies, and contact with the criminal justice system by their adolescent years. The prevalence of first delinquent acts, as well as the prevalence of criminal recidivism, increases in adolescence (Loeber, 1990). In fact, early contact with the criminal justice system is in itself a risk factor for future criminal behaviour (Farrington, 1992, 2005); therefore, it only makes sense to intervene before children develop negative patterns of behaviour that are more resistant to change, particularly behaviour that can result in official criminal charges (at age 12 in Canada) (Loeber, 1990).

Principles of Effective Correctional Intervention

One of the most well-known and empirically-supported models of effective correctional intervention is the Risk-Need-Responsivity (R-N-R) model (Andrews & Bonta, 1998). The R-N-R model developed out of decades of research on risk factors for criminal recidivism and psychological factors associated with successful treatment and states that clinicians must attend to three factors when classifying offenders for the purposes of treatment (Andrews & Bonta, 1998).

The *risk* principle involves considering the risk level of the offender when matching him or her to treatment. In other words, the highest-risk offenders require the most intensive treatment (Andrews & Bonta, 1998). Although this may seem like common sense to many, the opposite is also true – low-risk offenders should receive low-intensity treatment. Low-risk offenders show no effect or negative outcomes when given high-intensity interventions (Andrews & Bonta, 1998).

The *need* principle involves matching the practical goals of correctional treatment with those risk factors that can be linked directly to criminal behaviour (Andrews & Bonta, 1998). For example, pro-criminal attitudes and antisocial peers are both known risk factors that have been linked to criminal behaviour in adults and youth (Andrews et al., 1990; Andrews & Bonta, 1998).

Lastly, the *responsivity* principle states that, in order to be effective, treatment must be delivered in a style and method that is consistent with the abilities of the offender (Andrew & Bonta, 1998). In other words, the type of intervention chosen and the way in which the intervention is delivered must match the learning styles and abilities of the intended recipients. This principle is particularly important when dealing with special groups of offenders such as mentally-ill offenders or members of ethnic minority groups. This principle can also be extended to children at risk of future offending by implementing developmentally-appropriate intervention programs.

Decades of research on clinical interventions addressing criminal recidivism support the effectiveness of programs that adhere to the R-N-R principles of intervention (Andrews, 2001) and thus these principles should provide a solid theoretical framework for programs designed to target problem behaviour in children and youth (Augimeri, Walsh, & Slater, 2011).

Evidence for Effective Interventions

The Canadian landscape of mental health and correctional services for adults has changed over the last ten years resulting in an increased focus on evidence-based treatment programs. The corresponding services for children and youth have followed a similar path and thus a similar focus on empirical support for treatment programs has

resulted. This particular development has understandably influenced the growth of research evaluating intervention programs.

It is established that structured, cognitive-behavioural therapy (CBT) approaches are particularly effective at reducing recidivism in juvenile and adult offenders (Lipsey, Landenberger, & Wilson, 2007; Pearson, Lipton, Cleland, & Yee, 2002). Estimates garnered from meta-analyses investigating the effect of CBT on reducing the rate of criminal recidivism range from 20-30% in adults (Lipsey et al., 2007; Pearson et al., 2002; Wilson, Bouffard, & Mackenzie, 2005). Cognitive-behavioural approaches have also been shown to be effective with younger children resulting in reductions in antisocial behaviour, a well-established precursor to later criminal offending (Farrington & Welsh, 2003; Lipman et al., 2006). Farrington (2005) suggests that the benefit of cognitive-behavioural approaches for high-risk children is its focus on increasing self-control and reducing impulsive behaviour, two known risk factors for future criminal behaviour.

In one meta-analysis, the most effective programs for non-institutionalized juvenile offenders were those that incorporated individual counselling, an emphasis on interpersonal skill development, and behavioural principles, which resulted in reductions of recidivism of up to 40% (Lipsey, Wilson, & Cothern, 2000). Programs that showed promise, but demonstrated less consistent positive results, often included multiple types of services, family counselling, and/or group counselling services (Lipsey, Wilson, & Cothern, 2000). However, it has also been shown that multidimensional treatment approaches that target problem behaviours of both children and their parents demonstrate superior outcomes with greater maintenance of treatment gains compared to programs

focused on one mode of treatment (Kazdin, Siegel, & Bass, 1992; Koegl, Farrington, Augimeri, & Day, 2008; Webster-Stratton & Hammond, 1997).

Programs Focusing on Early Intervention

The increased focus on evidence-based treatment programs for known offenders has spilled over into the literature regarding children and youth at risk of future criminal involvement, stimulating a rise in research evaluating existing early intervention and prevention programs. A number of programs including Multisystemic Therapy (MST; Henggeler, Schoenwald, Borduin, Rowland, & Cunningham, 2009), Functional Family Therapy (FFT; Sexton & Alexander, 2002), and Multidimensional Treatment Foster Care (MTFC; Chamberlain, 2003) have been rigorously evaluated and have consistently demonstrated positive results including reductions in criminal recidivism, out-of-home placements, substance use, and mental illness (Brown, Henggeler, Schoenwald, Brondino, & Pickrel, 1999; Chamberlain & Reid, 1991; Eddy & Chamberlain, 2000; Hansson, Cederblad, & Hook, 2000; Henggeler, Melton, Brondino, Scherer, & Hanley, 1997; Waldron, Slesnick, Brody, Turner, & Peterson, 2001). However, these programs all target adolescents who are already engaged in criminal behaviour and have received criminal charges in youth court. There are very few intervention programs that target children under the age of twelve, before they can be criminally charged; SNAP is one such program.

Stop Now And Plan® (aka SNAP). SNAP is a behavioural modification program for children ages 6 to 11 years who have been identified as demonstrating externalizing behaviour problems such as aggression and delinquency. The program provides intervention and training for children and their parents. The structured

curriculum was designed to teach high-risk children and their parents effective emotional regulation, self-control and problem-solving skills with the goal of keeping kids in school and out of jail (CDI, 2014a).

SNAP was developed in 1985 by Earlscourt Child and Family Centre (now the Child Development Institute) in partnership with the Metropolitan Toronto Police Force (now Toronto Police Service) in response to changes in Canadian legislation decriminalising children under the age of 12 (Young Offenders Act, 1984). The program is now recognized as one of the most well-developed and empirically-supported interventions for high-risk children (Howell, 2001; 2003) and a "model crime prevention program" by the Public Safety Canada (NCPC, 2008, p. 27). The program has since been implemented in jurisdictions throughout Canada, the United States, Europe, and Australia (Augimeri et al., 2011).

In its original form, the SNAP program consisted of two parts, (1) the SNAP Boys/Girls Group, a structured group that meets weekly for 13 weeks and teaches children self-control, problem-solving and emotion-regulation skills; and, (2) a concurrent SNAP Parenting (SNAPP) Group that teaches parents effective child management and positive discipline strategies (CDI, 2014c). As the program continued to grow and eventually moved towards a model of continuing care, it became clear that certain children, those who were assessed as being at greatest risk of future offending, required more services (Augimeri et al., 2011).

Under the umbrella of SNAP, the staff at the Child Development Institute also offer one-on-one individual counselling/mentoring (called Individual Befriending or IB), family counselling sessions based on the SNAPP (Stop Now and Plan® Parenting)

curriculum, and school advocacy/liaison/support for children who are struggling behaviourally at school or not performing at their age-appropriate grade level. It is these three components (IB, family counselling and school advocacy) that are the focus of the present study.

Other services that may be offered to families include academic tutoring, victim restitution, community connections, and long-term continued care services. As SNAP program participants reach adolescence, they may decide to become engaged in continuing services including SNAP Boys Youth Leadership Services, Girls Growing Up Healthy, Leaders In Training (LIT), job readiness, and external programs as needed. As well, a Parent Problem Solving group is offered several times each year to provide continued support to parents who have completed the SNAPP Parenting group. Additional supports (e.g., daycare services; translation; one-on-one Booster sessions) are provided to families enrolled in SNAP to encourage participation in treatment.

Treatment components are provided by highly-qualified staff who complete additional training in SNAP program delivery. Qualifications include Bachelors and Masters degrees in Social Work (BSW, MSW) and advanced diplomas in Child and Youth Care (CYC). Clinical supervisors provide ongoing support and guidance to program staff and participate in pre/debrief sessions before and after every group treatment session.

SNAP Program Components. As part of their continuing care model of treatment, the staff at CDI offer a variety of treatment components to the children and parents they serve based on the child and family's specific treatment needs.

SNAP Boys/Girls Group. SNAP Boys and Girls groups make up the core of the SNAP program (along with the SNAPP Parents' group). These gender-specific groups involve highly-structured, manualized treatment sessions delivered by trained facilitators who teach and model cognitive-behaviour therapy strategies such as emotion recognition and regulation. Participants practice problem-solving through the use of games, role-play exercises, discussions, structured and unstructured play time, and relaxation exercises (Lipman, Kenny, Brennan, O'Grady, & Augimeri, 2011). Topics covered in SNAP Boys groups include anger management, playing fair, bullying, stealing, blame, apologizing, and avoiding trouble (CDI, 2012). SNAP Girls groups also cover additional topics like problem feelings and body cues (CDI, 2014b).

Children attend group once a week for thirteen weeks beginning either in September or January. Groups take place weekday evenings at the Child Development Institute's St. Clair Gardens location. In general, children attend one of six groups based on age and gender (i.e., 6-7 years, 8-9 years, and 10-11 years; boys and girls). Program developers and group facilitators tailor the delivery of program material to each group's level of cognitive development using age-appropriate language and activities.

SNAPP Parents Group. The SNAPP parent's curriculum covers the same principles of problem-solving and emotion regulation as the children's group in addition to principles of effective parenting and positive discipline strategies. Similar to the children's group, skills are taught by facilitators using behavioural modelling, role-plays, homework activities, and group discussions (Lipman et al., 2011). Parents' group topics include listening skills, effective directions, encouragement and rewards, family problem solving, limit setting and consequences (CDI, 2011). Additional topics for parents of

girls include healthy relationships, identifying cognitive distortions, and setting limits (CDI, 2014c). Parents may also review video recordings of their child using his or her SNAP skills in a role-play exercise.

The SNAPP parents' group runs concurrently with the child group so parents and children can attend treatment together. Three of the 13 meetings are joint sessions where parents and children come together to practice the skills they have learned (Augimeri, Walsh, Levene, Sewell, & Rajca, 2014).

Individual Befriending (IB). Individual counselling or mentoring is an additional component of SNAP in which a SNAP worker works one-on-one with the child to reinforce and practice the skills learned in group. This time can also be used to address individual treatment goals such as developing social skills and positive coping strategies. Children receiving IB may also be matched with a SNAP volunteer who help connect them with community resources such as recreational programs and activities (Augimeri et al., 2014).

Family Counselling. Based on the SNAPP parents' group curriculum, family counselling may be provided to families who either cannot attend group for some reason (e.g., scheduling conflicts, language barriers, serious mental illness), or who attend group but require additional/ongoing supports (Augimeri et al., 2014).

School Advocacy. Teachers of program participants are contacted at the beginning of a child's enrolment to introduce them to SNAP and coordinate behaviour management strategies in order to best support the child in his or her regular classroom. SNAP workers may also attend meetings with teachers and/or principals and provide support for parents advocating for their child's educational needs (Augimeri et al., 2014).

Previous research on SNAP. In the 30 years since its introduction, the SNAP program has been continuously evaluated by both internal and external researchers. The existing body of work evaluating the effectiveness of the SNAP program includes *r*andomized controlled trials, quasi-experimental studies using a matched control group or waitlist comparison group, pre/post comparisons, long-term follow up studies, and external replications. Additional studies have focused on risk factors like neurophysiological markers of emotion regulation (e.g., Lewis et al., 2008), parent-child interactions (e.g., Granic, O'Hara, Pepler, & Lewis, 2007), measure validation (e.g., Levene, Walsh, Augimeri, & Pepler, 2004), and cost-benefit analysis (e.g., Farrington & Koegl, 2015).

The first evaluation study of SNAP (called Earlscourt Outreach Project or ORP at the time), reported statistically significant decreases in parent-reported internalizing, externalizing, total behaviour problems, and increases in social competence immediately following treatment for a sample of children referred for delinquent behaviour (Hrynkiw-Augimeri, Pepler, & Goldberg, 1993). These improvements were maintained at 6- and 12-months follow-up. Furthermore, within the twelve months following treatment, only 20% of the participants (n = 7) had further contact with police. This is a considerable change from 78% of participants who had been initially referred to the program because of contact with police (Hrynkiw-Augimeri et al., 1993). Teachers' ratings of internalizing and total behaviour problems (measured by the TRF) also decreased post-treatment.

In the first randomized controlled trial of SNAP, Day and Augimeri (1996) reported significant treatment effects for the Immediate Treatment Group (n = 16)

compared to the Delayed Treatment Group (n = 12) on two measures of delinquency (CBCL subscale and self-reported delinquency), as well as measures of externalizing behaviours (CBCL subscale), internalizing behaviours (CBCL subscale), parent-child interactions, and attitudes towards parents. Effect sizes (Cohen's d) across measures were reported by the authors as ranging from .13 to 1.11 with a mean effect of .58 (Day & Augimeri, 1996). The authors explained that the average parent-child dyad in the treatment group scored better across measures than 72% of the dyads in the control group. Also, using a stepwise multiple regression analysis approach, the authors were able to identify three factors that were related to subsequent police contact for the 14 participants for whom follow-up data was available. On its own, self-reported delinquency (B = .50, p < .001) accounted for 25% of the variance in police contact. When scores on social desirability (B =.49, p < .01) and number of ORP components received (B = .34, p < .05) were added, self-reported delinquency (B = .54, p < .01) accounted for 54% of the variance in police contact (Day & Augimeri, 1996).

In another RCT assessing the immediate, short- and long-term effectiveness of SNAP, children in the Experimental Group (n = 16), who completed SNAP immediately upon admission demonstrated greater reductions in measures of delinquency and aggression than participants in an attention-related control group (n = 14) who first participated in a non-clinical, recreational program and received SNAP after the Time 1 post-treatment measures were collected (Augimeri, Farrington, Koegl, & Day, 2007). This difference in scores was maintained 6-, 12-, and 18-months, even after the control group completed SNAP at the 3-month mark. When long-term criminal outcomes were examined, almost twice as many control group participants (57%) had at least one youth

criminal conviction compared to 31% of participants in the experimental group; however, this difference did not meet criteria for statistical significance (Augimeri et al., 2007). Furthermore, the total number of youth convictions and average number of convictions by offense type did not differ between the two groups (Augimeri et al., 2007).

One proposed explanation for the difference in findings was that despite the intent to provide equivalent service to both groups and due to staffing changes that occurred, participants in the experimental group received more sessions of the various treatment components, on average, than participants in the control group. Therefore, the effects found in this study are likely an underestimation of the actual difference between receiving SNAP and not receiving SNAP.

In an outcome study, Augimeri, Jiang, Koegl, and Carey (2006) looked at the differential effects of SNAP on boys with different initial levels of delinquent involvement. Because SNAP adheres to the R-N-R model of effective intervention, children who are deemed high-risk or high-need upon admission to the program tend to receive more intense treatment, defined as more program components, at a higher dose, defined as number of sessions received. As such, children identified as high-risk/high-need are more likely to receive other program components (i.e., Individual Befriending, Family Counselling, or School Advocacy) in addition to the child and parent groups that make up the core of the SNAP program.

Augimeri et al. (2006) examined the differential effects of the *Group* (or "Standard") SNAP program which consists of the child and parent groups only, with the *Group Plus* (or "Enhanced") program, which consists of the child and parent groups plus at least one session of Individual Befriending. Significant differences in risk level,

assessed by the EARL-20B, was found between the two groups of boys. The boys who received the "Enhanced" or *Group Plus* program were more likely to be deemed high risk than those who received the standard SNAP program. Using growth mixture analyses, it was determined that while the "Standard" program resulted in reductions in delinquency for boys who demonstrated low- to moderate- levels of delinquency on admission, the same could not be said for boys deemed highly delinquent on admission. In fact, the "Standard" program resulted in increases in delinquency for this group (Augimeri et al., 2006). On the other hand, the "Enhanced" program resulted in reductions for all three classes of delinquent boys, demonstrating the need for more intensive services for the highest-risk/highest-need children. Although the relative impact of each additional program component could not be determined in this study, it does underscore the importance of investigating the impact of treatment intensity on outcomes, both short-term and long-term.

A number of other studies of SNAP have suggested that treatment intensity may be an important factor affecting change and therefore should be investigated with respect to treatment outcomes for program participants (Augimeri, Pepler, Walsh, Jiang, & Dassigner, 2009); however, this aspect of the program has yet to be evaluated on a large scale or with respect to its impact on long-term (adult) criminal outcomes. In one study by Burke and Loeber (2014), boys who received SNAP *Group Plus* were compared with boys who received standard community services. Initial effects of SNAP participation were demonstrated for CBCL scores on Aggression ($d = 0.29$), Externalizing ($d = 0.31$), Internalizing ($d = 0.29$), and Anxious-Depressed ($d = 0.29$). One proxy measure of the long-term effects of SNAP program participation is youth criminal justice system

involvement. In their total sample of 150 youth, Burke and Loeber (2014) reported that 25 individuals had juvenile criminal records on follow-up; 15 of the 25 youth had completed the standard community services and 10 had completed SNAP, thus the difference between groups was not statistically significant. Similar analyses using a larger sample is therefore required.

Koegl, Farrington, Augimeri, and Day (2008) investigated the impact of treatment intensity, defined as the number of sessions received of a particular treatment component, on changes in problem behaviours, namely delinquency and aggression, for a small subsample of program participants ($n = 77$). Comparisons of CBCL Delinquency scores pre- and post-treatment showed significant reductions in scores for the Experimental Group (who received SNAP), $t(15) = 4.83$, $p < .001$, and the Matched Group (who participated in SNAP between 1985 and 1996), $t(49) = 4.17$, $p < .001$, but not for the Control Group (who received a non-clinical, recreation program), $t(10) = 0.53$, *ns.* A similar pattern of results was found for CBCL scores on Aggression (Koegl et al., 2008).

Koegl and colleagues (2008) also looked at the relationship between program components received and outcome measures on delinquency as well as major and minor aggression. Delinquency, major, and minor aggression are subscales of the CBCL that can be determined from participants' raw scores. Major aggression includes items such as disobedience, fighting, physical attacks, and threats; while minor aggression comprises more arguing, bragging, mood changes, and jealousy type behaviours. It was determined that the number of SNAP child group sessions was related to decreases in scores on delinquency ($r = .205$, $p < .05$) and (minor) aggression ($r = .295$, $p < .01$); while the number of family counselling sessions was only related to delinquency scores ($r = .187$, p

< .05) (Koegl et al., 2008). Furthermore, a preliminary result of the effect of dosage, defined as the number of treatment sessions received, was reported. The results of a logistic regression suggested a significant effect of number of child group sessions on youth criminal outcomes, defined as at least one criminal conviction between the ages of 12 and 18, $Exp(B) = 3.41$, $p < .05$. However, data on how many past SNAP participants have acquired an adult criminal record has yet to be assessed.

Purpose of the Present Study

The effectiveness of the SNAP boys/girls group and SNAP parents group at reducing problem behaviours, and subsequent involvement in criminal behaviour, has been well established (Augimeri et al., 2006; 2007; 2011; Burke & Loeber, 2014; Farrington & Koegl, 2015). The effectiveness of providing the additional three program components is less well established, particularly with respect to participants' later involvement in criminal activity. The present study used existing data routinely collected by SNAP program staff during recruitment, program delivery and follow-up to evaluate the effects of participation in the extended aspects of the SNAP program on subsequent contact with the criminal justice system.

The goals of the present study were threefold; first, similar to past evaluations of the SNAP program, this study aimed to determine the effectiveness of the main components (children's group and parents' group) at reducing problematic behaviours in a larger sample than previous studies. Second, the study evaluated the impact of the three components (family counselling, individual counselling, and school advocacy) on subsequent problematic behaviours. Third, this study looked at how the type of

therapeutic components and amount of each component provided, and of treatment overall, influenced participants' engagement in criminal activity later in life.

Research Questions, Hypotheses, and Analytic Plan

Research Question	Hypothesis	Measures	Planned Analyses
Description of sample	N/A	BCFPI; FIF EARLs CBCL	Compare individuals who received *Group* with those who received *Group Plus* (any IB, FC, or SA sessions) on demographic variables such as ethnicity, family income, and geography (if possible) Compare mean scores for individuals who received *Group* with those who received *Group Plus* (any IB, FC, or SA sessions) on initial risk level (EARL) as well as delinquency and aggression (CBCL subscale scores)
1. How effective are the SNAP (child and parent) groups initially at reducing problematic behaviours? Are any treatment gains maintained at follow-up?	Based on past evaluation studies, it is expected that participants who complete the SNAP children's and parents' groups will demonstrate significant reductions in problematic behaviours post-group. Furthermore, these treatment gains will be maintained at follow-up.	CBCL – Externalizing Problems scale, Aggressive Behaviours subscale, and Rule-breaking Behaviours subscale; EARLs	Effect sizes, Cohen's *d*, will be calculated for children and their parents who received SNAP groups using pre-treatment and post-treatment scores, on the CBCL and the EARLs, to determine the effect of the SNAP children's and parent's groups on delinquency, aggression, and risk.

2. What are the initial benefits of SNAP *Plus* components, namely Individual Befriending, Family Counselling, and School Advocacy? Are any treatment gains maintained at follow-up?	Based on previous research on effective interventions for juvenile offenders, it is anticipated that participants who received IB and FC will demonstrate significant reductions in problematic behaviours (compared to participants who receive groups only) when initial level of risk is controlled for. SA is not expected to demonstrate significant reductions in problematic behaviour when initial risk level is controlled for.	CBCL – Externalizing Problems scale, Aggressive Behaviours subscale, and Rule-breaking Behaviours subscale; EARLs	Effect sizes, Cohen's *d*, will be calculated for the children who received Individual Befriending, Family Counselling, or School Advocacy (and their parents) for each of the pre-post measures used (i.e., CBCL, EARLs) to determine the effect of these SNAP components on Delinquency and Aggression scores.
3. What factors predict success? Specifically, which *Plus* components predict less police involvement in adolescence (12-17 years of age) and adulthood (18 years and older)?	It is expected that total number of sessions (of all program components combined) will significantly predict later involvement in criminal activity. Specifically, participants who received more sessions of treatment will be less likely to have engaged in criminal activity resulting in police contact than participants who received fewer sessions of treatment.	<u>Number of sessions</u>: - Individual Befriending - Family Counselling - School Advocacy <u>Criminal outcomes</u>: - incidents of police contacts - criminal convictions - length of sentence	Hierarchical linear regression will be used to determine the extent to which the additional program components (Individual Befriending, Family Counselling, and School Advocacy) predict police contact at follow-up.

	Initial risk level will be controlled.		
4. Are the factors that predict success different for girls versus boys?	Based on previous research, it is expected that boys who received IB will demonstrate better outcomes (greater reductions in problematic behaviours and less criminal involvement) than boys who did not receive IB. It is anticipated that the best predictor of success for girls (defined as reductions in problematic behaviours and avoidance of criminal involvement) will be the total number of sessions received.	<u>Number of sessions</u>: - Individual Befriending - Family Counselling - School Advocacy <u>Criminal outcomes</u>: - incidents of police contacts - criminal convictions - length of sentence	If the sample sizes are sufficient, logistic regression models will be examined separately for boys and girls to determine if different program components predict success for each of the groups.
5. How does the intensity of treatment, defined as number of treatment components received, affect the outcome? What is the effect of dosage, defined as number of sessions received, on outcomes?	Based on what is known about effective interventions for juvenile and adult criminal offenders as well as at-risk children and youth, it is expected that greater treatment intensity, defined as a greater total number of treatment sessions received, will have a significant positive effect on reducing future criminal	<u>Number of sessions</u>: - Individual Befriending - Family Counselling - School Advocacy <u>Criminal outcomes</u>: - incidents of police contacts - criminal convictions - length of sentence	Correlations will be calculated for the number of treatment components received and change scores on pre-post measures. Similarly, correlations between the number of treatment components received and number of police contacts and number of criminal convictions recorded will be calculated.

	behaviour in at-risk children.		

CHAPTER II

Method

Participants

Participants were 754 children (57.8% male, 42.2% female) ranging in age from 3.84 to 14.67 years (M = 8.93, SD = 1.78) at the time of initial enrolment in the SNAP program, who were admitted to SNAP between January 1, 2001 and December 31, 2013.

Overview of Original Data Collection

Children identified as having serious and persistent behavioural problems were referred to the Child Development Institute by the police, the local Children's Aid Society, his or her parent(s), school, or other community organizations.

Parents/caregivers of children deemed appropriate for the SNAP program then completed the Brief Child and Family Phone Interview (BCFPI) with an intake worker to determine if child met criteria for SNAP. The eligibility criteria for the SNAP program states that the child must be between 6 and 11 years old at the time of referral, he or she must have demonstrated elevated scores (in the clinical range) on the *Externalizing Behaviors Scale* of the BCFPI, and the child may have had previous contact with the police. If the child met the eligibility criteria, an intake worker conducted a home visit with the family to administer the screening measures including the Family Information Form (FIF).

Based on the results of the home visit and screening measures, participants were assigned to either the waitlist or were admitted for immediate treatment. If admitted directly, participants completed the initial assessment battery (pre-test) including the Child Behavior Checklist (CBCL 6/18; Achenbach & Rescorla, 2001), Teacher Report

Form (TRF/6-18; Achenbach & Rescorla, 2001), Early Assessment Risk Lists (EARL-20B; Augimeri, Koegl, Webster, & Levene, 2001; EARL-21G; Levene et al., 2001), Parenting Stress Index – Short Form, 3rd edition (PSI-SF; Abidin, 1995), Conflict Resolution – Parent (CR-P; CDI, n.d.), and Beck Depression Inventory – Second Edition (BDI-II; Beck, Brown, & Steer, 1996). Based on the results of the initial assessment, a treatment plan was formulated to address the individual child's risks and needs.

Upon admission to service, parents were asked to sign a research consent form allowing their information to be used for research purposes. All information collected in the course of treatment remained confidential unless required by law. Any information used for the purpose of research was anonymized to protect the confidentiality of all parties receiving services.

Once treatment is completed, participants were assessed again using the same measures (post-test). If no further treatment was requested, participants were discharged from the program.

Follow-up assessments were conducted at various intervals (6-, 12-, 18-months, etc.) or if no contact was made with the child after approximately 6 months, the file was closed. Data produced by all intake, pre-treatment, post-treatment, and follow-up measures were routinely collected and entered into digital files by research staff at the Child Development Institute to be used in research.

Materials

Screening measures.

Brief Child and Family Phone Interview (BCFPI-3; Cunningham, Pettingill, & Boyle, 2006). The BCFPI is a brief (30- to 45-minute), structured, clinical intake

interview designed to assess the behaviour and emotional adjustment of a child in need of mental health services (Appendix A). The interview is administered to parents and teachers of children between the ages of 3 and 18 years (Cunningham et al., 2006). It is intended to be administered at intake, before any other assessments or treatment are administered (Cunningham et al., 2006). Questions relating to the child's mental health are clustered into seven groups: Regulation of Attention, Impulsivity, and Activity Level (RAIA), Cooperativeness (CO), Conduct (CD), Separation from Parents (SP), Managing Anxiety (MA), Managing Mood (MM), and Self Harm (SH) (Cunningham et al., 2006). Specific syndromes assessed by the BCFPI include attention-deficit hyperactivity disorder (ADHD), oppositional defiant disorder (ODD), conduct disorder (CD), separation anxiety disorder (SAD), generalized anxiety disorder (GAD), and major depressive disorder (MDD). The BCFPI also assesses the impact these issues have on the functioning of the child and family. Other areas of functioning examined by the BCFPI include social participation, relationships, school participation and achievement, family activities, and family comfort (Cunningham et al., 2006). Other areas assessed by the BCFPI include demographics, behaviour and emotional adjustment, family activities, and discipline style.

The reliability and validity of the BCFPI has been assessed in both clinical and non-clinical samples (Boyle et al., 2009; Cook et al., 2013). Estimates of internal-consistency reliability (Cronbach's alpha) range from .73 to .86 for seven of the eight Mental Health subscales (estimates for the Conduct Disorder subscale range from .56 to .68) (Boyle et al., 2009; Cunningham et al., 2006). Cronbach's alpha scores range from

.69 to .86 for the Child and Global Family Situation scales, .79 to .83 for Informant Mood, and .81 to .84 for Family Functioning (Cunningham et al., 2006).

Test-retest reliability estimates for BCFPI classifications using Pearson's correlation coefficient range from .45 to .62 (Boyle et al., 2009). Pearson correlations of symptom counts between the BCFPI and the Diagnostic Interview Schedule for Children Version IV (DISC-IV; Shaffer, Fisher, Lucas, Dulcan, & Schwab-Stone, 2000) were used to establish concurrent validity. All correlations between the two measures exceeded .65 (Boyle et al., 2009). Additionally, the ability of the BCFPI to distinguish between disorders is comparable to the Child Behavior Checklist (CBCL; Achenbach, 1991), another reliable and valid assessment tool for childhood disorders (Cook et al., 2013).

Family Information Form (FIF; Child Development Institute, 2010). The Family Information Form (FIF) is a comprehensive demographic questionnaire given to parents during the screening/intake process (Appendix B). The FIF collects information regarding the family's ethnic composition, socioeconomic status (SES), educational achievement and marital status of parents/guardians, style of discipline used, and concerns about child welfare and family functioning.

Pre- and post-treatment measures.

Child Behavior Checklist 6-18 (CBCL; Achenbach, 1991; CBCL/6-18; Achenbach & Rescorla, 2001). As part of the Achenbach System of Empirically Based Assessment (ASEBA; Achenbach & Rescorla, 2001), the CBCL/6-18 is a checklist designed to assess a school-aged child's level of emotional, behavioural, and social functioning over the last six months (Appendix C). The 112-item paper-and-pencil checklist can be completed by the child's parent or caregiver in approximately fifteen to

twenty minutes (Achenbach, Dumenci, & Rescorla, 2002). Items are rated on a 3-point scale: 0 = *not true*, 1 = *somewhat or sometimes true*, and 2 = *very true or often true* (Ang et al., 2012). A self-report form for older youth (ages 11 to 18 years), the Youth Self-Report (YSR/11-18; Achenbach, 1991), is also available.

The measure consists of 8 empirically-derived syndrome scales and six diagnostic scales that coincide with the Diagnostic and Statistical Manual of Mental Disorders (DSM-IV-TR; American Psychiatric Association, 2000). Scores on the Aggressive Behaviour subscale (a measure of physically aggressive behaviour) and the Rule Breaking subscale (a measure of delinquent behaviour) collected at intake (pre-treatment), post-treatment, and 12-month follow-up were used where available. T-scores of 65 are typically used as the cutoff between clinical and non-clinical populations (Achenbach & Rescorla, 2001). The CBCL/6-18 also provides normed tools for identifying intervention needs and evaluating treatment outcomes.

Achenbach and Rescorla (2001) report very high values for test-retest item reliability: 1.00 for the competence items and .95 for the specific problem items. For scale scores (Total Competence, Total Adaptive Functioning, and Total Problems), test-retest reliability coefficients range from .91 to .95 (Achenbach & Rescorla, 2001). Cronbach's alphas for the competence scales range from .63 to .79 (Achenbach & Rescorla, 2001). For the specific problem scales, alphas range from .78 to .97. Finally, for the DSM-oriented scales, alphas range from .72 to .91 (Achenbach & Rescorla, 2001).

Cross-informant agreement on the CBCL is also high between parents (rs > .70) for scale scores. However, agreement between forms of the measure (parent-report versus youth self-report versus teacher-report) are considerably lower: rs range from .37

to 60 for CBCL vs. YSR and .12 to .44 for CBCL vs. TRF (Achenbach & Rescorla, 2001).

For participants who had scores from more than one source at a single time point (e.g., mother and father), the scores were averaged.

Early Assessment Risk Lists (EARL-20B; Augimeri, Koegl, Webster, & Levene, 2001; EARL-21G; Levene et al., 2001). The EARL set of risk assessment tools were developed by clinicians and researchers the Child Development Institute for use with children demonstrating severe behavioural problems. The measures assess the presence or absence of gender-specific risk factors for antisocial behaviour; as such, two versions of the EARL exist: EARL-20B for boys (Appendix D) and EARL-21G for girls (Appendix E). Items on both measures are rated on a three-point scale: 0 = *not present*, 1 = *somewhat/partially present*, and 2 = *definitely present*, which are summed to produce an overall score between 0 and 40 (42 for the girls' checklist). Items are grouped into three categories: Family, Child, and Responsivity factors (Augimeri et al., 2010), which combine to provide an estimate of the child's overall current level of risk (Augimeri et al., 2012). Higher scores represent higher risk, although no official cutoffs are provided (Enebrink, Långström, & Gumpert, 2006). Finally, the EARL measures include an overall clinical judgment rating allowing clinicians to make a risk designation (low, moderate, or high) different from that suggested by the total score using their professional judgment and their knowledge of the child and family (Augimeri et al., 2012).

Items under the Family domain assess aspects such as support, supervision, encouragement, and nurturance (Augimeri et al., 2012). The items under the Child domain concern individual risk factors such as academic performance, antisocial

attitudes, coping ability, and trauma/abuse/neglect (Augimeri et al., 2012). Items under the Responsivity domain assess protective factors such as the child and family's willingness to engage in treatment (Augimeri et al., 2012).

The EARL-21G is comprised of the same items as the EARL-20B except for the addition of two female-specific items (Caregiver-Daughter Interaction and Sexual Development) and the combination of two items regarding contact with authority and antisocial behaviour (Augimeri et al., 2012). Beside each item on the checklist is a Clinical Risk checkbox, which allows those completing the measure to identify specific factors of concern that should be the focus of treatment for that child (Augimeri et al., 2010).

Overall scores on the EARLs as well as the Overall Clinical Judgment (OCJ) rating collected at intake (pre-treatment), post-treatment and 12-month follow-up were used where available. For participants who had scores from more than one source at a single time point (e.g., mother and father), the scores were averaged.

Reliability and validity of the EARL-20B. Initial reports of interrater reliability on EARL-20B subscale scores range from moderate to excellent: intraclass correlation coefficients (ICCs) of .55 for Responsivity items, .73 for Child items, and .79 for Family items (Hrynkiw-Augimeri, 2005). In a study of Swedish children and adolescents, interrater reliability for Total, Child, and Family scores were excellent with ICCs between .90 and .92 (Augimeri et al., 2010; Enebrink et al., 2006). Reliability for overall risk level designation (low, moderate, or high) was also "acceptable" (k = .48) (Enebrink et al., 2006, p. 442).

Examining the criminal outcomes of boys whose risk level was assessed based on intake information assessed predictive validity. It was found that, on average, boys who were determined to be high risk based on their EARL-20B scores had significantly more court appearances and convictions later on than those who were determined to be low risk (Hrynkiw-Augimeri, 2005).

Reliability and validity of the EARL-21G. Findings for interrater reliability for the EARL-21G are similar to the EARL-20B.

Criminal outcome data. Part of the routine follow-up procedure at CDI involves tracking the criminal involvement of past program participants. As such, CDI has a standing agreement with the Ministry of Child and Youth Services (MCYS), the Ministry of Community Safety and Correctional Services (MCSCS), and the Royal Canadian Mounted Police (RCMP), which allows them access to the criminal records of past SNAP participants. The Canadian Police Information Centre (CPIC) database is a national database of all police contacts recorded and submitted by individual police agencies and maintained by the Royal Canadian Mounted Police. All information relevant to the incident of contact is recorded including charges laid (and withdrawn), court decisions/dispositions (convictions, acquittals, absolute and conditional discharges), sentences, and conditions. Names and dates of birth of past SNAP clients are submitted to the three agencies and checked against the youth and adult criminal records databases. Information regarding each criminal charge laid for individuals with criminal records was released to CDI and sanitized by the research staff at CDI before it was used for the purpose of this study.

Current Procedure

As this study involved the secondary analysis of data routinely collected by the research staff at the Child Development Institute, access to the electronic data files and hard-copy clinical files was provided by the scientific director at CDI. Research staff at CDI prepared the clinical files for examination and began the file review and data entry processes. The PI participated in file review and data entry (on site) over six weeks during the summer and fall of 2015. The team reviewed hard-copy clinical files for approximately 800 discharged clients who were admitted between 2001 and 2013. The type and number of treatment sessions received by each client were logged by the research staff at CDI, after cross-validation with the institute's data management system.

The PI was provided on-site access to the relevant data files, including participants' pre-treatment and post-treatment scores on the CBCL Aggressive Behaviour, Rule-Breaking Behaviour and Externalizing Problems scale scores, pre- and post-treatment EARL ratings, demographic data from the BCFPI and FIF, as well as the previously prepared SPSS files containing the treatment intensity and dosage data. Additionally, access to the files containing data regarding participants' youth and adult criminal records was provided.

All data files were stripped of identifying information and transferred to an encrypted data storage device which was removed from site by this researcher for analyses. The data and resulting findings remain property of the Child Development Institute.

Case identification and matching. The research team at CDI maintains a number of different datasets for each of the intake and pre-post measures administered to

client families. Scores on screening and pre-post measures along with demographic information were combined by matching cases using the client identification number (Client ID) and date of birth.

Individual police records of those flagged as having come into contact with police were matched to clinical treatment information and test scores using a master list of CDI client identification numbers and RCMP/Ministry identification numbers provided by the research staff at CDI.

Data entry and coding. Demographic information (ethnic background, family composition, parent education, income level and source) was compiled from multiple sources and recoded using a composite of the original categories.

A composite variable entitled School Liaison was created by combining School Advocacy and School Meeting components.

Change scores for EARLs total scores and CBCL Aggression and Rule-Breaking subscale scores were calculated by subtracting scores at Time 1 (pre-treatment) from scores at Time 2 (post-treatment).

Criminal charges and convictions were first coded by Criminal Code of Canada section number (Appendix G) and then assigned a categorical label based on offence type (property, violent, drug crimes, etc.) and severity of offence following the categorization of criminal offences used in a similar study of high-risk children and youth in Canada (Koegl, 2011, p. 33). Finally, criminal contact was coded dichotomously to reflect whether or not the participant had any contact with police either as a youth or an adult. For participants who had been in contact with police, the number of criminal charges and convictions received were also recorded at both the youth and adult levels. For those with

adult criminal charges, charges and convictions were recorded at both the provincial and federal levels.

Analyses

Data Cleaning and Sample Preparation

The initial data file received from CDI contained 1879 entries for participants who had received services from the Child Development Institute. Figure 1 outlines how the database was refined for use in this study. Cases were removed if referred for services unrelated to SNAP (n = 428), if admitted to service before January 1, 2001 or after December 31, 2013 (n = 301), or if they received specialized services including SNAP for Asperger's (n = 27) or SNAP Anxiety6+ (n =17). An additional seven cases were excluded because although they were referred to SNAP, they discontinued service before any treatment was provided. Another 314 cases were excluded because they did not receive any group treatment sessions. For example, many of these clients participated in the summer camp program or youth services after the age of twelve. Finally, 19 cases that were re-referrals were subsumed under the initial referral ID and 12 duplicate cases were deleted. This resulted in a sample of 754 unique individuals who received *Group* or *Group Plus* treatment between 2001 and 2013. This subsample will be referred to as the Treatment Intensity sample henceforth.

Once the Treatment Intensity sample was identified, the data was examined for completeness. Demographic information was available for much of the sample. Where individual values for demographic variables were missing, values were coded as *Not reported*. Number and types of components and sessions were available for all 754 participants. Pre-treatment risk scores were available for 613 individuals (85% of the

total sample) while pre-treatment behaviour scores for the Aggressive Behaviour and Rule-Breaking subscales of the CBCL were available for 597 individuals (83% of the total sample). Post-treatment scores on the EARLs were available for 438 individuals (58% of the total sample) and for 453 individuals (60%) on the CBCL subscales. Follow-up scores on the EARLs (most collected at 12-months post-treatment) was available for 57 individuals (7.5% of the total sample) and 137 individuals (18% of the total sample) on the CBCL subscales. The names of 474 individuals from the Treatment Intensity sample had been submitted for criminal record checks. Records of police contact were returned for 79 individuals (17% of names submitted).

Of the Treatment Intensity sample, 86% (n = 646) received at least one session of SNAP child group and one session of SNAPP parent group. The remaining 14% received either no group sessions (n = 63), only child (n = 15), or only parent groups (n = 30), but not both. Of the 646 participants who received both child and parent groups, 73% (n = 472) completed at least eight sessions of SNAP child groups and SNAPP parent groups. The remaining 27% was composed of individuals who did not complete either child or parent groups (n = 105), individuals who completed only the child group (n = 50), and individuals who completed only the parent group (n = 19).

Target sample. The target sample for analysis in this study was the 472 clients who completed at least eight sessions of both child and parent groups. Of these, 80% (n = 379) also received at least one session of Individual Befriending, Family Counselling, and/or School Liaison. These individuals make up the *Group Plus* category. The remaining individuals who completed both child and parent groups but who did not receive any *Plus* components (n = 93) comprised the *Group* category.

In the *Group* category, pre-post scores were available for 62% of participants (n = 58). In the *Group Plus* category, pre-post scores were available for 65% of participants (n = 245). Finally, criminal record information was available for 67% of participants in each of these categories who also had pre-post scores on all measures (n = 165 for *Group Plus*, and n = 38 for *Group*).

Analysis of missing data. As noted, pre-post data was not available for all individuals who completed child and parent group sessions. Missing post-treatment scores were not estimated; however, binary logistic regressions were performed to determine which variables were predictive of missing scores on the EARL and CBCL.

Demographic characteristics and treatment session variables for the target sample of group completers (n = 472) were entered into a binary logistic regression to identify those associated with missingness for EARL pre- and post-treatment scores. Gender, ethnicity, education, and number of Individual Befriending sessions were identified as statistically significant predictors of missing EARL pre-post scores.

The proportion of males with missing data was lower than the proportion of females with missing data (males: 31.5%, 95% CI [26.4, 36.9]; females: 44.7% [36.8, 52.0]).

A greater proportion of client families who had pre-post scores on the EARL did not report ethnic background (27.8%, 95% CI [22.7, 32.7]) compared to those who did not have pre-post scores on the EARL (12.9%, [8.1, 18.1]).

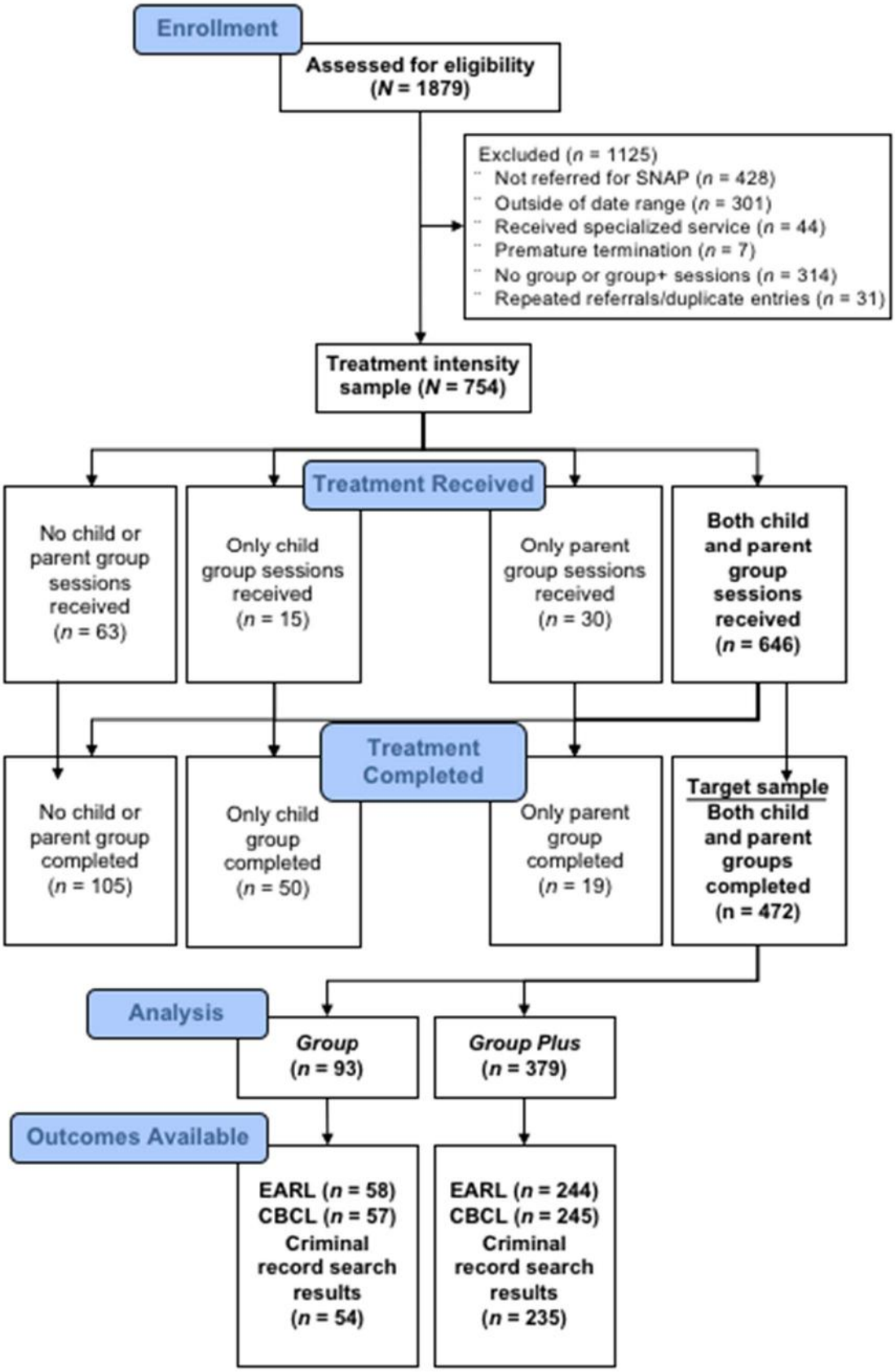

Figure 1. Flowchart of sample selection procedure.

Finally, on average, participants for whom pre-post scores on the EARL were available received more sessions of Individual Befriending (M = 7.03, SD = 9.53) than those for whom pre-post EARL scores were not available (M = 5.22, SD = 7.59), (M_{diff} = 1.81, 95% CI_{diff} [.24, 3.38]).

The same procedure was followed for pre-post scores on the CBCL (Child Behavior Checklist). Ethnicity, education, income, number of Individual Befriending sessions, number of *Plus* sessions, and number of total treatment sessions were significant predictors of missing pre-post scores on the CBCL. However, upon examination of 95% confidence intervals for frequency of "not reported" values for annual family income, no differences were observed.

With respect to ethnicity, a greater proportion of client families who had pre-post scores on the CBCL did not report ethnic background (26.8%, 95% CI [22.1, 32.0]) compared to those who did not have pre-post scores on the CBCL (14.7%, [9.9, 20.0]).

The opposite result was found for education. A greater proportion of client families with missing pre-post CBCL scores reported no information on education (21.8%, [15.9, 28.0) than those with pre-post CBCL scores (13.6%, [9.8, 17.6]).

On average, participants for whom pre-post scores on the CBCL were available received more sessions of Individual Befriending (M = 7.55, SD = 9.80) than those for whom pre-post CBCL scores were not available (M = 4.31, SD = 6.61), (M_{diff} = 3.24, 95% CI_{diff} [1.75, 4.72,]). Similarly, participants for whom pre-post scores on the CBCL were available received more *Plus* sessions (M = 13.87, SD = 12.04) than those for whom pre-post CBCL scores were not available (M = 9.21, SD = 7.43), (M_{diff} = 4.66, 95% CI_{diff} [2.06, 7.27]).

Finally, participants for whom pre-post scores on the CBCL were available received more total treatment sessions (M = 48.20, SD = 29.41) than those for whom pre-post CBCL scores were not available (M = 39.84, SD = 21.07), (M_{diff} = 8.36, 95% CI_{diff} [3.76, 12.96]).

Evaluation of normality. Standardized skewness and kurtosis values were examined for all variables first in the overall sample, then in the target sample of group completers. Due to the large sample sizes obtained, even small standard errors can produce significant values for skewness and/or kurtosis despite the appearance of a normal distribution. Individual histograms for each variable were also checked for skewness and kurtosis.

Pre- and post-treatment scores on the EARLs and CBCL subscales were approximately normally distributed, as were the changes in scores between Time 1 (pre-treatment) and Time 2 (post-treatment). Pre- and post-treatment scores on the CBCL Externalizing scale were slightly negatively skewed according to standardized skewness values.

Length of time in service was positively skewed with a large proportion (66%) of the sample receiving fewer than 500 days of service. The number of SNAP child group sessions and number of SNAPP parent group sessions were both negatively skewed while the number of Family Counselling, number of Individual Befriending, and number of School Liaison sessions were positively skewed. Total number of treatment components received, total number of sessions overall, and total number of *Plus* sessions specifically, were all positively skewed.

All criminal record variables were positively skewed.

Identification of univariate outliers. All variables were checked for extreme values and individual cases with extreme scores (z scores > 3.29) on one or more variables were identified. Two pre-treatment and three post-treatment scores on the CBCL Externalizing Problems scale were greater than three standard deviations from the mean (i.e., - 3.29 < z scores > + 3.29) and therefore, were considered extreme (Field, 2009). Sixteen cases had extreme values for number of Family Counselling sessions, 10 for Individual Befriending sessions, and four cases for School Liaison sessions. Eleven cases had extreme values on the number of total treatment sessions received, and five had extreme values on *Plus* sessions received. With respect to criminal contacts, four cases had extreme values on total police contacts, and one case had an extreme value on number of federal convictions. These values were adjusted to bring the identified values within approximately three standard deviations of the mean.

Identification of multivariate outliers and regression diagnostics. After each regression analysis was run, diagnostic statistics were examined to determine if the appropriate assumptions had been met and/or if any influential cases (outliers) were present. Values for Cook's distance, leverage, DFBeta, and DFFit were examined for the presence of outliers. Histograms and normal P-P plots of the standardized residuals for each predictor and outcome variable were checked for normality. Scatterplots of standardized residuals and predicted values were examined for evidence of heteroscedasticity. Durbin-Watson test statistics were calculated to test the independence of residuals. Variance inflation factor (VIF) values were assessed for evidence of multicollinearity between predictors.

EARLs. Three cases were identified as multivariate outliers and were checked for

data entry errors. Two cases were corrected for change scores on the EARLs. One case was removed from analysis that involved this variable because it represented extreme scores on the EARLs that would bias the results of the regression analysis.

CBCL. Four cases were identified as multivariate outliers and checked for data entry errors. Two cases were corrected for number of child group sessions and total number of treatment components received. The regression models were run with and without the remaining two cases that represented extreme values on number of parent group sessions. The results of the regression analyses did not change notably with the removal of these two cases, so both cases were retained.

Data analysis. All data analyses were conducted using IBM SPSS Statistics Version 22.0.

The first step in the analysis of the data was to generate a table of correlations amongst all variables and examine the relationships that exist. To determine strength of association between continuous, normally-distributed variables, Pearson product-moment correlation coefficients (r) were calculated. To determine the strength of association between continuous, non-normally distributed variables, Spearman's rank order correlation coefficients (r_s) were calculated.

Second, to evaluate the impact of completing SNAP children and parents' groups and additional treatment components on delinquency, aggression and risk, mean scores on each measure were compared between participants who received *Group* and *Group Plus*. Effect sizes were calculated using the means and standard deviations for pre-treatment and post-treatment scores on the CBCL and the EARLs.

To examine the relationship between treatment intensity and reduction in problematic behaviours (aggression and delinquency), hierarchical linear regressions were performed to determine which *Plus* treatment components predicted changes in scores on the EARL and CBCL after treatment.

Hierarchical logistic regression was then used to determine which *Plus* program components (Individual Befriending, Family Counselling, and School Liaison) predict whether participants have any criminal record at follow-up.

CHAPTER III

Results

The results are described as follows. To provide the necessary context for understanding the characteristics of the various subsamples included in the primary analyses, the characteristics of the total Treatment Intensity sample ($N = 754$) are described first. A description of the characteristics of child and parent group completers are then compared to non-completers.

Within the Target Sample of group completers ($n = 472$), differences between boys and girls are described as well as differences between clients who received *Group* treatment and those who received *Group Plus* treatment. Finally, within the 472 group completers, individuals whose names were submitted for the criminal record check are described ($n = 289$).

Following the descriptions of the characteristics of these subsamples, the primary analyses conducted with the Target Sample ($n = 472$) are provided. Analyses include examination of the relationship between treatment received, within-program outcome variables, and criminal outcomes.

Characteristics of the Treatment Intensity Sample ($N = 754$)

Demographic characteristics of the Treatment Intensity sample are provided in Table 1 (first column). The sample was composed of slightly more male than female children (58% vs. 42%). Clients ranged in age at referral from 3.64 to 14.51 years ($M = 8.79$, $SD = 1.79$), and at admission from 3.84 to 14.67 years ($M = 8.93$, $SD = 1.79$). Over 95% of the sample was admitted during the program's target ages of 6 to 11 years.

Table 1

Demographic characteristics of Treatment Intensity sample, group completers, and criminal record holders

Demographic Variable	Treatment Intensity Sample *N* = 754 %	Target Sample (Group Completers) *n* = 472 %	Criminal Record Holders *n* = 79 %
Gender			
Male	57.82	65.90	75.95
Female	42.18	34.10	24.05
Ethnicity			
White/Caucasian/European	30.37	33.90	10.13
Black/African Origin	5.84	7.00	8.86
Native Canadian	1.59	.64	1.27
Asian/East Asian	1.59	1.70	3.80
Latin American/Hispanic	2.92	2.33	3.80
Middle Eastern	.53	.85	-
Biracial/Multiple origin	14.59	16.74	7.60
Other-Jewish heritage	.80	1.06	-
Other-Portuguese	.66	.85	1.27
Other-Caribbean	3.71	3.81	3.80
Other-not specified	4.38	2.75	1.27
Canadian-not specified	5.57	5.93	2.53
No ethnicity identified	27.45	22.46	55.70
Family Composition			
Single parent	45.89	47.67	55.70
Two parent	37.53	39.41	39.24
Not specified	16.58	12.92	5.06
Parental Education Level			
Some elementary	1.19	.64	3.80
Completed elementary	1.86	1.06	3.80
Some secondary	7.69	7.63	17.72
Completed secondary	15.92	14.62	25.32
Some post-secondary	11.94	11.23	12.66
Completed college/trade	15.65	16.53	17.72

Completed university	26.26	31.57	12.66
No schooling completed	.13	.21	-
No information/blank	19.36	16.53	6.33
Family Income Level			
$0-$9,999	5.31	3.39	13.92
$10,000-$14,999	9.81	9.32	11.39
$15,000-$19,999	8.49	7.63	13.92
$20,000-$29,999	13.13	14.19	17.72
$30,000-$39,999	7.56	6.99	11.39
$40,000-$49,999	5.83	6.36	6.33
$50,000-$59,999	5.44	4.66	3.80
Greater than $60,000	23.74	29.03	7.59
Not identified/Blank	20.69	18.43	13.92
Income Source			
Social assistance	10.21	9.75	20.25
Employment	55.70	59.75	48.10
Disability pension	2.65	2.97	1.27
Other/not reported	31.43	27.54	30.38

Approximately three quarters (73%) reported their ethnic background at intake. Much of the sample identified as White or Caucasian (30%), Biracial or Multiple Origin (15%), Black or African American/Canadian (6%), Canadian – not otherwise specified (6%), Other – not specified (4%), or Caribbean (4%).

Eighty-three percent provided information on family composition. Almost half (46%) came from a single parent household; 37% came from a two parent household.

Eighty-one percent reported the highest level of education achieved by the parent or spouse. Of these, over one-quarter (26%) had completed a university degree. An additional 12% had completed some post-secondary education and 16% had completed a college degree or trade school program. Sixteen percent completed high school and 11% had less than a secondary school diploma.

Seventy-nine percent of clients provided level of income. The average annual income of client families fell between $30,000 and $50,000 per year with 24% reporting an annual income of greater than $60,000 and 5% reporting less than $10,000 in annual income. Furthermore, 70% provided information on the source of their annual family income. Employment (salaries and wages) was the main source of income for 56%, followed by social assistance (10%) and employment insurance (3%).

Treatment information was available for all clients in the Treatment Intensity sample. The average number of sessions received was 8.20 (*SD* = 4.29) for SNAP child group and 8.07 (*SD* = 4.25) for SNAPP parent group. Seventy percent of participants completed at least 8 sessions of SNAP child group and 67% completed at least 8 sessions of SNAPP parent group. Of the sample, 63% percent received at least one session of Family Counselling (*M* = 4.96, *SD* = 7.59), 52% received at least one session of Individual Befriending (*M* = 5.45, *SD* = 8.40), and 30% received at least one sessions of School Liaison (*M* = .72, *SD* = 1.54).

Overall, 70% of participants who completed both child and parent groups received at least one *Plus* treatment component. The average number of *Plus* components received was 1.45 (*SD* = 1.04) and the average number of *Plus* sessions was 11.13 (*SD* = 14.73). Taking into account all treatment components (including child and parent groups and *Plus* treatment components), the average number of treatment sessions received by clients was 37.43 (*SD* = 27.92). Descriptive statistics for treatment components and sessions received by all clients in the Treatment Intensity sample are presented in Table 2.

Table 2

Treatment components and sessions received, Treatment Intensity sample (N = 754)

Treatment	*M*	*SD*	*Min.*	*Max.*	*Mdn.*
SNAP child group sessions	8.20	4.29	0	19	10.00
SNAPP parent group sessions	8.07	4.25	0	22	9.50
Family counselling sessions	4.96	7.59	0	33	1.00
Individual befriending sessions	5.45	8.40	0	36	1.00
School liaison sessions	.72	1.54	0	8	.00
Plus components	1.45	1.04	0	3	1.00
Plus sessions	11.13	14.73	0	76	5.00
Total components	3.47	1.48	0	8	3.00
Total sessions	37.43	27.92	1	134	30.00

Note. Plus refers to Individual Befriending, Family Counselling, and School Liaison.

Group completers vs non-completers. Demographic characteristics of the Target Sample of group completers compared to non-completers are provided in Table 3. Group completers had a significantly higher proportion of males compared to non-completers. Group completers ranged in age at referral from 4.42 to 11.80 years (M = 8.67, SD = 1.65) and at admission from 4.52 to 12.11 years (M = 8.81, SD = 1.67); while non-completers ranged in at referral from 3.64 to 14.51 years (M = 8.99, SD = 1.94) and at admission from 3.84 to 14.67 years (M = 9.14, SD = 1.94); Age at referral: M_{diff} = .32, 95% CI_{diff} [.05, .59]; Age at admission: M_{diff} = .33, 95% CI_{diff} [.06, .60].

Seventy-seven percent reported their ethnic background at intake compared to 64% of non-completers; a difference in proportion which was statistically significant. Aside from this difference and a small difference in proportion of participants identified as Other-not specified, no significant differences were found in the ethnic composition of the two groups.

Table 3

Demographic characteristics of Group Completers and Non-completers

Demographic Variable	Group Completers *n* = 472		Group Non-Completers *n* = 282	
	%	95% CI	%	95 % CI
Gender				
Male	65.90	61.6, 70.3	44.32	38.4, 49.8
Female	34.10	29.7, 38.3	55.67	50.2, 61.6
Ethnicity				
White/Caucasian/Europea	33.90	29.4, 38.3	24.47	19.8, 30.0
Black/African Origin	7.00	4.7, 9.5	3.90	2.0, 6.4
Native Canadian	.64	0, 1.4	3.19	1.1, 5.2
Asian/East Asian	1.70	.6, 2.9	1.42	.3, 2.9
Latin American/Hispanic	2.33	1.0, 3.6	3.90	1.7, 6.2
Middle Eastern	.85	0.2, 1.9	-	
Biracial/Multiple origin	16.74	13.8, 20.2	10.99	7.3, 15.2
Other-Jewish heritage	1.06	.2, 2.1	.35	0, 1.2
Other-Portuguese	.85	.2, 1.7	.35	0, 1.2
Other-Caribbean	3.81	2.2, 5.5	3.55	1.6, 5.8
Other-not specified	2.75	1.5, 4.3	7.09	4.4, 10.2
Canadian-not specified	5.93	3.8, 8.1	4.96	2.5, 7.8
Not reported	22.46	18.7, 26.1	35.82	30.3, 41.5
Family Composition				
Single parent	47.67	43.1, 52.2	42.91	37.2, 48.9
Two parent	39.41	35.1, 44.0	34.40	28.6, 39.8
Not specified	12.92	9.9, 15.9	22.70	17.8, 28.1
Parental Education Level				
Some elementary	.64	0, 1.5	2.13	.7, 4.1
Completed elementary	1.06	.2, 2.1	3.19	1.3, 5.4
Some secondary	7.63	5.2, 10.0	7.80	4.7, 11.1
Completed secondary	14.62	11.5, 17.6	18.09	13.8, 22.4
Some post-secondary	11.23	8.4, 14.3	13.12	9.3, 17.3
Completed college/trade	16.53	13.1, 20.0	14.18	10.3, 18.3
Completed university	31.57	27.2, 35.9	17.38	13.0, 21.7
No schooling completed	.21	0, .7	-	

No information/blank	16.53	13.2, 19.8	24.11	19.1, 29.1
Family Income Level				
$0-$9,999	3.39	1.7, 5.1	8.51	5.5, 12.0
$10,000-$14,999	9.32	6.9, 11.8	10.64	7.2, 14.5
$15,000-$19,999	7.63	5.3, 10.1	9.93	6.8, 13.7
$20,000-$29,999	14.19	11.2, 17.6	11.35	7.7, 15.1
$30,000-$39,999	6.99	4.8, 9.2	8.51	5.5, 12.0
$40,000-$49,999	6.36	4.2, 8.6	4.96	2.5, 7.6
$50,000-$59,999	4.66	3.0, 6.6	6.74	4.0, 9.8
Greater than $60,000	29.03	25.1, 33.3	14.89	10.3, 19.2
Not identified/Blank	18.43	15.0, 21.8	24.47	19.5, 29.7
Income Source				
Social assistance	9.75	7.0, 12.4	10.99	7.6, 15.1
Employment	59.75	55.5, 63.9	48.94	42.9, 54.8
Disability pension	2.97	1.5, 4.6	2.13	.7, 3.9
Other/not reported	27.54	23.7, 31.5	37.94	32.1, 43.9

Note: Group completion is defined as attending 8 or more group sessions of both child and parent group treatment. 95% confidence intervals for percentages were calculated using bootstrapping.

With respect to family composition, the only significant difference was in the proportion of participants who did not provide information on family composition: 13% for group completers, 23% of non-completers.

Similar proportions of completers and non-completers reported the highest level of education achieved by the parent or spouse. The only notable difference between groups was for completion of an undergraduate degree: 31% of completers vs. 17% of non-completers.

Regarding level of family income, a higher proportion of non-completers reported an annual income of less than $10,000 (9% vs. 3%); while a higher proportion of completers reported an annual income of greater than $60,000 (29% vs. 15%).

Finally, completers and non-completers differed significantly on source of income. Sixty percent of completers reported employment as the main source of income

(compared to 49% of non-completers) while 28% of completers did not report their main source of income (compared to 38% of non-completers).

Initial EARL scores were available for 74% of group completers (n = 349) and 59% of non-completers (n = 167). The average initial EARL score for completers (M = 16.11, SD = 5.94) was statistically lower than the average score for non-completers (M = 17.23, SD = 5.87) (M_{diff} = 1.12; 95% CI_{diff} [.07, 2.18]). Initial T-scores on the CBCL Aggression and Rule-Breaking subscales and the Externalizing Disorders scale did not differ statistically between completers and non-completers (see Table 4).

Table 4

Means (M) and standard deviations (SD) for pre-treatment scores on EARL and CBCL for completers and non-completers

	Group Completers		Group Non-completers			
Time 1 Score	*M*	*SD*	*M*	*SD*	M_{diff}	95% CI
EARL	16.11	5.94	17.23	5.87	1.12	.07, 2.18
CBCL						
Aggression	71.36	9.95	71.14	10.69	.23	-1.53, 2.17
Rule-breaking	66.80	7.45	66.94	7.27	.14	-1.48, 1.27
Externalizing	69.81	7.40	69.95	7.48	.14	-1.55, 1.24

Note. EARL = Early Assessment Risk List. CBCL = Child Behavior Checklist. Group completers: n = 349. Non-completers: n = 167.

As is to be expected, the average number of SNAP child sessions received differed between completers (M = 10.85, SD = 1.67) and non-completers (M = 3.78, SD = 3.64) as did the average number of SNAPP parent group sessions received (M = 10.78, SD = 1.76; and M = 3.55, SD = 3.22, respectively). Although no difference was found between the groups for number of Family Counselling sessions received, significant

differences were observed for number of Individual Befriending sessions, School Liaison sessions, *Plus* components, *Plus* sessions, total components, and total sessions. Descriptive statistics for treatment components and sessions received by completers and non-completers are presented in Table 5.

Comparison of gender within the Target Sample. Demographic characteristics for boys and girls in the target sample of group completers (n = 472) are compared in Table 6.

Boys and girls were referred and admitted to the program at similar ages. The average age at referral for boys was 8.71 (SD = 1.68) and for girls was 8.61 (SD = 1.60; M_{diff}=.09, CI_{diff} [-.22, .41]). The average age at admission for boys was 8.85 (SD = 1.69) and for girls was 8.72 (SD = 1.62; M_{diff}=.14, CI_{diff} [-.18, .45]).

No significant differences were found between boys and girls for ethnic background, family structure, level of parent (or spouse) education, or level of annual family income. A difference was observed for the main source of income for families of SNAP boys and girls. A greater proportion of boys' families did not specify the main source of income compared to girls' families (32% vs. 19%).

Table 5

Treatment components and sessions received for group completers and non-completers

	Group Completers $n = 472$					Group Non-completers $n = 282$					
Treatment Component	*M*	*SD*	*Min.*	*Max.*	*Mdn*	*M*	*SD*	*Min.*	*Max.*	*Mdn*	*Test statistic*
SNAP Child Group sessions	10.85	1.67	8	19	11.00	3.78	3.64	0	13	3.00	*U*=6349.00***
SNAPP Parent Group sessions	10.78	1.76	8	22	11.00	3.55	3.22	0	13	3.00	*U*=3563.00***
Family Counselling sessions	4.95	7.56	0	33	1.00	4.96	7.65	0	33	1.00	*U*=65599.50
Individual Befriending sessions	6.38	8.91	0	36	3.00	3.90	7.21	0	35	.00	*U*=54376.50***
School Liaison sessions	.86	1.68	0	8	.00	.48	1.23	0	8	.00	*U*=57835.50***
Plus components	1.55	1.06	0	3	2.00	1.28	.99	0	3	1.00	*U*=257091.50**
Plus sessions	12.19	15.24	0	76	7.00	9.34	13.67	0	71	4.00	*U*=57311.00**
Total components	3.86	1.41	2	8	4.00	2.82	1.35	0	8	3.00	*U*=38635.00***
Total sessions	45.19	26.98	16	134	35.00	24.43	24.45	1	134	17.00	*U*=25375.00***

Note. Plus refers to Individual Befriending, Family Counselling, and School Liaison. * $p < .05$, ** $p < .01$, *** $p < .001$.

Table 6

Demographic characteristics of Target Sample by gender

Demographic Variable	Boys *n* = 311		Girls *n* = 161	
	%	95% CI	%	95% CI
Ethnicity				
White/Caucasian/European	34.73	29.2, 40.2	32.30	25.1, 39.5
Black/African Origin	6.43	3.8, 9.4	8.08	4.2, 12.8
Native Canadian	.32	0, 1.1	1.24	0, 3.2
Asian/East Asian	1.93	.6, 3.6	1.24	0, 3.2
Latin American/Hispanic	2.25	.6, 4.0	2.48	.6, 5.4
Middle Eastern	1.29	.3, 2.6	-	
Biracial/Multiple origin	18.33	14.1, 22.8	13.66	8.7, 19.3
Other-Jewish heritage	.64	0, 1.8	1.86	0, 4.2
Other-Portuguese	1.29	.3, 2.7	-	
Other-Caribbean	3.54	1.7, 5.7	4.35	1.3, 7.7
Other-not specified	2.25	.7, 4.1	3.73	1.2, 6.7
Canadian-not specified	6.11	3.5, 8.9	5.59	2.4, 9.1
No ethnicity identified	20.90	16.6, 25.2	25.47	18.9, 32.3
Family Composition				
Single parent	46.95	41.5, 52.6	49.07	41.1, 56.9
Two parent	37.30	31.7, 42.4	43.48	35.7, 51.0
Not specified	15.76	11.6, 20.1	7.45	3.5, 11.9
Parental Education Level				
Some elementary	.64	0, 1.6	.62	0, 2.4
Completed elementary	1.29	.3, 2.7	.62	0, 2.0
Some secondary	7.07	4.4, 10.2	8.70	4.7, 13.0
Completed secondary	15.11	11.2, 19.3	13.66	8.6, 19.2
Some post-secondary	10.61	7.4, 14.0	12.42	7.6, 17.6
Completed college/trade	15.43	11.1, 19.7	18.63	12.8, 24.5
Completed university	31.51	26.1, 37.0	31.68	24.6, 38.9
No schooling completed	.32	0, 1.0	-	
No information/blank	18.01	13.9, 22.4	13.66	8.1, 19.3
Family Income Level				
$0-$9,999	4.18	2.1, 6.6	1.86	0, 4.3

$10,000-$14,999	8.04	5.1, 11.2	11.80	7.2, 17.1
$15,000-$19,999	7.07	4.3, 10.2	8.70	4.5, 13.3
$20,000-$29,999	15.11	11.2, 19.0	12.42	7.5, 18.1
$30,000-$39,999	5.79	3.3, 8.5	9.32	5.0, 14.2
$40,000-$49,999	7.34	4.2, 10.1	4.97	1.8, 8.6
$50,000-$59,999	4.50	2.3, 6.8	4.97	1.8, 8.6
Greater than $60,000	27.01	22.2, 25.9	32.92	26.0, 39.8
Not identified/Blank	21.22	16.6, 25.9	13.04	7.9, 18.5
Income Source				
Social assistance	9.32	6.2, 12.7	10.56	6.2, 15.6
Employment	55.95	50.2, 61.6	67.08	60.0, 74.1
Disability pension	2.57	1.0, 4.4	3.73	1.2, 7.2
Other/not reported	32.15	27.0, 37.3	18.63	12.7, 25.3

Note: 95% confidence intervals for percentages were calculated using bootstrapping.

Initial risk scores obtained from total scores on the EARL-20B and EARL-21G, before any treatment was provided, were available for 87% of boys (n = 272) and 84% of girls (n = 136) in the Target Sample. Pre-treatment scores on the EARL and CBCL did not differ between boys and girls. Average pre-treatment scores on both measures for boys and girls are presented in Table 7.

Seventy-seven percent of clients met the threshold of a T-score of 65 or greater on the aggression subscale, suggesting clinically significant problems; 64% on the rule-breaking subscale; and 80% on the Externalizing Problems scale.

On average, boys received more sessions of SNAP child and SNAPP parent group sessions as well as sessions of Individual Befriending while girls received more sessions of Family Counselling. A small difference in School Liaison sessions was observed with boys receiving more sessions. Descriptive statistics for treatment components and sessions received by gender are presented in Table 8.

Table 7

Means (M) and standard deviations (SD) for pre-treatment scores on EARL and CBCL by gender in the Target Sample

Time 1 Score	Boys		Girls			
	M	*SD*	*M*	*SD*	M_{diff}	95% CI
EARL	16.43	5.66	15.57	6.26	.87	-.34, 2.12
CBCL						
Aggression	71.75	9.93	70.57	10.05	1.18	-.91, 3.28
Rule-breaking	67.05	7.47	66.20	7.19	.85	-.70, 2.40
Externalizing	70.05	7.22	69.45	7.51	.60	-.93, 2.14

Note. EARL = Early Assessment Risk List. CBCL = Child Behavior Checklist. Sample sizes for EARL scores: n_{boys} = 272, n_{girls} = 136. Sample size for CBCL scores: n_{boys} = 262, n_{girls} = 132.

Primary Analyses

The primary analyses included comparisons of pre-treatment and post-treatment scores on the EARLs and CBCL for clients in the Target Sample who received Group and Group Plus treatment. Hierarchical linear regression was used to identify treatment components that predicted change in scores on the EARLs and CBCL, and binary logistic regression was used to identify treatment components that predicted police contact. To provide context for these comparisons, demographic characteristics, pre-treatment scores on the EARLs and CBCL, and treatment received are provided for clients who received Group and Group Plus treatment are presented, followed by correlation coefficients for EARL scores, CBCL scores, treatment sessions received, and criminal outcomes, followed by the primary analyses.

Treatment group. Demographic characteristics for participants who received *Group* and *Group Plus* are compared in Table 9. No significant differences were present,

Table 8

Treatment components and sessions received by gender in Target Sample

	Boys $n = 311$					Girls $n = 161$					
Treatment Component	*M*	*SD*	*Min.*	*Max.*	*Mdn*	*M*	*SD*	*Min.*	*Max.*	*Mdn*	*Test statistic*
SNAP Child Group sessions	11.24	1.59	0	14	11.00	10.08	1.56	4	19	10.00	*U*=13473.00***
SNAPP Parent Group sessions	11.09	1.73	4	22	11.00	10.16	1.64	7	22	10.00	*U*=16122.00***
Family Counselling sessions	3.99	6.88	0	33	1.00	6.81	8.45	0	31	3.00	*U*=19037.50***
Individual Befriending sessions	7.38	9.27	0	36	4.00	4.45	7.85	0	35	.00	*U*=18721.50***
School Liaison sessions	.95	1.77	0	8	.00	.70	1.49	0	8	.00	*U*=22603.00*
Plus components	1.61	1.07	0	3	2.00	1.43	1.03	0	3	1.00	*U*=22537.00
Plus sessions	12.32	15.22	0	76	7.00	11.95	15.33	0	71	6.00	*U*=24053.50
Total components	3.80	1.34	2	8	4.00	3.98	1.54	2	8	4.00	*U*=24114.00
Total sessions	45.48	26.56	16	134	35.00	44.64	27.85	18	134	34.00	*U*=23184.00

Note. Plus refers to Individual Befriending, Family Counselling, and School Liaison. * $p < .05$, ** $p < .01$, *** $p < .001$.

except in the main source of income. A greater proportion of those who received *Group* only reported employment as their main source of income compared to those who received *Group Plus* (72% vs. 57%).

Table 9

Demographic characteristics for Group and Group Plus with the Target Sample

Demographic Variable	Target Sample $N = 472$			
	Group $n = 93$		Group Plus $n = 379$	
	%	95% CI	%	95% CI
Gender				
Male	64.52	54.9, 74.2	66.27	61.6, 70.7
Female	35.48	25.8, 45.1	33.77	29.3, 38.4
Ethnicity				
White/Caucasian/Europ	29.03	20.0, 39.1	35.09	30.7, 40.0
Black/African Origin	6.45	2.1, 12.2	7.12	4.7, 9.6
Native Canadian	1.08	0, 3.5	.53	0, 1.3
Asian/East Asian	1.08	0, 3.5	1.85	.5, 3.3
Latin	2.15	0, 5.5	2.37	.8, 3.9
Middle Eastern	-		1.06	.2, 2.3
Biracial/Multiple origin	13.98	7.2, 21.2	17.41	13.9, 21.0
Other-Jewish heritage	-		1.32	.3, 2.6
Other-Portuguese	2.15	0, 5.5	.53	0, 1.3
Other-Caribbean	3.23	0, 7.4	3.96	2.1, 6.2
Other-not specified	5.38	1.2, 10.3	2.11	.8, 3.9
Canadian-not specified	4.30	1.0, 8.5	6.33	3.9, 9.0
No ethnicity identified	31.18	22.3, 41.6	20.32	16.5, 24.3
Family Composition				
Single parent	43.01	33.3, 53.3	48.81	43.8, 53.7
Two parent	46.24	35.9, 56.2	37.73	32.9, 42.6
Not specified	10.75	4.8, 17.2	13.46	10.1, 17.0
Parental Education Level				
Some elementary	-		.79	0, 1.8

Completed elementary	1.08	0, 3.7	1.06	.3, 3.2
Some secondary	6.45	2.1, 11.6	7.92	5.3, 10.9
Completed secondary	18.28	10.8, 26.2	13.72	10.2, 17.1
Some post-secondary	15.05	8.0, 22.7	10.29	7.3, 13.4
Completed college/trade	15.05	8.1, 22.8	16.89	13.2, 20.9
Completed university	30.11	21.2, 39.8	31.93	27.1, 36.7
No schooling completed	-		.26	0, .8
No information/blank	13.98	7.1, 21.0	17.15	13.3, 20.7
Family Income Level				
$0-$9,999	1.08	0, 3.8	3.96	2.1, 6.0
$10,000-$14,999	11.83	5.5, 18.5	8.71	6.1, 11.6
$15,000-$19,999	5.38	1.1, 10.6	8.18	5.5, 11.0
$20,000-$29,999	17.20	9.9, 25.3	13.46	10.1, 17.0
$30,000-$39,999	8.60	3.3, 14.6	6.60	4.1, 9.3
$40,000-$49,999	5.38	1.1, 10.6	6.60	4.3, 9.2
$50,000-$59,999	4.30	1.0, 8.6	4.75	2.7, 6.9
Greater than $60,000	27.96	18.6, 37.2	29.29	24.9, 34.4
Not identified/Blank	18.28	11.0, 26.3	18.47	14.7, 22.3
Income Source				
Social assistance	7.53	2.3, 13.0	10.29	7.4, 13.7
Employment	72.04	62.6, 80.4	56.73	51.7, 61.5
Disability pension	1.08	0, 3.5	3.43	1.7, 5.4
Other/not reported	19.35	11.8, 27.9	29.55	25.1, 34.1

Note: 95% confidence intervals for percentages were calculated using bootstrapping.

A statistically significant difference was found between the treatment categories on pre-treatment EARL scores. Participants who received *Group Plus* scored higher at intake than participants who received *Group* only (M_{diff} = 1.61, 95% CI_{diff} [.19, 3.04]). No significant differences were found between treatment groups on the CBCL scale and subscale scores. Descriptive statistics for pre-treatment scores on both measures for *Group* and *Group Plus* completers are presented in Table 10.

Table 10

Means (M) and standard deviations (SD) for pre-treatment scores on EARL and CBCL by treatment group

Time 1 Score	Treatment Group				M_{diff}	95% CI
	Group		Group Plus			
	M	*SD*	*M*	*SD*		
EARL	14.85	5.39	16.46	5.95	-1.61	-3.04, -.19
CBCL						
Aggression	70.91	9.23	71.46	10.15	-.55	-3.07, 1.96
Rule-breaking	65.63	7.27	67.04	7.39	-1.41	-3.27, .45
Externalizing	69.05	7.20	70.03	7.34	-.98	-2.83, .86

Note. EARL = Early Assessment Risk List. CBCL = Child Behavior Checklist. Sample sizes for EARL scores: $n_G = 81$, $n_{GP} = 327$. Sample size for CBCL scores: $n_G = 75$, $n_{GP} = 319$.

Descriptive statistics for treatment components and sessions received by *Group* and *Group Plus* completers are presented in Table 11. No statistical differences were observed in the number of SNAP child or SNAPP parent group sessions received between *Group* and *Group Plus* completers.

Correlations. Pearson product-moment and Spearman's correlation coefficients were calculated for the target sample of group completers and are presented in Appendix H and I. Selected notable relationships are briefly described in this section.

Pre- and post-treatment scores. Age at referral and age at admission were positively correlated with pre- and post-treatment scores on the EARL and post-treatment scores on the CBCL Aggression subscale and Externalizing Problems scale.

Treatment sessions. The number of SNAP child group sessions received was negatively correlated with age at referral and age at admission. SNAP child group

Table 11

Treatment components and sessions received by treatment group

	Treatment Group										
	Group $n = 93$					Group Plus $n = 379$					
Treatment Component	*M*	*SD*	*Min.*	*Max.*	*Mdn*	*M*	*SD*	*Min.*	*Max.*	*Mdn*	*Test statistic*
SNAP Child Group sessions	10.85	1.46	8	13	11.00	10.84	1.72	8	19	11.00	*U*=17578.50
SNAPP Parent Group sessions	10.70	1.39	8	13	11.00	10.79	1.84	8	22	11.00	*U*=17247.00
Family Counselling sessions	-	-	-	-	-	6.17	7.98	0	33	3.00	*U*=3766.50***
Individual Befriending sessions	-	-	-	-	-	7.95	9.30	0	36	5.00	*U*=5022.00***
School Liaison sessions	-	-	-	-	-	1.07	1.81	0	8	.00	*U*=9997.50***
Plus components	-	-	-	-	-	1.93	.82	1	3	2.00	*U*=.000***
Plus sessions	-	-	-	-	-	15.19	15.62	1	76	10.00	*U*=.000***
Total components	2.13	.37	2	4	2.00	4.29	1.24	2	8	4.00	*U*=935.50***
Total sessions	26.03	6.04	16	53	26.00	49.89	28.03	18	134	40.00	*U*=4147.00***

Note. Plus refers to Individual Befriending, Family Counselling, and School Liaison. * $p < .05$, ** $p < .01$, *** $p < .001$.

sessions received was positively correlated with SNAPP parent group sessions and negatively correlated with number of Family Counseling sessions.

SNAPP parent group sessions received was positively correlated with number of Individual Befriending sessions received, and School Liaison sessions received. The number of Family Counseling sessions received was positively correlated Individual Befriending sessions and School Liaison sessions.

Criminal outcomes. Total number of police contacts was positively correlated with age at referral and age at admission as well as pre- and post-treatment scores on the EARL. Number of charges for criminal offences as a youth was positively correlated with pre-treatment scores on the CBCL Aggression subscale, while convictions for provincial offences as an adult was positively correlated with number of family counselling sessions received. Conversely, the number of federal convictions for serious violent offences as an adult was negatively correlated with number of family counselling sessions received. Finally, total number of convictions recorded was positively correlated with number of *Plus* treatment components received.

Effect of *Group* and *Group Plus* treatment on risk and problematic behaviour. To evaluate the impact of treatment intensity on delinquency, aggression and risk, mean difference scores and 95% confidence intervals were calculated between pre-treatment and post-treatment scores on the EARLs and CBCL for clients who received *Group* and *Group Plus* treatment. Within-groups effect sizes were calculated using the means, standard deviations, and correlations between mean pre-treatment and post-treatment scores.

The mean difference in EARL scores for participants who received *Group* sessions only (M_{diff} = 1.38; 95% CI_{diff} [.33, 2.43], d = .25) was statistically different from zero; while the mean difference in EARL scores for participants who received *Group Plus* sessions (M_{diff} = .32; 95% CI_{diff} [-.32, .95], d = .05) was not (Figure 2). Participants who received *Group* sessions only showed decreased risk scores, while participants who received *Group Plus* showed stable risk scores.

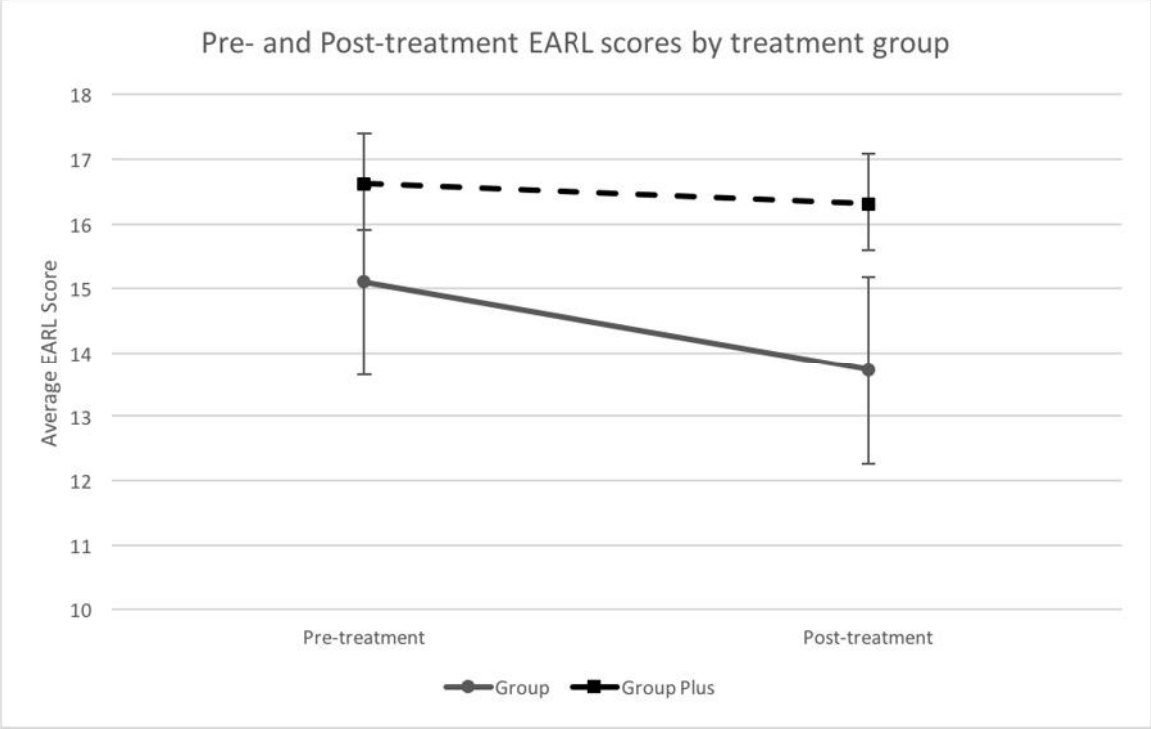

Figure 2. Mean pre-treatment and post-treatment scores on the Early Assessment Risk List for participants who received *Group* and *Group Plus* treatment. Error bars indicate 95% confidence intervals for mean scores.

Mean differences in CBCL Externalizing Problems scale scores for participants who received *Group* sessions only (M_{diff} = 3.95; 95% CI_{diff} [2.25, 5.65], d = .47) and for participants who received *Group Plus* sessions (M_{diff} = 4.07; 95% CI_{diff} [3.21, 4.92], d = .52) were both significantly different from zero (see Figure 3).

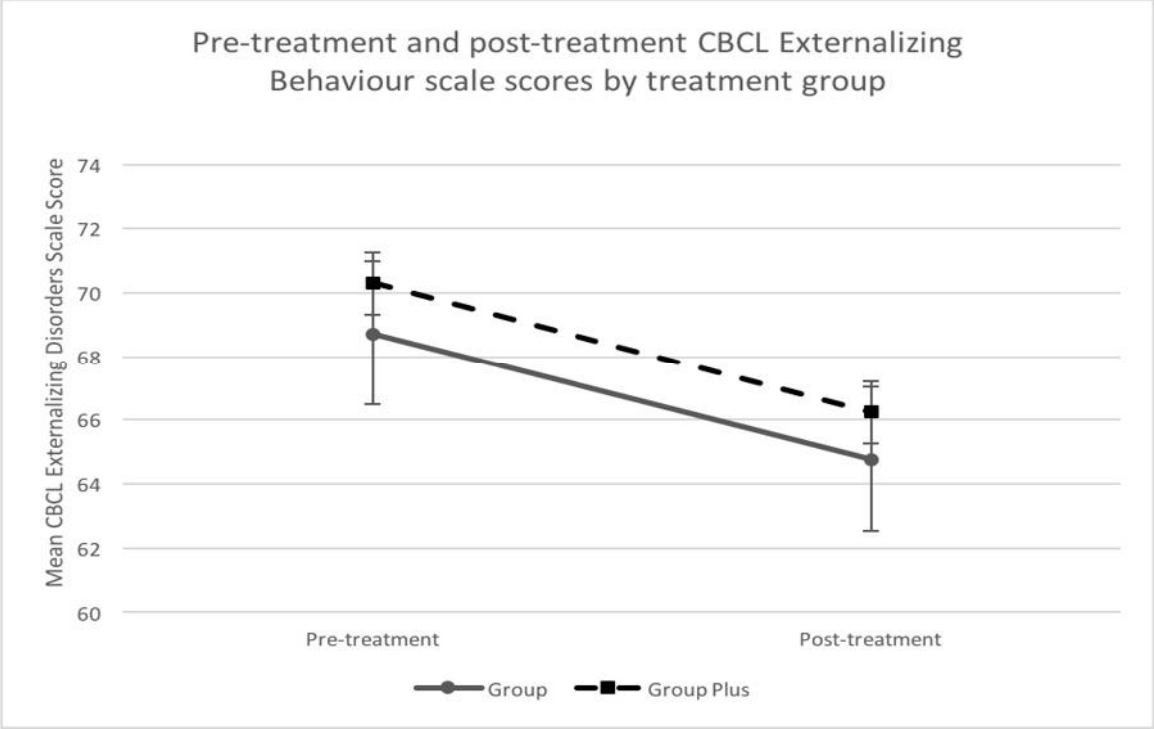

Figure 3. Mean pre-treatment and post-treatment scores on the Externalizing Problems scale of the Child Behavior Checklist for participants who received *Group* and *Group Plus* treatment. Error bars indicate 95% confidence intervals for mean scores.

Mean scores on the Aggressive Behaviour subscale of the CBCL differed significantly from pre-treatment to post-treatment for participants who received *Group* sessions only (M_{diff} = 4.98; 95% CI_{diff} [2.90, 7.07], d = .53) and for participants who received *Group Plus* sessions (M_{diff} = 4.74; 95% CI_{diff} [3.57, 5.90], d = .49) (see Figure 4).

Similarly, mean scores on the Rule-breaking subscale of the CBCL differed significantly from pre-treatment to post-treatment for participants who received *Group* sessions only (M_{diff} = 2.25; 95% CI_{diff} [.50, 3.99], d = .28) and for participants who received *Group Plus* sessions (M_{diff} = 2.34; 95% CI_{diff} [1.47, 3.21], d = .31) (see Figure 5).

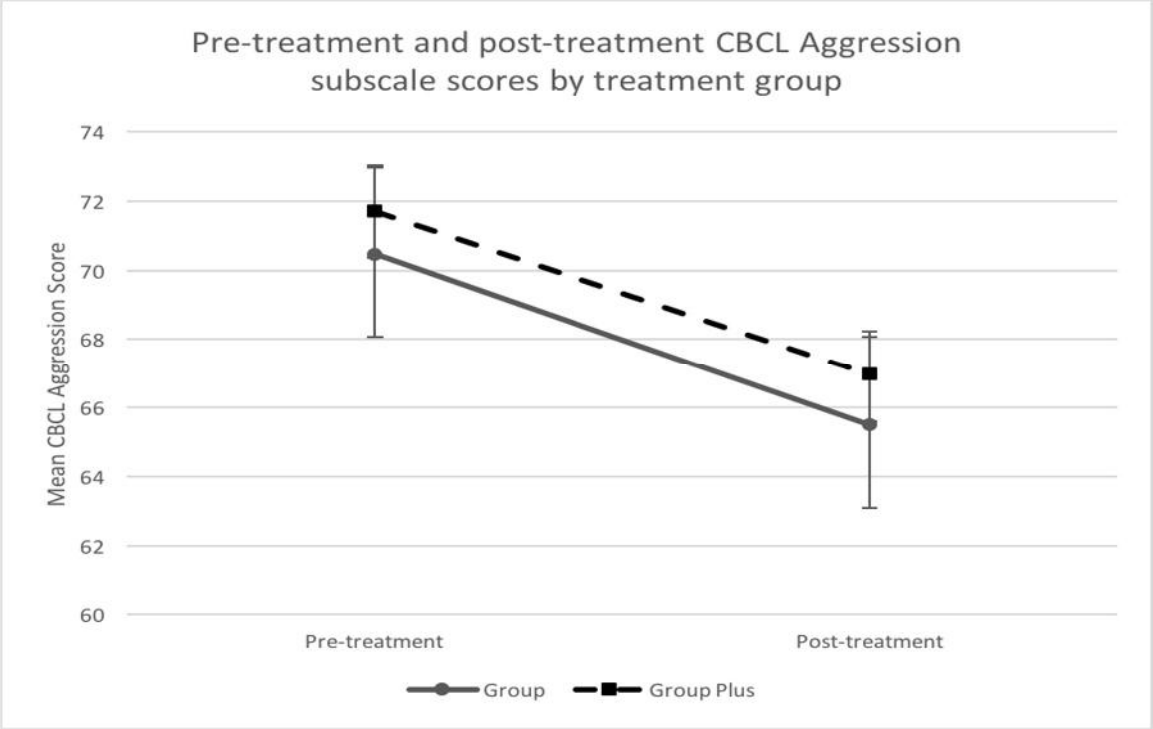

Figure 4 Mean pre-treatment and post-treatment scores on the Aggressive Behaviors subscale of the Child Behavior Checklist for participants who received *Group* and *Group Plus* treatment. Error bars indicate 95% confidence intervals for mean scores.

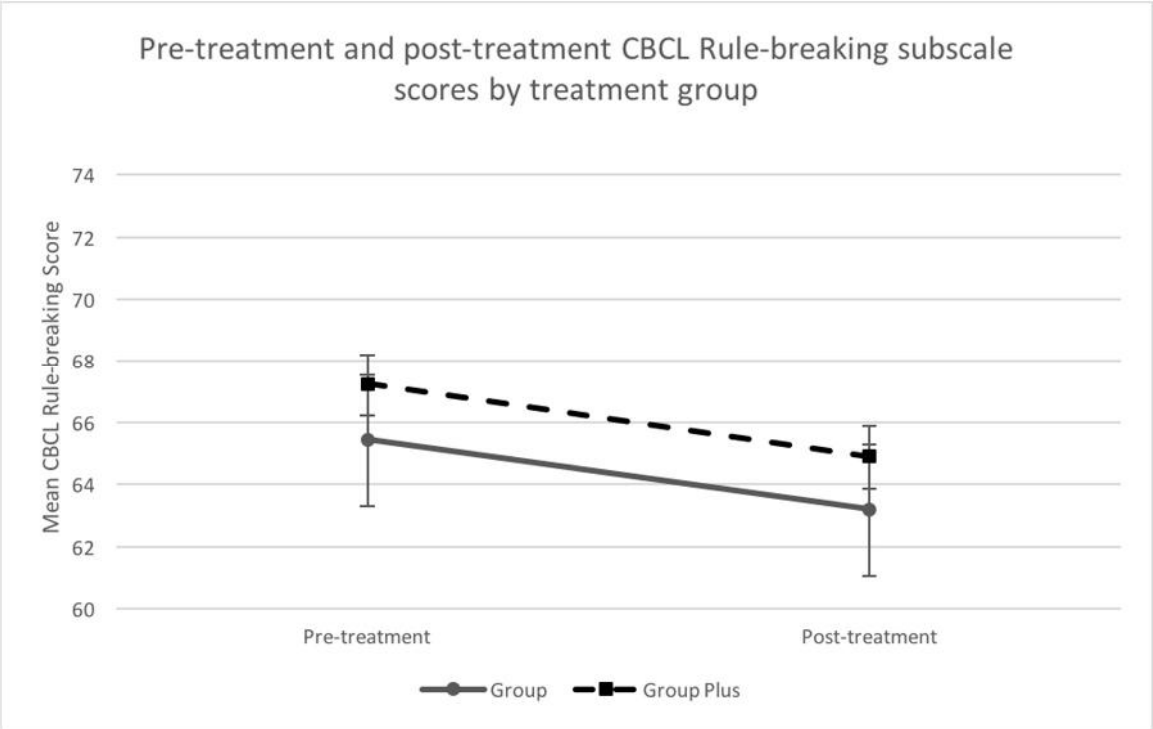

Figure 5. Mean pre-treatment and post-treatment scores on the Rule-breaking subscale of the Child Behavior Checklist for participants who received *Group* and *Group Plus* treatment. Error bars indicate 95% confidence intervals for mean scores.

Treatment components received as predictors of change in EARL and CBCL scores. To examine the relationship between treatment intensity and reduction in problematic behaviours (aggression and delinquency), hierarchical linear regressions were performed to determine which treatment components predicted changes in scores on the EARL and CBCL after treatment.

Pre-treatment scores on the EARL were entered in the first step of the regression model to control baseline. In the second step of the model, number of group sessions (child and parent), total treatment components, total treatment sessions, and number of sessions for each of the three *Plus* treatment components were regressed onto change in EARL score to determine which variables were significant predictors (see Table 12).

Table 12

Hierarchical regression of number of treatment components on change in EARL score controlling for baseline EARL score

Model		*b*	SE_b	β	*t*	Sig.
1.	(Constant)	2.626	0.771		3.405	.001
	EARL_T1	-0.194	0.045	-.245	-4.363	.000
2.	(Constant)	4.856	2.239		2.169	.031
	EARL_T1	-0.213	0.044	-.268	-4.877	.000
	SNAP_group_sessions	-0.038	0.190	-.013	-0.199	.843
	SNAPP_group_sessions	-0.046	0.184	-.017	-0.251	.802
	FC_sessions	-0.055	0.049	-.090	-1.128	.260
	IB_sessions	0.185	0.039	.383	4.686	.000
	SL_sessions	0.301	0.204	.106	1.480	.140
	Total_tx_comps	-0.699	0.264	-.095	-1.178	.240
	Total_tx_sessions	-0.024	0.016	-.141	-1.448	.149

Note. Sample size (n = 301).

In addition to baseline EARL score, which accounted for 5.7% of the variation in EARL change scores, one additional statistically significant predictor was identified: number of Individual Befriending sessions. Inclusion of the treatment component variables accounted for a total of 14.5% variance accounted for; R^2 change = .085, F (7, 292) = 4.15, $p < .001$.

Similar analyses were conducted using the same variables to predict change scores on the three sub-scales of the CBCL (see Tables 13, 14 and 15). For all three variables, addition of the treatment components to the model did not predict any additional variance above pre-treatment scores.

Table 13

Hierarchical regression of number of treatment components on change in CBCL Aggression subscale score controlling for baseline score

Model		*b*	SE_b	β	*t*	Sig.
1.	(Constant)	26.882	3.395		7.918	.000
	CBCLAgg_T1	-0.443	0.047	-.477	-9.412	.000
2.	(Constant)	30.456	5.082		5.993	.000
	CBCLAgg_T1	-0.456	0.048	-.491	-9.434	.000
	SNAP_group_sessions	0.027	0.333	.005	0.082	.935
	SNAPP_group_sessions	-0.317	0.299	-.064	-1.062	.289
	FC_sessions	-0.066	0.088	-.058	-0.751	.453
	IB_sessions	0.111	0.072	.121	1.543	.124
	SL_sessions	0.234	0.362	.045	0.646	.519
	Total_tx_comps	-0.002	0.503	.000	-0.005	.996
	Total_tx_sessions	-0.005	0.029	-.015	-0.154	.878

Note. Sample size (n = 302).

Table 14

Hierarchical regression of number of treatment components on change in CBCL Rule-breaking subscale score controlling for baseline score

Model		*b*	SE_b	β	*t*	Sig.
1.	(Constant)	21.863	3.231		6.767	.000
	CBCL_RB_T1	-0.362	0.048	-.399	-7.533	.000
2.	(Constant)	23.624	4.411		5.356	.000
	CBCL_RB_T1	-0.371	0.049	-.409	-7.548	.000
	SNAP_group_sessions	-0.099	0.263	-.024	-0.375	.708
	SNAPP_group_sessions	-0.149	0.236	-.040	-0.634	.527
	FC_sessions	-0.032	0.069	-.037	-0.463	.644
	IB_sessions	0.072	0.057	.102	1.263	.208
	SL_sessions	-0.049	0.285	-.012	-0.173	.863
	Total_tx_comps	0.354	0.398	.074	0.888	.375
	Total_tx_sessions	-0.004	0.023	-.016	-0.162	.871

Note. Sample size (n = 302).

Table 15

Hierarchical regression of number of treatment components on change in CBCL Externalizing scale score controlling for baseline score

Model		*b*	SE_b	β	*t*	Sig.
1.	(Constant)	12.089	3.783		3.195	.002
	CBCLExt_T1	-0.231	0.054	-.240	-4.288	.000
2.	(Constant)	15.063	4.927		3.057	.002
	CBCLExt_T1	-0.241	0.055	-.251	-4.368	.000
	SNAP_group_sessions	0.007	0.276	.002	0.026	.979
	SNAPP_group_sessions	-0.284	0.247	-.076	-1.151	.251
	FC_sessions	-0.094	0.073	-.110	-1.298	.195
	IB_sessions	0.096	0.060	.139	1.618	.107
	SL_sessions	0.049	0.299	.013	0.165	.869
	Total_tx_comps	0.006	0.417	.001	0.015	.988
	Total_tx_sessions	0.010	0.024	.042	0.397	.692

Note. Sample size (n = 302).

Criminal record status. Demographic characteristics for 289 of the 472 group completers, whose names were submitted for the criminal record search, are compared in Table 16. On average, clients with a criminal record were older at referral (M_{diff} = .52, CI_{diff} [.04, 1.00]) and at admission to SNAP (M_{diff} = .58, CI_{diff} [.10, 1.06]) than clients who did not have a criminal record. There was a higher proportion of males in the criminal record group (81%) than the non-record group (60%).

No significant differences between groups were found for ethnic background, family composition, parent/spouse education, or source of income. A significant difference was found between record holders and non-record holders for level of annual family income. A larger proportion of individuals without a criminal record reported an annual income of greater than $60,000 compared to those with a criminal record (27% vs. 12%).

Table 16

Demographic characteristics by criminal record status

Demographic Variable	No Criminal Record n = 247		Criminal Record n = 42	
	%	95% CI	%	95% CI
Gender				
Male	59.1	52.8, 65.2	81.0	68.9, 91.5
Female	40.9	34.8, 47.2	19.0	8.5, 31.1
Ethnicity				
White/Caucasian/Europea	31.2	25.4, 37.2	16.7	5.3, 28.6
Black/African Origin	7.7	4.5, 11.0	9.5	2.2, 19.5
Native Canadian	.4	0, 1.3	-	
Asian/East Asian	2.0	.4, 3.9	4.8	0, 12.2
Latin American/Hispanic	2.0	.4, 3.9	-	
Middle Eastern	.4	0, 1.5	-	
Biracial/Multiple origin	9.7	5.9, 13.8	11.9	2.8, 23.1

Other-Jewish heritage	1.2	0, 2.8	-	
Other-Portuguese	1.2	0, 2.8	2.4	0, 7.8
Other-Caribbean	3.2	1.2, 5.5	2.4	0, 8.0
Other-not specified	4.5	2.1, 7.3	-	
Canadian-not specified	6.9	4.0, 10.1	2.4	0, 7.9
No ethnicity identified	29.6	23.8, 35.4	50.0	35.4, 65.8
Family Composition				
Single parent	54.3	48.1, 60.4	57.1	42.9, 72.2
Two parent	38.9	32.8, 44.7	40.5	25.7, 54.8
Not specified	6.9	3.9, 10.3	2.4	0, 8.7
Parental Education Level				
Some elementary	.8	0, 2.0	-	
Completed elementary	1.6	.4, 3.4	-	
Some secondary	9.7	6.3, 13.8	16.7	6.5, 30.2
Completed secondary	15.4	11.2, 20.2	31.0	16.7, 44.7
Some post-secondary	12.6	8.5, 17.1	11.9	2.5, 23.5
Completed college/trade	19.8	14.6, 25.0	19.0	8.5, 30.8
Completed university	30.0	24.2, 35.6	19.0	8.3, 32.2
No schooling completed	.4	0, 1.3	-	
No information/blank	9.7	6.3, 13.8	2.4	0, 8.7
Family Income Level				
$0-$9,999	3.6	1.6, 6.2	9.5	2.2, 19.5
$10,000-$14,999	11.7	7.7, 15.8	9.5	2.2, 18.9
$15,000-$19,999	7.3	4.0, 10.8	16.7	5.3, 28.2
$20,000-$29,999	17.8	13.5, 22.6	19.0	7.5, 32.4
$30,000-$39,999	7.7	4.5, 11.1	9.5	2.1, 19.5
$40,000-$49,999	5.7	3.2, 8.7	7.1	0, 15.9
$50,000-$59,999	5.3	2.8, 8.1	4.8	0, 12.0
Greater than $60,000	27.1	21.8, 32.6	11.9	2.8, 21.7
Not identified/Blank	13.8	9.7, 18.3	11.9	2.5, 23.4
Income Source				
Social assistance	10.9	7.4, 14.8	21.4	9.5, 34.1
Employment	60.3	54.2, 66.1	50.0	34.9, 65.7
Disability pension	4.0	1.6, 6.7	2.4	0, 8.1
Other/not reported	24.7	19.2, 30.2	26.2	13.2, 40.9

Note: 95% confidence intervals for percentages were calculated using bootstrapping.

Clients with a criminal record scored higher on the EARL at intake than participants who had no record (M_{diff} = 2.13, 95% CI_{diff} [.02, 4.20]). No significant differences were found between groups for CBCL scores. Descriptive statistics for pre-treatment scores on both are presented in Table 17.

Table 17

Means (M) and standard deviations (SD) for pre-treatment scores on EARL and CBCL by criminal record status

Time 1 Score	No Criminal Record		Criminal Record		M_{diff}	95% CI
	M	*SD*	*M*	*SD*		
EARL	16.96	5.93	19.09	5.78	2.13	.02, 4.20,
CBCL						
Aggression	71.56	10.08	71.27	9.40	.29	-3.32, 3.63
Rule-breaking	66.70	7.44	66.76	9.14	.05	-3.40, 3.19
Externalizing	70.06	7.47	70.00	7.61	.06	-2.67, 2.88

Note. EARL = Early Assessment Risk List. CBCL = Child Behavior Checklist. Sample size (*n* = 189, 33).

Descriptive statistics for treatment components and sessions received by individuals with and without a criminal record are presented in Table 18. The only differences of note were that participants without a criminal record received more Family Counselling sessions and more total treatment sessions than participants with a criminal record.

Treatment components and sessions received as predictors of police contact

To test which treatment components predict whether group completers had any sort of criminal record (youth, adult provincial, and/or adult federal) at follow-up, a binary logistic regression was performed (see Table 19). All treatment intensity variables were entered simultaneously.

Table 18

Treatment components and sessions received by criminal record status

	Criminal Record Status										
	No $n = 247$					Yes $n = 42$					
Treatment Component	*M*	*SD*	*Min.*	*Max.*	*Mdn*	*M*	*SD*	*Min.*	*Max.*	*Mdn*	*Test statistic*
SNAP Child Group sessions	10.81	1.73	8	19	11.00	10.45	1.38	8	13	11.00	*U*=4506.00
SNAPP Parent Group sessions	10.72	1.94	8	22	11.00	10.52	1.38	8	13	11.00	*U*=4886.50
Family Counselling sessions	5.55	7.97	0	31	2.00	4.02	8.15	0	31	1.00	*U*=4200.50*
Individual Befriending sessions	6.79	9.37	0	35	3.00	6.62	10.94	0	36	1.50	*U*=4767.50
School Liaison sessions	.81	1.57	0	8	.00	.93	1.99	0	8	.00	*U*=5100.50
Plus components	1.60	1.03	0	3	2.00	1.38	1.15	0	3	1.00	*U*=4582.00
Plus sessions	13.15	15.68	0	74	8.00	11.57	18.97	0	74	4.00	*U*=4253.00
Total components	3.94	1.41	2	8	4.00	3.62	1.41	2	7	3.50	*U*=4487.00
Total sessions	48.55	30.11	18	134	37.00	42.45	29.65	16	134	32.00	*U*=4118.50*

Note. Plus refers to Individual Befriending, Family Counselling, and School Liaison. * $p < .05$, ** $p < .01$, *** $p < .001$.

Table 19

Binary logistic regression of treatment components on police contact

Step		*b*	SE_b	Wald	Sig.	Exp(*b*)
0	(Constant)	-1.722	0.165	112.678	.000	0.170
1	(Constant)	0.924	1.281	0.520	.471	2.519
	SNAP_group_sessions	-0.184	0.136	1.832	.176	0.832
	SNAPP_group_sessions	0.049	0.121	0.165	.684	1.050
	FC_sessions	-0.020	0.036	0.320	.572	0.980
	IB_sessions	0.034	0.027	1.613	.204	1.035
	SL_sessions	0.242	0.132	3.377	.066	1.274
	Total_tx_comps	-0.304	0.181	2.812	.094	0.738
	Total_tx_sessions	-0.010	0.013	0.612	.434	0.990

Note: R^2 = .03 (Cox & Snell), .06 (Nagelkerke). Degrees of freedom (*df)* = 1. Sample size (*n* = 289).

None of the treatment intensity variables were identified as significant predictors of criminal involvement at follow-up.

Exploratory Analyses

Predictors of change in EARL and CBCL scores by gender. To determine if the relationship between treatment intensity and reduction in problematic behaviours (aggression and delinquency) differed for boys and girls, hierarchical linear regressions were performed separately by gender to determine which treatment components predicted changes in scores on the EARL and CBCL.

Table 20 and 21 display resulting regression model predicting change in EARL scores for boys and girls, respectively.

In addition to baseline EARL score, which accounted for 6.0% of the variation in EARL change scores, one additional predictor was identified: number of Individual Befriending sessions. Together, the treatment intensity variables accounted for an

additional 7.4% of the variation in change scores for the EARL for a total of 13.4% variance accounted for; R^2 change = .07, $F(7, 166) = 2.03$, $p = .054$.

Table 20

Hierarchical regression of number of treatment components on change in EARL score for boys, controlling for baseline EARL score

Model		*b*	SE_b	β	*t*	Sig.
1.	(Constant)	3.584	1.010		3.548	.000
	EARL_T1	-0.189	0.057	-.246	-3.335	.001
2.	(Constant)	6.859	3.092		2.218	.028
	EARL_T1	-0.221	0.057	-.288	-3.870	.000
	SNAP_group_sessions	0.010	0.216	.004	0.048	.962
	SNAPP_group_sessions	-0.107	0.207	-.043	-0.518	.605
	FC_sessions	-0.020	0.058	-.034	-0.343	.732
	IB_sessions	0.167	0.046	.378	3.587	.000
	SL_sessions	0.217	0.243	.086	0.893	.373
	Total_tx_comps	-0.481	0.383	-.131	-1.255	.211
	Total_tx_sessions	-0.027	0.018	-.174	-1.492	.138

Note. Sample size ($n = 175$).

For girls, in addition to baseline EARL score, which accounted for 16.4% of the variation in EARL change scores, no additional significant predictors were identified; R^2 change = .13, $F(7, 59) = 1.62$, $p = .15$.

Table 21

Hierarchical regression of number of treatment components on change in EARL score for girls, controlling for baseline EARL score

Model		*b*	SE_b	β	*t*	Sig.
1.	(Constant)	2.786	1.502		1.856	.068
	EARL_T1	-0.317	0.088	-.405	-3.604	.001
2.	(Constant)	14.739	4.948		2.979	.004
	EARL_T1	-0.291	0.093	-.373	-3.131	.003
	SNAP_group_sessions	-1.259	0.750	-.347	-1.678	.099
	SNAPP_group_sessions	0.269	0.779	.073	0.345	.731
	FC_sessions	0.004	0.105	.006	0.034	.973
	IB_sessions	0.029	0.094	.053	0.309	.758
	SL_sessions	0.753	0.424	.260	1.774	.081
	Total_tx_comps	-0.660	0.650	-.170	-1.016	.314
	Total_tx_sessions	-0.005	0.042	-.028	-0.122	.904

Note. Sample size (n = 68).

Similar analyses were conducted using the same variables to predict change scores on the three sub-scales of the CBCL for boys and girls. Table 22 displays the regression model predicting change in CBCL Externalizing scores for boys and Table 23 displays the regression model for girls.

Baseline CBCL Externalizing Problems score alone accounted for 8.7% of the variation in CBCL Externalizing change scores for boys. When the other treatment intensity variables were added to Step 2 of the model, one additional predictor was identified: number of Individual Befriending sessions. Overall, the model accounted for 12.9% of the variation in change scores on CBCL Externalizing Problems; R^2 change = .04, $F(7, 160) = 1.12$, $p = .35$.

Table 22

Hierarchical regression of number of treatment components on change in CBCL Externalizing scale score for boys, controlling for baseline score

Model	*b*	SE_b	β	*t*	Sig.
1. (Constant)	18.480	5.682		3.253	.001
CBCLExt_T1	-0.319	0.080	-.294	-3.978	.000
2. (Constant)	20.736	7.231		2.868	.005
CBCLExt_T1	-0.332	0.085	-.306	-3.920	.000
SNAP_group_sessions	-0.071	0.359	-.017	-0.198	.843
SNAPP_group_sessions	-0.075	0.335	-.019	-0.224	.823
FC_sessions	-0.116	0.094	-.123	-1.230	.220
IB_sessions	0.162	0.079	.218	2.050	.042
SL_sessions	0.261	0.396	.068	0.659	.511
Total_tx_comps	-0.367	0.745	-.057	-0.493	.623
Total_tx_sessions	0.009	0.031	.037	0.309	.758

Note. Sample size (n = 169).

Table 23

Hierarchical regression of number of treatment components on change in CBCL Externalizing scale score for girls, controlling for baseline score

Model	*b*	SE_b	β	*t*	Sig.
1. (Constant)	-1.406	6.284		-0.224	.824
CBCLExt_T1	-0.041	0.089	-.053	-0.457	.649
2. (Constant)	8.583	9.185		0.935	.353
CBCLExt_T1	-0.076	0.092	-.099	-0.827	.411
SNAP_group_sessions	-0.418	0.609	-.105	-0.686	.495
SNAPP_group_sessions	-0.606	0.405	-.218	-1.495	.140
FC_sessions	-0.021	0.122	-.035	-0.174	.862
IB_sessions	-0.018	0.104	-.033	-0.173	.863
SL_sessions	-0.449	0.537	-.138	-0.835	.407
Total_tx_comps	1.017	0.665	.274	1.529	.131
Total_tx_sessions	-0.017	0.045	-.101	-0.377	.708

Note. Sample size (n = 76).

Baseline CBCL Externalizing Problems score alone accounted for .03% of the variation in CBCL Externalizing change scores for girls. When the other treatment intensity variables were added to Step 2 of the model, no additional predictors were identified. Overall, the model accounted for 10.8% of the variation in change scores on CBCL Externalizing Problems; R^2 change = .11, $F(7, 67) = 1.13$, $p = .35$.

The procedure was repeated to determine which variables were significant predictors of change in Externalizing Problems scores. Tables 24 and 25 display the regression models for boys and girls respectively.

Table 24

Hierarchical regression of number of treatment components on change in CBCL Aggression subscale score for boys, controlling for baseline score

Model		*b*	SE_b	β	*t*	Sig.
1.	(Constant)	34.156	4.888		6.988	.000
	CBCLAgg_T1	-0.542	0.067	-.531	-8.074	.000
2.	(Constant)	34.667	7.273		4.767	.000
	CBCLAgg_T1	-0.554	0.070	-.543	-7.871	.000
	SNAP_group_sessions	0.135	0.424	.023	0.318	.751
	SNAPP_group_sessions	-0.059	0.359	-.011	-0.149	.881
	FC_sessions	-0.095	0.111	-.075	-0.856	.393
	IB_sessions	0.238	0.093	.237	2.564	.011
	SL_sessions	0.373	0.470	.073	0.793	.429
	Total_tx_comps	-0.508	0.887	-.059	-0.572	.568
	Total_tx_sessions	-0.013	0.035	-.038	-0.364	.717

Note. Sample size ($n = 168$).

For boys, baseline CBCL Aggression score alone accounted for 28.2% of the variation in CBCL Aggression change scores. When the other treatment intensity variables were added to Step 2, one additional predictor was identified: number of Individual Befriending sessions. The treatment intensity variables entered accounted for

an additional 3.9% of the variance in change scores. Overall, the model accounted for 32.1% of the variation in CBCL Aggression change scores; R^2 change = .04, $F(7, 159) = 1.30$, $p = .25$.

Table 25

Hierarchical regression of number of treatment components on change in CBCL Aggression subscale score for girls, controlling for baseline score

Model	*b*	SE_b	β	*t*	Sig.
1. (Constant)	16.536	5.954		2.777	.007
CBCLAgg_T1	-0.294	0.084	-.378	-3.515	.001
2. (Constant)	35.204	9.607		3.665	.000
CBCLAgg_T1	-0.297	0.084	-.382	-3.538	.001
SNAP_group_sessions	-1.194	0.797	-.204	-1.497	.139
SNAPP_group_sessions	-0.824	0.534	-.202	-1.544	.127
FC_sessions	-0.028	0.161	-.032	-0.175	.862
IB_sessions	-0.211	0.138	-.266	-1.529	.131
SL_sessions	0.292	0.713	.061	0.410	.683
Total_tx_comps	0.679	0.875	.125	0.777	.440
Total_tx_sessions	0.010	0.059	.042	0.174	.862

Note. Sample size ($n = 76$).

For girls, baseline CBCL Aggression score alone accounted for 14.3% of the variation in CBCL Aggression change scores. When the other treatment intensity variables were added to Step 2 of the model, no additional predictors were identified. Overall, the model accounted for 28.4% of the variation in CBCL Aggression change scores; R^2 change = .14, $F(7, 67) = 1.88$, $p = .09$.

Tables 26 and 27display the regression models predicting change in CBCL Rule-breaking scores for boys and girls.

Table 26

Hierarchical regression of number of treatment components on change in CBCL Rule-breaking subscale score for boys, controlling for baseline score

Model		*b*	SE_b	β	*t*	Sig.
1.	(Constant)	25.621	4.766		5.376	.000
	CBCL_RB_T1	-0.419	0.070	-.420	-5.956	.000
2.	(Constant)	26.633	6.638		4.012	.000
	CBCL_RB_T1	-0.415	0.073	-.415	-5.670	.000
	SNAP_group_sessions	-0.032	0.348	-.007	-0.093	.926
	SNAPP_group_sessions	-0.167	0.323	-.042	-0.517	.606
	FC_sessions	-0.091	0.091	-.094	-0.997	.320
	IB_sessions	0.135	0.076	.177	1.771	.079
	SL_sessions	0.216	0.384	.055	0.561	.575
	Total_tx_comps	-0.134	0.714	-.021	-0.188	.851
	Total_tx_sessions	0.007	0.029	.025	0.224	.823

Note. Sample size (n = 168).

Table 27

Hierarchical regression of number of treatment components on change in CBCL Rule-breaking subscale score for girls, controlling for baseline score

Model		*b*	SE_b	β	*t*	Sig.
1.	(Constant)	13.865	5.597		2.477	.016
	CBCL_RB_T1	-0.233	0.083	-.310	-2.804	.006
2.	(Constant)	15.216	8.183		1.860	.067
	CBCL_RB_T1	-0.228	0.085	-.303	-2.672	.009
	SNAP_group_sessions	-0.667	0.559	-.170	-1.194	.237
	SNAPP_group_sessions	0.057	0.371	.021	0.154	.878
	FC_sessions	0.108	0.112	.182	0.959	.341
	IB_sessions	0.035	0.095	.066	0.370	.712
	SL_sessions	-0.804	0.496	-.251	-1.621	.110
	Total_tx_comps	1.520	0.609	.415	2.497	.015
	Total_tx_sessions	-0.055	0.041	-.333	-1.341	.185

Note. Sample size (n = 76).

For boys, baseline CBCL Rule-breaking score alone accounted for 17.6% of the variation in CBCL Rule-breaking change scores. When the other treatment intensity variables were added to Step 2 of the model, no statistically significant predictors were identified, although Individual Befriending was close (p = .08). Overall, the model accounted for 20.8% of the variation in CBCL Rule-breaking change scores; R^2 change = .03, $F(7, 159) = .92$, p = .49.

For girls, baseline CBCL Rule-breaking score alone accounted for 9.6% of the variation in CBCL Rule-breaking change scores. When the other treatment intensity variables were added to Step 2 of the model, one additional predictor was identified: total number of treatment components received. Together, the additional variables accounted for an additional 13.4% of the variance in change scores. Overall, the model accounted for 23.0% of the variation in CBCL Rule-breaking change scores; R^2 change = .13, $F(7, 67) = 1.67$, p = .13.

Predictors of criminal involvement by gender. To investigate whether treatment components received predicted police contact differently for boys and girls, a binary logistic regression was performed. All treatment components were entered into the model simultaneously to determine which were significant predictors of police contact. Table 28 displays the resulting model for boys.

Two variables were identified as significant predictors of police contact for boys: number of SNAP child group sessions received, and number of School Liaison sessions received. As the number of child group sessions received increased, the odds of a client having police contact at follow-up were .73 times lower (95% CI [.53, .99]). Conversely,

as the number of School Liaison sessions received increased, the odds of a client having police contact were 1.37 times higher (95% CI [1.03, 1.83]).

Table 28

Binary logistic regression of treatment components on police contact for boys

Step		*b*	SE_b	Wald	Sig.	Exp(*b*)
0	(Constant)	-1.457	0.190	58.563	.000	0.233
1	(Constant)	2.661	1.620	2.697	.101	14.309
	SNAP_group_sessions	-0.316	0.160	3.892	.049	0.729
	SNAPP_group_sessions	0.072	0.135	0.288	.592	1.075
	FC_sessions	-0.013	0.041	0.108	.743	0.987
	IB_sessions	0.008	0.031	0.072	.788	1.008
	SL_sessions	0.316	0.146	4.696	.030	1.372
	Total_tx_comps	-0.328	0.214	2.340	.126	0.721
	Total_tx_sessions	-0.011	0.013	0.673	.412	0.989

Note: R^2 = .06 (Cox & Snell), .10 (Nagelkerke). Degrees of freedom (*df)* = 1. Sample size (*n* = 180).

Table 29 presents the same model for girls. None of the treatment intensity variables significantly predicted police contact for girls.

Table 29

Binary logistic regression of treatment components on police contact for girls

Step		*b*	SE_b	Wald	Sig.	Exp(*b*)
0	(Constant)	-2.536	0.367	47.662	.000	0.079
1	(Constant)	1.217	2.788	0.190	.663	3.376
	SNAP_group_sessions	-0.161	0.360	0.199	.656	0.851
	SNAPP_group_sessions	-0.119	0.396	0.090	.764	0.888
	FC_sessions	0.030	0.094	0.106	.745	1.031
	IB_sessions	0.088	0.096	0.843	.358	1.092
	SL_sessions	-0.263	0.483	0.296	.586	0.769
	Total_tx_comps	-0.191	0.403	0.225	.636	0.826
	Total_tx_sessions	-0.018	0.042	0.196	.658	0.982

Note: R^2 = .03 (Cox & Snell), .81 (Nagelkerke). Degrees of freedom (*df)* =1. Sample size (*n* = 109).

CHAPTER IV

Discussion

The effectiveness of SNAP's main program components (child and parent group sessions) at reducing problem behaviours in high risk children has previously been established in the literature. The purpose of the present study was to investigate the effectiveness of additional treatment components at reducing problematic behaviour and later criminal activity by examining existing data collected by CDI program staff and criminal record information requested as part of routine follow-up.

Summary of Findings

The primary analyses in this study examined the effectiveness of additional treatment components offered to clients, above and beyond child and parent group sessions, at reducing problematic behaviour and likelihood of future police contact in children referred for treatment. Within the target sample of group completers (n = 472), none of the Plus treatment components (Individual Befriending, Family Counselling or School Liaison) or number of treatment sessions were found to be significant predictors of change in CBCL scores when initial scores were controlled for; however, number of Individual Befriending sessions was a significant predictor of change in EARL scores even after controlling for baseline EARL score. Finally, none of the Plus treatment components were significant predictors of later criminal involvement.

Further analyses were conducted separating clients by gender to determine whether the effectiveness of the various treatment components differed. For boys, the number of Individual Befriending sessions was a significant predictor of change in EARL scores and change in CBCL Aggression and Externalizing scores. With respect to police

contact, number of SNAP child group sessions received and number of School Liaison sessions received significantly predicted police contact.

For girls, total treatment components received was identified as a significant predictor of change in CBCL Rule-breaking scores. No significant predictors of police contact were found. It is important to note that the sample size of girls whose names were submitted to check for criminal records was small.

Results of the primary analyses are to be understood in the context in which the target sample was selected. In the following sections, differences between subsamples of clients and their implications will be examined, followed by discussion of the primary findings.

Characteristics of Total Sample and Subsamples

The demographic makeup of the total Treatment Intensity sample ($N = 754$) was somewhat surprising in that a substantial portion of participants came from two-parent families, had at least one university-educated parent, and/or reported greater than $60,000 a year in family income. Considering what is known about family risk factors for early onset delinquent and antisocial behaviour, it was expected that a larger majority of client families referred for service would report lower levels of income, employment, and educational attainment and parental separation/divorce than what was observed.

The consistency between subgroups within the sample was less surprising, although keeping with the literature on risk factors for antisocial behaviour, one would expect higher proportions of demographic characteristics related to increased risk would be observed in groups who are thought to be at greater risk of negative outcomes; namely, the criminal record group. One finding that was consistent with this expectation

was the much lower proportion of participants in the criminal record subgroup who reported an annual income of greater than $60,000.

One possible explanation for this discrepancy is self-selection by client families into the program. Although children and their families are often referred to services by their school, by social services, or by the police, many client families self-refer to the Child Development Institute. Participating in this type of intensive, on-site treatment program requires resources that may not be available to lower income families (e.g., access to reliable transportation, time off work in the evenings, and/or child-care). Therefore, the present sample of participants who were admitted to treatment may not fully represent the overall population of high-risk children and families.

Treatment Received

The average number of eight group sessions in the overall treatment sample, for both child and parent groups, is consistent with the finding that the majority of participants who begin group can be considered "group completers" because they attended at least eight sessions of each. Koegl and colleagues (2008) demonstrated that eight sessions of group could be considered a threshold number of sessions associated with significant reductions in problematic behaviour.

In the present study, completers and non-completers differed on the average pre-treatment EARL score. With non-completers demonstrating higher average risk at intake, it would be important to identify potential barriers to treatment completion that may be preventing these families from getting the same benefit from program participation. For example, the EARLs measures assess characteristics of the child's family including Caregiver Continuity, Family Supports, and Household circumstances

(CDI, 2004). Clients who are rated higher on these items may be less likely to receive the same amount of treatment as clients rated lower on the EARLs because of instability within the family (i.e., divorce/separation, involvement with child services), lack of social and financial support, and instability in their living situation.

Differences in treatment received by gender indicated that boys and girls received different treatment components. Individual Befriending was first introduced to the SNAP boys' program as a supplement to group sessions for high-risk/high-needs boys who would benefit from more individualized treatment and one-on-one attention, in addition to group treatment. Past evaluation studies have supported this approach demonstrating that number of Individual Befriending sessions was a key factor in reducing risk and behaviour problems in boys (Augimeri et al., 2006; Koegl et al., 2008).

The same studies demonstrated that, for girls, dosage (defined as total number of treatment sessions) was what influenced reductions in risk and problematic behaviour (Augimeri et al., 2006; Koegl et al., 2008). This pattern is partially demonstrated in the present study with boys receiving significantly more sessions of Individual Befriending than girls. However, girls did receive more sessions of Family Counselling than boys, an approach that is supported by past research on effective, gender-specific interventions and that is consistent with the conceptualization of gender-specific risk that high-risk girls are more likely to be the victims of trauma and abuse (Day, 1998; Dembo, Williams, & Schmeidler, 1993; OJJDP, 2009).

Obvious differences were observed in the treatment received by *Group* and *Group Plus* participants. By definition, individuals in the *Group Plus* treatment category received additional *Plus* components and sessions that were not received by those in the

Group only category. Whether or not participants receive these additional components is directly linked to their level of risk and need at intake. Adhering to the RNR model of effective correctional interventions, SNAP workers make decisions about treatment planning based on the client's level of risk on the EARLs: the highest risk individuals receive the most treatment. This approach was demonstrated in the present study by the difference in initial EARL scores between *Group* and *Group Plus* participants. Participants who received *Plus* treatment components had higher pre-treatment scores on the EARLs, and received more components and sessions overall, than their *Group* only counterparts.

This did not necessarily translate into differences in treatment received for individuals with and without a criminal record at follow-up. The only differences in treatment received between the two groups was that individuals who did not have a record received more sessions of Family Counselling and more sessions of treatment overall than those who did have a record, despite the latter group having higher initial risk scores at intake. The difficulty in applying the RNR principles in non-correctional settings is that clients attend treatment voluntarily and thus can be met with barriers to completing treatment that are not present in closed-custody settings like limited access to reliable transportation, scheduling conflicts, etc. In secure treatment settings, there are less environmental and situational barriers to treatment participation than in non-secure settings. One way to offset these barriers would be to provide access to reliable transportation and/or offer programming at multiple locations across the city that may be more convenient for client families. CDI already offers childcare to families with young children whose siblings are participating in SNAP groups. Further supports could be

identified to promote participation in additional treatment components for high-risk children and families and to encourage completion of treatment for these individuals.

In general, participants who were older at referral and admission scored higher on intake measures of behaviour (CBCL) and risk (EARL). This finding underscores the importance of intervening as early as possible with at-risk children by developing and implementing intervention programs like SNAP that are designed to address problematic behaviours before they become criminal behaviours. Behaviour problems (and criminal risk by association) are known to increase with age; therefore, it is not surprising that number of police contacts was positively correlated with age at referral and age at admission to the program. Children who are older at first contact with the program seem to complete fewer child and parent group sessions and have more negative outcomes long-term (police contacts) which again provides support for identifying children at-risk as early as possible and making access to treatment as easy as possible to encourage treatment completion.

Some interesting associations were found between criminal outcomes and treatment intensity that appear to contradict each other and what has been established in the literature on criminal risk and effective treatment. In the present study, adult provincial convictions were positively correlated with number of Family Counselling sessions received. However, number of Family Counselling sessions was also negatively correlated with number of federal convictions for serious, violent offences. While the first relationship suggests that individuals who received more Family Counselling went on to receive more provincial convictions overall, they also received less convictions for serious violent crimes at the federal level. So while Family Counselling may be

protective against committing serious violent offences, it may not reduce involvement with less serious, or non-violent offences.

The relationship between youth convictions and pre-treatment scores on the Aggressive Behaviours subscale of the CBCL is not surprising and is consistent with the literature on risk factors for juvenile delinquency. Early aggressive behaviour is a known risk factor for juvenile delinquency and later criminal involvement. This well-established relationship is the reason programs like SNAP use behavioural measures like the CBCL to assess levels of problematic behaviours at intake and post-treatment. It is expected that individuals with higher baseline scores on Aggression and Rule-breaking would be more likely to engage in later criminal activity. While the intent behind early intervention programs is to prevent future contact with the criminal justice system, no program has been shown to be 100% effective.

Although initially concerning, the finding that total number of convictions was positively correlated with number of *Plus* treatment components received can be partly explained by the differences in initial risk level of participants who received *Group Plus* treatment. Those who received *Group Plus* had higher initial risk scores which, on average, did not seem to change much in response to treatment.

Effect of Treatment Intensity on Program Outcomes

Findings from the present study supported the hypothesis, and replicated the results of previous evaluation studies, that participation in SNAP child group sessions and SNAPP parent group sessions is associated with reductions in problematic behaviour. Medium effect sizes for changes in scores from pre-treatment to post-treatment were found for the Aggressive Behavior subscale and the Externalizing Problems scale of the

CBCL for participants in the *Group* treatment category. While the effect size for the Rule-breaking subscale was smaller, the reduction in scores on the Rule-breaking subscale were still significantly different from zero. A small effect size was found for reduction in risk, as measured by the EARLs, for members of the *Group* treatment category only.

Similar effect sizes for changes in problematic behaviour were found for participants in the *Group Plus* treatment category, who completed child and parent groups and received additional (*Plus*) treatment components. Medium effect sizes were found for Aggressive Behaviour and Externalizing Problems while a small effect size was found for Rule-breaking. Contrary to what was expected, participants who received additional treatment components (*Group Plus*) did not demonstrate reductions in level of risk (measured by the EARLs) that were significantly different from zero. The effect size for change in EARL scores for this group was essentially zero.

Considering participants in the *Group Plus* category had higher initial scores on measures of risk and behaviour, similar reductions in problematic behaviour seem to suggest similar effectiveness of program participation for lower risk individuals who receive *Group* and higher risk individuals who receive *Group Plus*. This finding supports the RNR principle that higher risk individuals require more intensive treatment to see the same effect as their lower risk counterparts.

When individual *Plus* components were entered into the regression model to see which were significant predictors of change in risk and behaviour scores, the only significant predictor identified was Individual Befriending, which was a significant predictor of change in EARL score. Similar findings have been reported in previous

evaluation studies examining the effectiveness of treatment by gender. Historically, Individual Befriending was provided to the highest-risk boys who were identified as needing additional attention and practice to cement new skills in problem-solving, impulse control and emotion regulation.

No significant predictors of change scores were identified for change in CBCL scores for *Group Plus* completers. This finding may be the result of a heterogeneous group with respect to initial risk level and treatment received. In previous studies examining change in problematic behaviour, participants were separated into groups by level of initial risk. Treatment effects differed across groups with the highest risk boys actually getting worse when they received *Group* only treatment but showed mild treatment effects with the addition of *Plus* components (Augimeri et al., 2006).

It was not possible in the present study to separate participants by *Plus* treatment components received because the majority of participants received a mixture of *Plus* components at varying levels. When an attempt was made to separate participants by combination of components received with similar dosages, cell sizes became too small to analyze.

Based on the findings of the primary analyses, similar analyses were conducted separately for boys and girls to determine if the results would differ by gender. As expected, and in keeping with prior research, Individual Befriending was identified as a significant predictor of decrease in problem behaviours for boys. Furthermore, number of SNAP child group sessions predicted absence of police contact. While a negative association between School Liaison sessions and police contact was found, caution is

advised in interpreting these results as very few clients received any sessions of School Liaison.

The findings for girls are also reported with caution due to small sample sizes of girls with police contact. The number of total treatment components as a significant predictor of change in CBCL Rule-breaking scores is not an entirely new finding. Previous studies have reported that, for girls, it is not one or two specific components that best predict reductions in risk and problem behaviour; it is the dosage or overall amount of contact with the program that makes the difference.

Effect of Treatment Intensity on Criminal Outcomes

Based on what is known about effective interventions for juvenile and adult criminal offenders as well as at-risk children and youth, it was expected that greater treatment intensity, defined as a greater total number of treatment sessions received, would have a significant positive effect on reducing future criminal behaviour in at-risk children. It was expected that total number of sessions (of all program components combined) would significantly predict later less involvement in criminal activity at follow-up. Specifically, when initial risk level was controlled for, it was expected that participants who received more sessions of treatment would be less likely to have engaged in criminal activity than participants who received fewer sessions of treatment. This was not the case in the present study. None of the *Plus* treatment components or number of sessions significantly predicted later involvement in criminal activity for *Group Plus* completers. As mentioned above, this may be due, in part, to the heterogeneous sample of *Group Plus* completers with respect to initial risk level, gender, and treatment received.

In the present study, very few girls ended up having a criminal record at follow-up; therefore, results relating to police contact for girls should be interpreted with caution. Similarly, when individual with criminal record information were separated by risk level and treatment received, the cell sizes became very small. Without being able to separate participants by all of these factors and compare across groups created, it is difficult to establish which factors may be influencing long-term criminal outcomes.

However, the low rate of any criminal involvement within SNAP participants can be considered a positive outcome on its own. Considering that the most recent estimates of youth offending in the general population is 4.3% (Statistics Canada, 2016), a rate of 12% of youth offending in the present sample of high-risk children referred for treatment is a fairly positive result. Even the overall offending rate of 16% is much lower than rates reported in earlier evaluation studies of SNAP, when SNAP child and parent groups were the only treatment components offered (64%; Farrington & Koegl, 2014), and studies of similar treatment programs like the one evaluated in the Montreal Longitudinal-Experimental Study (22%; Boisjoli, Vitaro, Lacourse, Barker, & Tremblay, 2007).

Strengths and Limitations

This study presented a number of unique opportunities and challenges. Although not the first study to investigate the effectiveness of the SNAP program on reducing problematic behavior in children and their later involvement in the youth justice system, this study was the first to investigate the relationship between intensity of SNAP treatment received and later involvement in the criminal justice system as adults, many years after program completion.

The large sample of program participants available allowed for greater confidence in the effects found for *Group* and *Group Plus* treatment. However, isolating the effects of specific program components was still not feasible once the variety of combinations of components was taken into account.

Similar demographic characteristics across different subgroups within the sample allowed for improved comparability across conditions, thus increasing confidence in the validity of the effects identified. Additionally, the diversity of ethnic backgrounds and socioeconomic statuses represented in the sample should increase confidence in the generalizability of the results to many populations in Canada. Demographic characteristics suggest this study's sample was fairly representative of the greater population in a large Canadian metropolitan area, the results may not generalize to other samples in different geographic locations with different characteristics.

The present study also presented a number of limitations. First of all, the retrospective nature of the study severely limited control over treatment conditions. Participants were not randomly assigned to treatment groups, and no control group of participants was available for comparison purposes. Where possible, efforts were made to control for baseline score in order to isolate the effects of treatment; however, without being able to create further subdivisions in the sample because of extensive overlap in treatment received, conclusions about the differential effects of specific treatment components could not easily be drawn.

As is the case with most clinical research, some participant data was missing from the database. Participants in long-term clinical studies often terminate prematurely and measures cannot be completed or are lost, leaving data incomplete for some cases.

Additionally, although measures identified as Time 2 in the database were usually scored after group sessions were completed, some Time 2 scores did not have dates associated with them, which raises questions as to the actual timing of administration. In some cases, Time 2 scores may have been administered after group completion but before completion of other treatment components received and therefore, may be an underestimate of changes in scores that resulted from participation in treatment.

One potential confounding variable that was not addressed in the present study is the high rate of comorbid Attention-Deficit Hyperactivity Disorder (ADHD) and externalizing disorders (i.e., conduct disorder, oppositional defiant disorder, etc.) in this population. It is expected that a number of children referred to CDI for the SNAP program would meet criteria for ADHD. With prescription rates rising steadily over the past 15 to 20 years (Brault & Lacourse, 2012), many of these children have likely been prescribed a stimulant medication to manage their symptoms, which introduces the possibility of a confound in the evaluation of treatment effects.

From a program evaluation perspective, any participants in a behavioral intervention program being treated with psychoactive medication without the knowledge of program staff is a potential confounding variable in the evaluation of the effectiveness of the intervention being studies. For SNAP participants in particular, the effects of stimulant medication prescribed to treat ADHD symptoms may look very much like the behavioral outcomes expected for individuals participating in an intervention program designed to treat disruptive behavior problems. Without this important information, treatment gains cannot be solely attributed to the intervention program.

Implications and Future Directions

The results of the present study contribute valuable information regarding how effective SNAP *Plus* program components are at reducing problematic behaviours and preventing future criminal involvement in at-risk children. It also contributes new information to the knowledge base on effective interventions for at-risk children by examining which specific program components predict reductions in problem behaviour and likelihood of future criminal activity, as well as how the intensity of treatment provided and dosage affects the outcome for children receiving the services.

There are several potential avenues of research that could stem from this investigation. Using a retrospective design, the present study could not experimentally control for differences in treatment received or levels of pre-treatment risk and behaviour problems. In order to examine the effectiveness of individual program components, participants would need to be randomly assigned to an experimental condition using the Randomized-control trial (RCT) model in order to prevent systematic differences in participant characteristics from clouding the results. Similarly, expanding the scope of demographic data collected at intake and standardizing data management practices would allow future researchers to develop a more complete understanding of clients referred for service and what factors impact treatment completion.

Much of the existing research on the effectiveness of the SNAP program has been conducted using data from the program's original site and provider, the Child Development Institute in Toronto, Ontario; however, CDI is no longer the only provider of SNAP. The program is currently offered at 27 other sites internationally; and, over the next four to five years, the program will be expanded to an additional 120 sites across

Canada (CDI, 2016). Future research on the SNAP program should aim to evaluate the effectiveness of the program at its various affiliate sites to ensure its integrity and fidelity is maintained. The existence of affiliates in other countries would also allow for cross-cultural evaluations of program effectiveness and the examination of cultural factors that may affect client needs and outcomes.

Finally, as the program continues to produce new SNAP graduates with every passing year, long-term follow-ups should continue to be conducted to gather information on the long-term social and criminal outcomes of past program participants including rates of offending as well as rates of other social and health-related outcomes like unemployment and hospitalization.

Conclusion

The findings of the present study provide additional support for the effectiveness of the Stop Now And Plan (SNAP) program at helping reduce problematic behavior in at-risk children. As expected, SNAP child group sessions and SNAPP parent group sessions were effective in reducing both the aggressive and rule-breaking behaviours that make up externalizing behaviour problems. Contrary to what was expected, the addition of *Plus* treatment components did not significantly improve short-term outcomes (behaviour problems) or long-term outcomes (criminal involvement).

Overall, the findings of this study contribute to the growing body of literature on effective intervention programs for at-risk children and their families. The results presented here should be of interest to those involved in the development and implementation of services for children and families in the health care, education, and social services fields.

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Appendix A

Brief Child and Family Phone Interview (BCFPI)

(1) Basic Concerns

Free text narrative, fully formatted, any length, completed at beginning, throughout or at the end of the interview. Can be supplemented by comments attached to specific items.

(2) Basic Demographics

1. Are you a single parent, or do you live with a spouse or partner?
2. What language is most often used in your home?
3. What is the highest level of education you've completed?
4. What is the highest level of education your spouse has completed?
5. Could you tell me which of the following describes your total family income over the past year?

(3) Behaviour and Emotional Adjustment

A. Regulation of Attention, Impulsivity, & Activity

1. Distractible, has trouble sticking to an activity
2. Fails to finish things he starts
3. Has difficulty following directions or instructions
4. Impulsive, acts without stopping to think
5. Jumps from one things to another
6. Fidgets

B. Cooperativeness

1. Cranky
2. Defiant, talks back to adults
3. Blames others for own mistakes

4. Easily annoyed by others
5. Argues a lot with adults
6. Angry and resentful

C. Conduct

1. Steals things at home
2. Destroys things belonging to others
3. Engages in vandalism
4. Has broken into a house, building, or car
5. Physically attacks people
6. Uses weapons when fighting

D. Separation From Parents

1. Worries bad things will happen to loved ones
2. Worries about being separated from loved ones
3. Scared to sleep without parents nearby
4. Overly upset when leaving loved ones
5. Overly upset while away from loved ones
6. Complains of feeling sick before separating

E. Managing Anxiety

1. Worries about doing better at things
2. Worries about past behaviour
3. Worries about doing the wrong thing
4. Worries about things in the future
5. Is afraid of making mistakes

6. Is overly anxious to please people

F. Managing Mood

1. No interest in usual activities
2. Gets no pleasure from usual activities
3. Has trouble enjoying self
4. Not as happy as other children
5. Feels hopeless
6. Unhappy, sad or depressed

>>>Ask the next 3 questions if there is any concern re possible depression or self-harm (items 7, 8, 9 required only if concern appropriate.

7. Has lost a lot of weight without trying
8. Talks about killing himself/herself
9. Deliberately harms self or attempts suicide

(4) Child Functioning and Impact on Family

A. Child's Social Participation

1. Withdrawn or isolated him/herself
2. Doing things less with other kids
3. Enjoying life less

B. Quality of Child's Relationships

1. Getting along with his teachers
2. Getting along with you and your partner
3. Being irritable or fighting with friends

C. Child's School Participation and Achievement

1. Getting along with his/her teachers

2. Missing school

3. With his/her grades going down

D. Family Activities

1. How frequently has XX's behaviour prevented you from taking him/her out shopping or visiting?

2. How frequently has XX's behaviour made you decide not to leave him/her with a babysitter?

3. How frequently has XX's behaviour prevented you from having friends, relatives, or neighbours to your home?

4. How frequently has XX's behaviour prevented his/her brothers or sisters from having friends, relatives, or neighbours to your home?

E. Family Comfort

1. How frequently have you quarrelled with your spouse regarding XX's behaviour?

2. How frequently has XX's behaviour caused you to be anxious or worried about his/her chances for doing well in the future?

3. How frequently have neighbours, relatives, or friends expressed concerns about XX's behaviour?

(5) Other Items Available for Inquiry, if applicable

Bullying
Cruelty to animals
Fire
Substance use
Specific fear
Social phobia
Obsessions
Compulsions
Movement problems
Thought problems
School refusal
Selective mutism
Victimized/bullied
Trauma
Speech difficulties

Developmental problems
Learning problems
Sleep difficulties
Eating problems
Urination problem
Bowel movement problem
Sexual problems

(6) Developmental Status

(7) Risk Factors

A. Health – Parent (& Partner)

1. Are you (your partner) limited in carrying out normal activities at home, at a job, or in school because of a medical condition or health problem?

B. Mood – Informant

1. I did not feel like eating; my appetite was poor.

2. I had trouble keeping my mind on what I was doing.

3. I felt depressed.

4. My sleep was restless.

5. I felt sad.

6. I could not get going.

Mood – Partner

1. During the past week, how often have you (your partner)…felt sad?

2. During the past week, how often have you (your partner)…had crying spells?

3. During the past week, how often have you (your partner)…been unable to 'get going'?

C. Alcohol – Parent (& Partner)

1. Your drinking is a source of tension or disagreement in you home.

D. Family Functioning

1. In times of crisis we can turn to each other for support.
2. Individuals (in the family) are accepted for what they are.
3. We express feelings to each other.
4. We are able to make decisions about how to solve problems.
5. We DON'T get along well together.
6. We confide in each other.

E. Couple Relationship

1. Overall, how would you rate the relationship between you and your spouse or partner?

F. Discipline Style

1. Reason with XX or explain to XX?
2. Send XX to his/her room?
3. Take away XX's privileges
4. Spank XX with your hand?
5. Spank XX with a belt, brush, or something else?

G. Abuse

1. To your knowledge, has XX ever been physically abused?
2. To your knowledge, has XX ever been sexually abused?
3. To your knowledge, has XX ever been neglected to that extent that seemed to impair his/her emotional or physical well-being?
4. To your knowledge, has XX ever witnessed verbal or physical violence amongst the adults who have been involved in parenting him/her?

(8) Protective Factors

A. Supervised Activities

1. Outside of regular physical education classes, did _____ take part in any sports during the past year that involved adult coaching or instruction? If yes, record number and details in comments.

2. Outside of regular classes in school, did _____ take part in any lessons or instruction during the past year in music, dance, or other non-sports activities? If yes, record number and details in comments.

3. During the past year, did _____ belong to any clubs or groups with adult leadership, such as Cubs, Scouts, Brownies, a church group or community program? If yes, record number and details in comments.

B. Skills

1. Does your child have any good academic, arts, social, sports, or technical skills or talents? If answer is 'yes' record which one(s) in comments section.

C. Family Recreation

1. How often have all or most of the family participated together in any recreational activities, such as walks, games, fishing, etc., in the past 6 months?

D. Spiritual

1. How often does _____ attend religious services or cultural ceremonies?

E. Child Confidant

1. Does XX have anyone in particular he/she talks to or confides in? If answer is 'yes', record relationship of confidant to child and impact of sharing on child's coping in comment section.

F. Parent Confidant

1. Do you have anyone in particular that you can talk to or confide in about yourself or issues you are concerned about? If answer is 'yes', record relationship of confidant to parent and impact of sharing on parent's coping in comment section.

(9) Readiness, Barriers, & Conclusion

A. Readiness

1. Would you be interested in reading about the problems you described?

2. Would you be interested in watching a videotape about the problems you have described?

3. If there are a group of parents meeting together to discuss similar problems, would be interested in attending?

4. If workshops were available to learn about things you could do as a parent, would you be interested in attending?

5. Is your child interested in getting help with this problem?

6. Would you be willing to give us a phone number where we can reach you to get updates on these items, so we can follow how XX is doing, while waiting for, during, and after service? If 'yes', enter phone number now.

B. Barriers

Let me ask you about some things that may affect your ability to work with us. We are located at _____ (describe location client would attend). Do you know where that is?

1. How much of a problem would it be for you to get to the Centre? Would that stop you from attending?

2. Would parking costs be difficult for you? Would that stop you from attending?

3. Would it be a problem if services were only during the day? Would that stop you from attending?

4. Would it be a problem if services were only during the evening? Would that stop you from attending?

5. How much of a problem would babysitting be if you were to come to come to the Centre? Would that stop you from attending?

6. Would it be difficult for you to read and fill in a questionnaire? Would that stop you from attending?

Appendix B

Family Information Form (FIF)

2015-10-27

Place your Agency Name and Logo Here

FAMILY INFORMATION FORM

The information in this questionnaire will help us to work with you, your child and family. It is strictly confidential, and cannot be shared except as required by law or with your written consent. Thank you for your cooperation.

Place your Agency's Address and

Contact Information Here

PARENT/GUARDIAN: The information in this questionnaire will help us to work with your child and family. It is strictly confidential, and cannot be shared without your consent. Thank you for your cooperation.

Child's Name	**Child's Date of Birth**	**Date Form Completed**
_____ (First) (Last)	_____/_____/_____ (Month) (Day) (Year)	_____/_____/_____ (Month) (Day) (Year)
Informant's Name	**Informant's Date of Birth**	**Informant's Relationship to Child**
_____ (First) (Last)	_____/_____/_____ (Month) (Day) (Year)	

Ethnicity of Child

☐ Aboriginal-Cree	☐ African American	☐ Caribbean	☐ Hispanic European	☐ Other
☐ Aboriginal-First Nations	☐ African Canadian	☐ Caribbean American	☐ Hispanic-Latin American	
☐ Aboriginal-Inuit	☐ Asian- East	☐ Caribbean Canadian	☐ Middle Eastern	
☐ Aboriginal-Metis	☐ Asian-South	☐ Caucasian American	☐ Mix Background	
☐ Aboriginal-Other	☐ Asian-South-East	☐ Caucasian Canadian	☐ Oceanic	
☐ African	☐ Asian-Other	☐ Caucasian European	☐ Pacific Islanders	

ALTERNATE CONTACTS: Please provide information on 2 people we might contact to get in touch with you, if we were unable to locate you for follow-up purposes.

Name #1		**Name #2**	
Address		**Address**	
Home Phone		**Home Phone**	
Work Phone		**Work Phone**	

BASIC INFORMATION: Please list ALL HOUSEHOLD MEMBERS and specify their relationship to your child (for example: sister, step-sister, foster brother, uncle, boarder, etc.).

Name	Age	Relationship to Child	Grade/Occupation	Place of Birth
1.				
2.				
3.				
4.				
5.				

NON-RESIDENT SIBLINGS: Please list ANY OF YOUR CHILD'S SIBLINGS WHO DO NOT LIVE IN YOUR HOME and specify the relationship to him/her (i.e.: brother, half-sister, stepbrother, etc.)

Name	Age	Relationship to Child	Place of Residence
1.			
2.			
3.			

PARENT INFORMATION: Please complete the following information about YOURSELF:

Country of Birth	**Level of Education**
_____	☐ No Schooling ☐ Some Elementary ☐ Complete Elementary ☐ Some High School ☐ Complete High School ☐ Some College or Trade ☐ Complete College or Trade ☐ Some University ☐ Complete University

PARENT/SPOUSE INFORMATION: Are you currently LIVING WITH A PARTNER / SPOUSE?

- ☐ No (Please go now to the **next** section)
- ☐ Yes (Please give us some information about him/her below)

Name of Partner/Spouse	_____ (First) (Last)	**Sex**	☐ Male ☐ Female	**Date of Birth** _____/_____/_____ (Day) (Month) (Year)
How many years have you and your partner/spouse been living together? ☐ Less than 1 year ☐ 1 to 3 years ☐ 4 to 10 years ☐ Longer than 10 years		**Current marital status** ☐ Married ☐ Common-law		**Relationship to Child** ☐ Biological parent ☐ Common-law parent ☐ Step-parent ☐ Guardian ☐ Foster parent ☐ Adoptive parent

Employment Status	**Was your partner/spouse previously married?**
_____ (please specify) ☐ Full time ☐ Part time ☐ Occasional ☐ Unemployed ☐ Other: _____	☐ Yes ☐ No

ABSENT PARENT INFORMATION: Is there a NATURAL PARENT **NOT** LIVING WITH YOUR CHILD?

- ☐ No (Please go now to the next section)
- ☐ Yes (Please complete the section below to the best of your knowledge)

Name of Absent Parent	_____ (First) (Last)	**Sex**	☐ Male ☐ Female	**Current marital status, if known** ☐ Married ☐ Divorced ☐ Common-law ☐ Separated ☐ Single ☐ Widowed ☐ Other: _____ (please specify)
Does he/she visit your child? ☐ Yes _____ (How often?) ☐ No	**Where does this natural parent live?** ☐ In the same neighbourhood ☐ In the same city ☐ In the same province ☐ Whereabouts unknown ☐ Other: _____ (please specify)			

HOUSEHOLD INFORMATION

How long have you been living at your current address? ☐ Less than 1 year ☐ 1 to 3 years ☐ Longer than 3 years	**This accommodation is:** ☐ Rented ☐ Owned ☐ Subsidized ☐ Other: _____ (please specify)
How many times have you moved in the last 5 years? ☐ 0 ☐ 1 ☐ 2 ☐ 3 ☐ 4 ☐ 5 or more	**What is the major source of income in your household?** (Check one item) ☐ Wages and salaries ☐ Full time ☐ Part time ☐ Employment insurance ☐ Government assistance ☐ Other: _____ (please specify)
What do you enjoy doing most as a family?	**Family Income** ☐ 0 – $9,999 ☐ $10,000 - $19,999 ☐ $20,000 - $29,999 ☐ $30,000 - $39,999 ☐ $40,000 - $49,999 ☐ $50,000 - $59,999 ☐ $60,000+ ☐ Unknown

Here is a list of concerns that people may have about their families. (Please check all that are currently a problem for your family.)	☐ Money ☐ Housing ☐ Marital difficulties ☐ Poor health ☐ Depression ☐ Psychiatric difficulties	☐ Trouble with the law ☐ Heavy or problem drinking ☐ Drug abuse ☐ Violence between parents ☐ Violence towards children ☐ Sexual abuse of children
Do you have any other current concerns about your family? (Please describe)		

CHILD WELFARE INVOLVEMENT

Is your family currently involved with a child welfare or child protection agency?	☐ **No**	☐ **Yes** (please specify) ☐ Supportive counselling ☐ Foster/adoption Worker ☐ Supervision order ☐ Other: _____
Is your child currently in the care of a child welfare or child protection agency? Please identify name of organization _____	☐ **No**	☐ **Yes** (please specify) ☐ Crown Ward with access ☐ Crown Ward with no access ☐ Society Ward ☐ Voluntary

CHILD INFORMATION

Who ordinarily disciplines your child? ☐ Mother ☐ Father ☐ Other: _____ (please specify)	**Check off <u>ALL</u> the things that happen when your child behaves well:** ☐ Gets praised ☐ Gets hugs ☐ Gets a game/toy ☐ Gets some special time together ☐ Gets money ☐ Gets food/treats ☐ Gets a special privilege ☐ Other: _____ (please specify)

Which of these disciplines do you use with your child? (Check **ALL** the ones you use, and indicate whether you think that they are effective or ineffective.)	**Discipline:**	**Does it work?**		**Comments:**
	☐ Sending to room	☐ Yes	☐ No	
	☐ Hitting/slapping	☐ Yes	☐ No	
	☐ Sending to bed	☐ Yes	☐ No	
	☐ Removing privileges	☐ Yes	☐ No	
	☐ Spanking	☐ Yes	☐ No	
	☐ Talking	☐ Yes	☐ No	
	☐ Extra work	☐ Yes	☐ No	
	☐ Ignoring	☐ Yes	☐ No	
	☐ Grounding	☐ Yes	☐ No	
	☐ Yelling	☐ Yes	☐ No	
	☐ Other: _____ (please specify)	☐ Yes	☐ No	

Has you child ever lived away from you? ☐ No ☐ Yes (Please indicate.)	Child's age at the time he/she lived away from you?
	Length of time away?
	Where did your child live?
	What were the reasons for the separation?

SCHOOL INFORMATION

Current School		**Current Grade Level**	
How long at this school?		**How many different schools attended?**	
Type of class	☐ Regular ☐ Regular + Withdrawal ☐ Learning Disabilities ☐ Behavioural ☐ Other: _____ (please specify)		

MEDICAL INFORMATION

Name of Child's Doctor	
During pregnancy, delivery or after birth, did the mother or the child experience any illnesses or complications?	☐ No ☐ Yes (Please describe)
Was your child's birth …	☐ Premature ☐ Full term ☐ Overdue

Did your child experience any hospitalizations, illnesses or complications during the first 2 years of life? Examples: colic, earache, frequent infections	☐ No ☐ Yes (Please describe)
Did you have any concerns about your child's early development? Examples: walking, talking, eating, toilet training	☐ No ☐ Yes (Please describe)
Does your child have a diagnosed medical problem? Examples: epilepsy, diabetes, hearing problem	☐ No ☐ Yes (Please describe)
Has your child experienced any speech problems?	☐ No ☐ Yes (Please describe)
Has your child had any operations?	☐ No ☐ Yes (Please describe)
Has your child had any major accidents?	☐ No ☐ Yes (Please describe)

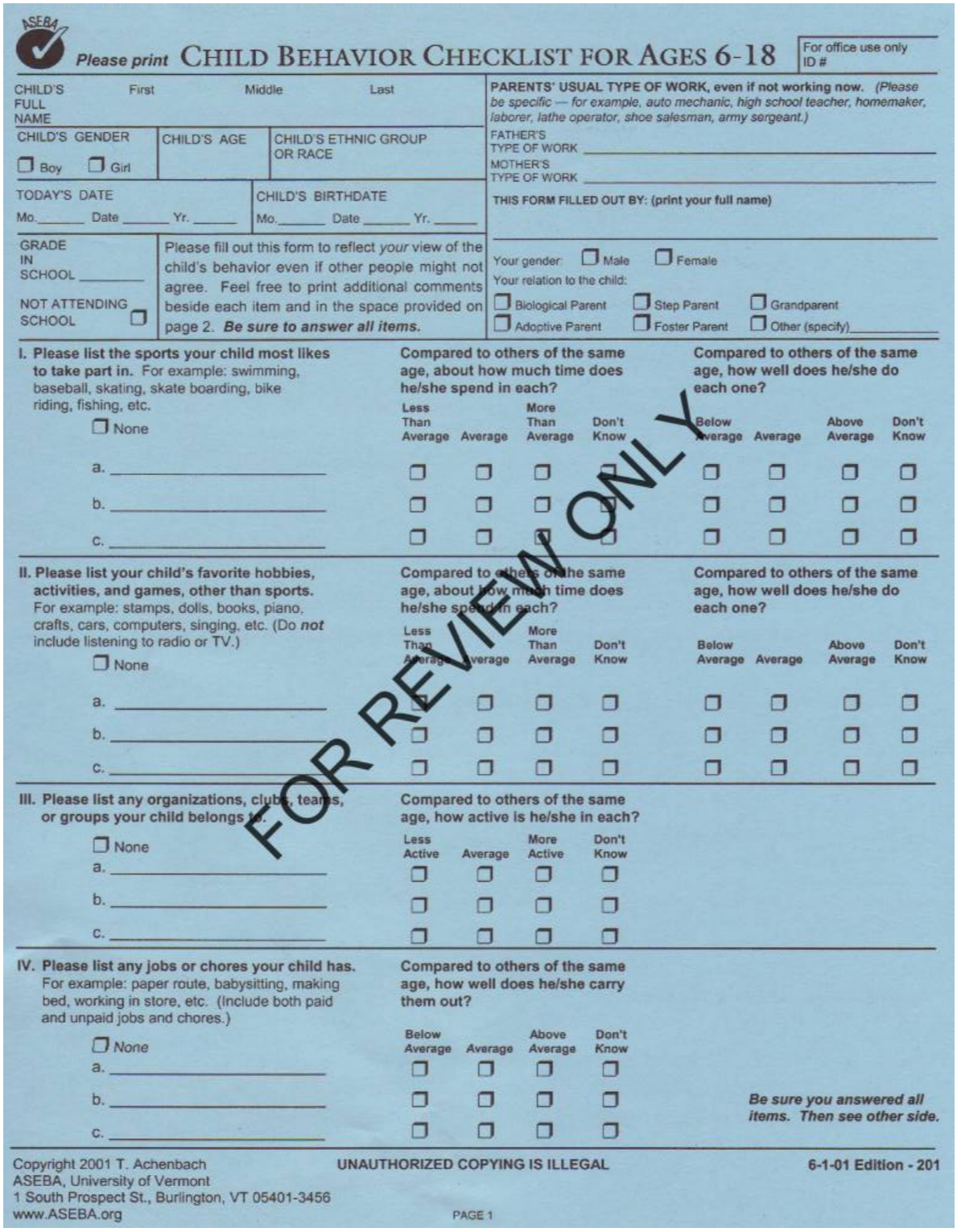
Is your child currently taking any medication?	☐ **No**	☐ **Yes** (Please list.)

IS THERE ANYTHING ELSE WE SHOULD KNOW, TO HELP US SERVE YOU, YOUR CHILD AND FAMILY BETTER?
Please comment in the space below.

Thank you again for completing this form. It will help improve our services to your family.

Appendix C

Child Behavior Checklist 6-18 (CBCL/6-18)



ASEBA

Please print **CHILD BEHAVIOR CHECKLIST FOR AGES 6-18**

For office use only ID #

CHILD'S FULL NAME First Middle Last

CHILD'S GENDER ☐ Boy ☐ Girl

CHILD'S AGE

CHILD'S ETHNIC GROUP OR RACE

TODAY'S DATE Mo._____ Date _____ Yr. _____

CHILD'S BIRTHDATE Mo._____ Date _____ Yr. _____

GRADE IN SCHOOL _____

NOT ATTENDING SCHOOL ☐

Please fill out this form to reflect *your* view of the child's behavior even if other people might not agree. Feel free to print additional comments beside each item and in the space provided on page 2. ***Be sure to answer all items.***

PARENTS' USUAL TYPE OF WORK, even if not working now. *(Please be specific — for example, auto mechanic, high school teacher, homemaker, laborer, lathe operator, shoe salesman, army sergeant.)*

FATHER'S TYPE OF WORK _____

MOTHER'S TYPE OF WORK _____

THIS FORM FILLED OUT BY: (print your full name)

Your gender: ☐ Male ☐ Female

Your relation to the child:

☐ Biological Parent ☐ Step Parent ☐ Grandparent

☐ Adoptive Parent ☐ Foster Parent ☐ Other (specify)_____

I. Please list the sports your child most likes to take part in. For example: swimming, baseball, skating, skate boarding, bike riding, fishing, etc.

☐ None

	Compared to others of the same age, about how much time does he/she spend in each?				Compared to others of the same age, how well does he/she do each one?			
	Less Than Average	Average	More Than Average	Don't Know	Below Average	Average	Above Average	Don't Know
a. _____	☐	☐	☐	☐	☐	☐	☐	☐
b. _____	☐	☐	☐	☐	☐	☐	☐	☐
c. _____	☐	☐	☐	☐	☐	☐	☐	☐

II. Please list your child's favorite hobbies, activities, and games, other than sports. For example: stamps, dolls, books, piano, crafts, cars, computers, singing, etc. (Do ***not*** include listening to radio or TV.)

☐ None

	Compared to others of the same age, about how much time does he/she spend in each?				Compared to others of the same age, how well does he/she do each one?			
	Less Than Average	Average	More Than Average	Don't Know	Below Average	Average	Above Average	Don't Know
a. _____	☐	☐	☐	☐	☐	☐	☐	☐
b. _____	☐	☐	☐	☐	☐	☐	☐	☐
c. _____	☐	☐	☐	☐	☐	☐	☐	☐

III. Please list any organizations, clubs, teams, or groups your child belongs to.

☐ None

	Compared to others of the same age, how active is he/she in each?			
	Less Active	Average	More Active	Don't Know
a. _____	☐	☐	☐	☐
b. _____	☐	☐	☐	☐
c. _____	☐	☐	☐	☐

IV. Please list any jobs or chores your child has. For example: paper route, babysitting, making bed, working in store, etc. (Include both paid and unpaid jobs and chores.)

☐ None

	Compared to others of the same age, how well does he/she carry them out?			
	Below Average	Average	Above Average	Don't Know
a. _____	☐	☐	☐	☐
b. _____	☐	☐	☐	☐
c. _____	☐	☐	☐	☐

Be sure you answered all items. Then see other side.

6-1-01 Edition - 201

PAGE 1

Please print. Be sure to answer all items.

V. 1. About how many close friends does your child have? (Do *not* include brothers & sisters)

❒ None ❒ 1 ❒ 2 or 3 ❒ 4 or more

2. About how many times a week does your child do things with any friends outside of regular school hours? (Do *not* include brothers & sisters)

❒ Less than 1 ❒ 1 or 2 ❒ 3 or more

VI. Compared to others of his/her age, how well does your child:

	Worse	Average	Better	
a. Get along with his/her brothers & sisters?	❒	❒	❒	❒ Has no brothers or sisters
b. Get along with other kids?	❒	❒	❒	
c. Behave with his/her parents?	❒	❒	❒	
d. Play and work alone?	❒	❒	❒	

VII. 1. Performance in academic subjects. ❒ Does not attend school because _____

	Check a box for each subject that child takes	Failing	Below Average	Average	Above Average
Other academic subjects–for example: computer courses, foreign language, business. Do *not* include gym, shop, driver's ed., or other nonacademic subjects.	a. Reading, English, or Language Arts	❒	❒	❒	❒
	b. History or Social Studies	❒	❒	❒	❒
	c. Arithmetic or Math	❒	❒	❒	❒
	d. Science	❒	❒	❒	❒
	e. _____	❒	❒	❒	❒
	f. _____	❒	❒	❒	❒
	g. _____	❒	❒	❒	❒

2. Does your child receive special education or remedial services or attend a special class or special school?

❒ No ❒ Yes—kind of services, class, or school:

3. Has your child repeated any grades? ❒ No ❒ Yes—grades and reasons:

4. Has your child had any academic or other problems in school? ❒ No ❒ Yes—please describe:

When did these problems start? _____

Have these problems ended? ❒ No ❒ Yes–when?

Does your child have any illness or disability (either physical or mental)? ❒ No ❒ Yes—please describe:

What concerns you most about your child?

Please describe the best things about your child.

Be sure you answered all items.

Please print. Be sure to answer all items.

Below is a list of items that describe children and youths. For each item that describes your child ***now or within the past 6 months***, please circle the ***2*** if the item is ***very true or often true*** of your child. Circle the ***1*** if the item is ***somewhat or sometimes true*** of your child. If the item is ***not true*** of your child, circle the ***0***. Please answer all items as well as you can, even if some do not seem to apply to your child.

0 = Not True (as far as you know) **1 = Somewhat or Sometimes True** **2 = Very True or Often True**

0 1 2 1. Acts too young for his/her age
0 1 2 2. Drinks alcohol without parents' approval (describe):_____
0 1 2 3. Argues a lot
0 1 2 4. Fails to finish things he/she starts
0 1 2 5. There is very little he/she enjoys
0 1 2 6. Bowel movements outside toilet
0 1 2 7. Bragging, boasting
0 1 2 8. Can't concentrate, can't pay attention for long
0 1 2 9. Can't get his/her mind off certain thoughts; obsessions (describe): _____
0 1 2 10. Can't sit still, restless, or hyperactive
0 1 2 11. Clings to adults or too dependent
0 1 2 12. Complains of loneliness
0 1 2 13. Confused or seems to be in a fog
0 1 2 14. Cries a lot
0 1 2 15. Cruel to animals
0 1 2 16. Cruelty, bullying, or meanness to others
0 1 2 17. Daydreams or gets lost in his/her thoughts
0 1 2 18. Deliberately harms self or attempts suicide
0 1 2 19. Demands a lot of attention
0 1 2 20. Destroys his/her own things
0 1 2 21. Destroys things belonging to his/her family or others
0 1 2 22. Disobedient at home
0 1 2 23. Disobedient at school
0 1 2 24. Doesn't eat well
0 1 2 25. Doesn't get along with other kids
0 1 2 26. Doesn't seem to feel guilty after misbehaving
0 1 2 27. Easily jealous
0 1 2 28. Breaks rules at home, school, or elsewhere
0 1 2 29. Fears certain animals, situations, or places, other than school (describe): _____
0 1 2 30. Fears going to school
0 1 2 31. Fears he/she might think or do something bad
0 1 2 32. Feels he/she has to be perfect
0 1 2 33. Feels or complains that no one loves him/her
0 1 2 34. Feels others are out to get him/her
0 1 2 35. Feels worthless or inferior
0 1 2 36. Gets hurt a lot, accident-prone
0 1 2 37. Gets in many fights
0 1 2 38. Gets teased a lot
0 1 2 39. Hangs around with others who get in trouble
0 1 2 40. Hears sounds or voices that aren't there (describe):_____
0 1 2 41. Impulsive or acts without thinking
0 1 2 42. Would rather be alone than with others
0 1 2 43. Lying or cheating
0 1 2 44. Bites fingernails
0 1 2 45. Nervous, highstrung, or tense
0 1 2 46. Nervous movements or twitching (describe): _____
0 1 2 47. Nightmares
0 1 2 48. Not liked by other kids
0 1 2 49. Constipated, doesn't move bowels
0 1 2 50. Too fearful or anxious
0 1 2 51. Feels dizzy or lightheaded
0 1 2 52. Feels too guilty
0 1 2 53. Overeating
0 1 2 54. Overtired without good reason
0 1 2 55. Overweight
56. Physical problems ***without known medical cause:***
0 1 2 a. Aches or pains (***not*** stomach or headaches)
0 1 2 b. Headaches
0 1 2 c. Nausea, feels sick
0 1 2 d. Problems with eyes (***not*** if corrected by glasses) (describe): _____
0 1 2 e. Rashes or other skin problems
0 1 2 f. Stomachaches
0 1 2 g. Vomiting, throwing up
0 1 2 h. Other (describe): _____

 Be sure you answered all items. Then see other side.

Please print. Be sure to answer all items.

0 = Not True (as far as you know) **1 = Somewhat or Sometimes True** **2 = Very True or Often True**

0 1 2 57. Physically attacks people
0 1 2 58. Picks nose, skin, or other parts of body (describe): _____
_____
0 1 2 59. Plays with own sex parts in public
0 1 2 60. Plays with own sex parts too much
0 1 2 61. Poor school work
0 1 2 62. Poorly coordinated or clumsy
0 1 2 63. Prefers being with older kids
0 1 2 64. Prefers being with younger kids
0 1 2 65. Refuses to talk
0 1 2 66. Repeats certain acts over and over; compulsions (describe): _____
_____
0 1 2 67. Runs away from home
0 1 2 68. Screams a lot
0 1 2 69. Secretive, keeps things to self
0 1 2 70. Sees things that aren't there (describe): _____
_____
_____
0 1 2 71. Self-conscious or easily embarrassed
0 1 2 72. Sets fires
0 1 2 73. Sexual problems (describe): _____
_____
_____
0 1 2 74. Showing off or clowning
0 1 2 75. Too shy or timid
0 1 2 76. Sleeps less than most kids
0 1 2 77. Sleeps more than most kids during day and/or night (describe): _____
_____
0 1 2 78. Inattentive or easily distracted
0 1 2 79. Speech problem (describe): _____
_____
0 1 2 80. Stares blankly
0 1 2 81. Steals at home
0 1 2 82. Steals outside the home
0 1 2 83. Stores up too many things he/she doesn't need (describe): _____
_____
_____
0 1 2 84. Strange behavior (describe): _____
_____
0 1 2 85. Strange ideas (describe): _____
_____
0 1 2 86. Stubborn, sullen, or irritable
0 1 2 87. Sudden changes in mood or feelings
0 1 2 88. Sulks a lot
0 1 2 89. Suspicious
0 1 2 90. Swearing or obscene language
0 1 2 91. Talks about killing self
0 1 2 92. Talks or walks in sleep (describe): _____
_____
0 1 2 93. Talks too much
0 1 2 94. Teases a lot
0 1 2 95. Temper tantrums or hot temper
0 1 2 96. Thinks about sex too much
0 1 2 97. Threatens people
0 1 2 98. Thumb-sucking
0 1 2 99. Smokes, chews, or sniffs tobacco
0 1 2 100. Trouble sleeping (describe): _____
_____
0 1 2 101. Truancy, skips school
0 1 2 102. Underactive, slow moving, or lacks energy
0 1 2 103. Unhappy, sad, or depressed
0 1 2 104. Unusually loud
0 1 2 105. Uses drugs for nonmedical purposes (***don't*** include alcohol or tobacco) (describe): _____
_____
_____
0 1 2 106. Vandalism
0 1 2 107. Wets self during the day
0 1 2 108. Wets the bed
0 1 2 109. Whining
0 1 2 110. Wishes to be of opposite sex
0 1 2 111. Withdrawn, doesn't get involved with others
0 1 2 112. Worries
113. Please write in any problems your child has that were not listed above:
0 1 2 _____
0 1 2 _____
0 1 2 _____

Please be sure you answered all items.

Appendix D

Early Assessment Risk List for Boys (EARL-20B)

The EARL-20B Version 2 Summary Sheet

(To be used in association with the EARL-20B, Version 2 Manual)

Child's Name or ID#: _____ Date: _____
(First name SURNAME) (YYYY-MM-DD)

Assessor: _____ Child's DOB: _____ Age: _____
(YYYY-MM-DD)

Family Items		Rating (0-1-2)	Critical Risk
F1	Household Circumstances		
F2	Caregiver Continuity		
F3	Supports		
F4	Stressors		
F5	Parenting Style		
F6	Antisocial Values and Conduct		
Child Items		**Rating (0-1-2)**	**Critical Risk**
C1	Developmental Problems		
C2	Onset of Behavioral Difficulties		
C3	Abuse/Neglect/Trauma		
C4	HIA (Hyperactivity/Impulsivity/Attention Deficits)		
C5	Likeability		
C6	Peer Socialization		
C7	Academic Performance		
C8	Neighbourhood		
C9	Authority Contact		
C10	Antisocial Attitudes		
C11	Antisocial Behaviour		
C12	Coping Ability		
Responsivity Items		**Rating (0-1-2)**	**Critical Risk**
R1	Family Responsivity		
R2	Child Responsivity		

Overall Clinical Judgment	LOW	MOD	HIGH

TOTAL SCORE

Notes:

Appendix E

Early Assessment Risk List for Girls (EARL-21G)

The EARL-21G Version 1 – Consultation Edition Summary Sheet

(To be used in association with the EARL-21G, Version 1 – Consultation Edition Manual)

Child's Name or ID#: _____ (First name SURNAME) **Date:** _____ (MM-DD-YYYY)

Assessor: _____ **Child's DOB:** _____ (MM-DD-YYYY) **Age:** _____

Family Items		Rating (0-1-2)	Critical Risk
F1	Household Circumstances		
F2	Caregiver Continuity		
F3	Supports		
F4	Stressors		
F5	Parenting Style		
F6	Caregiver-Daughter Interaction		
F7	Antisocial Values and Conduct		
Child Items		**Rating (0-1-2)**	**Critical Risk**
C1	Developmental Problems		
C2	Onset of Behavioral Difficulties		
C3	Abuse/Neglect/Trauma		
C4	IIIA (Hyperactivity/Impulsivity/Attention Deficits)		
C5	Likeability		
C6	Peer Socialization		
C7	Academic Performance		
C8	Neighbourhood		
C9	Sexual Development		
C10	Antisocial Attitudes		
C11	Antisocial Behaviour		
C12	Coping Ability		
Responsivity Items		**Rating (0-1-2)**	**Critical Risk**
R1	Family Responsivity		
R2	Child Responsivity		

Overall Clinical Judgment	LOW	MOD	HIGH	TOTAL SCORE	

Notes:

Appendix F

Policy Regarding Use of CDI Research Data by External Researchers

Scope: The purpose of this policy is to set forth expectations and requirements regarding the use of physical and electronic information collected or housed by Child Development Institute ("CDI data") that could be used for scientific or other purposes. This policy is intended for any person(s) who are not employed as a full-time staff at Child Development Institute ("external researcher"). This includes, but is not limited to, external investigators, academics, students, researchers, volunteers, contract, occasional and former staff. This policy does not cover the release or use of information for clinical or other purposes required or permitted by law.

Statement of Principle: Child Development Institute is committed to improving the lives of children and their families through the advancement of evidence-based practices. As a clinical service provider, the safety and well-being of our clients (children and families) remains paramount. To this end, we encourage collaboration with external researchers who are willing to advance the field through systematic research. These policies and procedures should be used in conjunction with Child Development Institute Key Policies and Procedures (Section B, 13.0, Research and Evaluation) and relevant provincial and federal legislation to ensure that risks to all research participants are minimized.

Researcher Agreement: As a custodian of information, CDI has the responsibility to require recipients of CDI data to enter into an agreement to comply with any conditions and restrictions it might impose relating to the use, storage, security, disclosure, dissemination, return, or disposal of the information. As such, investigators who receive CDI data have no rights to use the data beyond what is granted in the Researcher Agreement.

1. Permission to use CDI data will be granted for a defined purpose, on a project by project basis, for a fixed period of time. This Researcher Agreement will explicitly address roles, responsibilities and expectations regarding the use of CDI data, outputs that may arise from the data, expectations of the external researcher, disclaimers, publication, intellectual property, and any other relevant issues.

2. All data, whether it is in physical or electronic form, remains the property of Child Development Institute. This means that persons external to the organization are given usage rights only. Upon termination or expiry of the Researcher Agreement, all data and any outputs resulting from that data (e.g., recoded variables) must be returned to CDI forthwith.

3. Physical data (e.g., raw measures or output from measures) must not be removed from Child Development Institute premises under any circumstances.

4. It will be usual practice that all analyses and data be performed and/or stored at Child Development Institute (on-site). Electronic datasets may only be used or brought off-site (e.g., via email or through fixed data storage) with previous written permission of the Director, Scientific & Program Development and Centre for Children Committing Offences (CCCO). Any electronic data that is used off-site must not contain any information that could potentially identify clients/study participants (i.e., through primary or residual disclosure).

5. All requests to use CDI data must be approved in writing by the Director, Scientific & Program Development and CCCO (which may require review by the CDI Research and Ethics Review Committee) at the outset of each and every project.

6. For each project, there shall be one person designated the Principal Investigator, who will enter into a written Researcher Agreement with CDI. This person shall assume all responsibility (e.g., practical, personal, ethical, legal) for complying with the terms in

the Agreement and will ensure that persons approved to work on the project under their supervision will follow the letter and spirit of the Agreement.

7. In conjunction with the Researcher Agreement, it is expected that all external researchers comply with recognized professional standards relating to the ethical conduct of researchers (e.g., the Tri-Council), and provincial and federal privacy and related regulations.

8. This Researcher Agreement may be terminated by either party at any time, at which time, all physical and electronic data, including copies and any output derived from that data, must be returned to CDI immediately.

9. If the nature or the scope of the project should change after entering into a Researcher Agreement with CDI, the onus is on the external researcher to inform the Director, Scientific & Program Development and CCCO immediately so that the original Researcher Agreement can be amended accordingly.

10. The Principal Investigator and the Director, Scientific & Program Development and CCCO will explicitly delineate how the data will be used and anticipated outputs resulting from the project. Authorship, including timelines for publication or presentation of data shall be discussed at the outset. Unless agreed otherwise (e.g., for doctoral dissertations, or other exceptional cases), CDI shall retain the copyright to all materials resulting from the research data. The following is a general guideline that should be used for determining authorship:

    To be named as an author or co-author, an individual is generally expected to be able to defend the work publicly, and thus is required to have a thorough knowledge and understanding of the research question, the methods used, the data sources used, the results and the interpretation of those results. The determination of authorship and co-authorship is often a negotiated process between individuals involved in a research study, but is ultimately the responsibility of the Principal Investigator, and the Director, Scientific & Program Development and CCCO or their designate. Individuals who do not meet the above criteria for authorship should be acknowledged as contributors.

    CDI has the right to ensure that contributions by CDI staff are appropriately acknowledged to help raise the profile and reputation of CDI and its research capacity. In many cases, CDI research staff will likely make significant contributions to research projects using CDI data.

11. It is normally expected that knowledge dissemination activities (e.g., written publications, presentations or other activities) will be attached to each project. At the outset of the project, and in an ongoing manner, the principal investigator will disclose all public dissemination activities attached to each project, and keep the Director, Scientific & Program Development and CCCO or their designate informed of any new developments or opportunities to present the work. The following must happen with respect to dissemination activities:

    a. Presentations/Posters – any presentations given to audiences external to CDI must first be given internally to CDI staff, or at a minimum, be subject to review by the Director, Scientific & Program Development and CCCO or their designate before the presentation is given to an external audience.

    b. Publications – written copies of all reports, papers, theses, etc., must be submitted to the Director, Scientific & Program Development and CCCO with ample notice prior to final submission for review.

The purpose of this review process is **not to interfere with a researcher's academic freedom or to restrict a researcher's ability to independently report research findings but the purpose of this policy** is to keep internal staff/researchers informed about the findings of the research, to maximize the extent that findings and the interpretations of findings and/or clinical implications resulting from the findings are accurate and communicated in a fashion that is consistent with CDI Mission and Values, and to ensure that CDI and its activities are represented accurately in the broader community.

CDI reserves the right to require that external researchers include a disclaimer statement. Such statements must be prominently presented or conveyed within or during the dissemination activity. The following are examples of disclaimer statements:

"The opinions, results and conclusions contained in this report/presentation are those of the author(s) and no endorsement by Child Development Institute is intended or should be inferred."

"The interpretations of these findings may be different than those made by researchers at Child Development Institute. If interested, you may contact (name, contact information) for more details."

"CDI reserves the right to request that any acknowledgement or disclaimer mentioning CDI be excluded or removed from any publicly disseminated research results."

"CDI reserves the right to issue a public statement (e.g., media release) regarding any approved research protocol using CDI data."

12. At the request of the Director, Scientific & Program Development and CCCO at <u>any time</u>, or at a minimum, upon completion of all projects, the external researcher shall submit a report of findings and a dataset that contains the original raw data and any new data generated from that raw data (e.g., recoded or derived variables), whether in electronic or hardcopy format, with a corresponding data dictionary.

13. External researchers may be asked by the Director, Scientific & Program Development and CCCO to generate statistics based on CDI data. In these cases, the external researcher shall provide those statistics in a reasonable timeframe, or where there is a pressing need for the information, immediately submit their data to the Director so that the statistics can be generated by someone else.

14. At the discretion of the Director, Scientific & Program Development and CCCO external researchers may be required to have a criminal and/or reference check performed prior to entering into a written Researcher Agreement with CDI to use data.

15. Principal Investigators agree to not publish or otherwise disclose the data in a form that could reasonably enable someone to ascertain the identity of an individual to whom the information relates. They also agree to not make contact or attempt to make contact with an individual to whom the information relates, directly or indirectly.

16. The Director, Scientific & Program Development and CCCO may assign supervisory responsibilities over the data to qualified individuals (e.g., university-based academics). These individuals will ensure that projects conform to the letter and spirit of this policy.

17. The Principal Investigator or persons working under their direction shall agree to notify the Director, Scientific in writing immediately should the signatory become aware of any breach in the Researcher Agreement.

18. The penalty for violating any terms of the Researcher Agreement will depend on the nature of the violation. These could range from the termination of the research project to public disassociation with the investigator to loss of employment or affiliation status. Any breach of the Researcher Agreement can be addressed legally, including appropriate penalties as determined by the courts.

First Draft:

Prepared by:

Reviewed by:

Appendix G

Criminal Offence Categories and Criminal Code Section Numbers

Offence Category	Included Offences (Criminal Code of Canada section number)
Property offences	Robbery (344) **Robbery with weapon/violence*** Break and Enter (348) Unlawfully in a Dwelling (349) Possession of Break-in Instruments (351) Forcible Entry (74) Motor Vehicle Theft (333.1) Theft (334) Fraudulent Concealment (341) Theft and Forgery of a Credit Card (342) Possession of Stolen Property (355) Obtaining Property by False Pretences (362) Forgery (366, 367, 368) Counterfeiting (449, 450, 452) Breach of Trust (336) Fraud (380) Fraudulently Obtaining Food (364) Taxi Fraud (393) Mischief (430) Arson (433, 434) Unauthorized Use of Computer (342.1) Identity Theft (402.2, 403)
Violent offences	Failing to Provide the Necessities of Life (215) Criminal Negligence (220) Administering a Noxious Substance (245) Overcoming Resistance (246) Criminal Harassment (264) Uttering Threats (264.1) Common Assault (266) **Assault Causing Bodily Harm (267)*** **Assault with a Weapon (267)*** **Aggravated Assault (268)*** Assault Peace Officer (270) **Kidnapping and Unlawful Confinement (279)*** Trafficking in Persons (279.01-04) Hostage Taking (279.1) Abduction of a Young Person (280-286) Extortion (346) Intimidation (423) Animal Cruelty (445, 446)

	Homicide (234, 235, 236)* **Attempted Murder (239)***
Sexual offences	**Sexual Interference (151)*** Invitation to Sexual Touching (152) Sexual Exploitation (153) Bestiality (160) Voyeurism (162) Obscenity (163) Child Pornography (163.1) Making Sexual Explicit Materials Available to Child (171.1) Child Luring (172.1) Agree or Arrange a Sexual Offence Against Child (172.2) Keeping Common Bawdy-house (210) Procuring and Living on the Avails of Prostitution (212) Solicitation (213) **Sexual Assault (271)*** **Sexual Assault with a Weapon (272)*** **Sexual Assault Causing Bodily Harm (272)*** **Aggravated Sexual Assault (273)***
Drug offences	Drug Possession (4 CDSA) Drug Trafficking (5 CDSA) Drug Production (7 CDSA) Importing and Exporting Drugs
Weapons offences	**Use of Firearm in Commission of an Offence (85)*** Unsafe Storage of a Firearm (86) **Pointing a Firearm (87)*** **Possession of a Weapon for a Dangerous Purpose (88)*** Carrying a Concealed Weapon (90) Unauthorized Possession of a Firearm (91) Possession of Unauthorized Firearm (92) Possession of a Restricted or Prohibited Firearm (95) Weapons Trafficking (99, 100) Possession of a Weapon Contrary to an Order (117.01) **Discharging a Firearm (244, 244.1, 244.2)***
Motor vehicle offences	Dangerous Operation of a Motor Vehicle (249) Flight from Police (249.1) Street Racing (249.2, 249.3, 249.4) Failure to Stop at Scene of Accident (252) Impaired Driving and Over 80 (253) Impaired Driving, Over 80 and Refusal Causing Bodily Harm or Death (s. 255(3), (3.1), (3.2)) Refusal (254) Driving while Disqualified (259)
Other offences (administration,	Breach of Public Trust (122) Disobeying a Court Order (127)

disorderly conduct)	Obstruction of a Peace Officer (129) Disarming a Peace Officer (270.1) Breach of Undertaking, Recognizance, or Probation (145, 733) Failure to Attend Court or Appear (145) Escape from Lawful Custody (145(1)) Perjury (131) Fabricating Evidence (137) Giving a False Sworn Statement (134) Obstructing Justice (139) Public Mischief (140) Prison Breach (144) Intimidation of a Justice System Participant (423.1) Contempt of Court (708) Unlawful Assembly and Rioting (63, 64) Indecent Act (173) Causing a Disturbance (175) Trespassing at Night (177)

**** Serious violent offences***

Appendix H

Pearson Product-moment Correlation Matrix

Pearson product-moment correlation coefficients (r) for demographic variables and scale scores within Target Sample

	1	2	3	4	5	6	7	8	9	10
1. Gender	-	-.028	-.038	-.030	-.070	-.198***	-.056	-.035	-.054	.015
2. Age at referral		-	.993***	.066	.198***	.148**	.043	.185**	.069	.087
3. Age at admission			-	.064	.208***	.170**	.048	.192***	.067	.094
4. Days in treatment				-	-.037	-.011	-.101*	-.042	-.077	-.102
5. EARL score T1					-	.696***	.225***	.343***	.294***	.373***
6. EARL score T2						-	.295***	.349***	.330***	.370***
7. CBCL Agg. T1							-	.564***	.649***	.399***
8. CBCL Agg. T2								-	.426***	.661***
9. CBCL RB T1									-	.609***
10. CBCL RB T2										-
M	1.34	8.67	8.81	496.02	16.14	15.83	71.36	66.43	66.77	64.31
SD	.48	1.65	1.67	453.96	5.87	6.50	9.97	9.69	7.38	8.10
N	472	472	472	472	408	317	394	327	394	327

Note. EARL = Early Assessment Risk List. CBCL = Child Behavior Checklist. Agg. = Aggressive Behavior subscale. RB = Rule-breaking Behavior subscale.
* $p < .05$, ** $p < .01$, *** $p < .001$.

Appendix I

Spearman's Rank Order Correlation Matrix

Spearman's rank order correlation coefficients (r_s) for demographic variables, scale scores, treatment received, and police contacts within Target Sample

	1	2	3	4	5	6	7	8	9	10	11
1. Gender	1	-.025	-.031	-.012	-.057	-.194***	-.070	-.162**	-.062	-.038	-.071
2. Age at referral	-.025	1	.993***	.012	.203***	.140*	.177***	.143*	.033	.174**	.079
3. Age at admission	-.031	.993***	1	.005	.212***	.162**	.184***	.160**	.041	.182**	.079
4. Days in treatment	-.012	.012	.005	1	-.029	-.043	-.049	.031	-.102*	-.063	-.078
5. EARL score T1	-.057	.203***	.212***	-.029	1	.694***	.764***	.580***	.215***	.316***	.298***
6. EARL score T2	-.194***	.140*	.162**	-.043	.694***	1	.521***	.708***	.299***	.339***	.322***
7. EARL rating T1	-.070	.177***	.184***	-.049	.764***	.521***	1	.546***	.254***	.306***	.293***
8. EARL rating T2	-.162**	.143*	.160**	.031	.580***	.708***	.546***	1	.290***	.242***	.326***
9. CBCL Agg. T1	-.062	.033	.041	-.102*	.215***	.299***	.254***	.290***	1	.522***	.632***
10. CBCL Agg. T2	-.038	.174**	.182**	-.063	.316***	.339***	.306***	.242***	.522***	1	.420***
11. CBCL Rule T1	-.071	.079	.079	-.078	.298***	.322***	.293***	.326***	.632***	.420***	1
12. CBCL Rule T2	.004	.092	.102	-.102	.354***	.353***	.299***	.269***	.405***	.668***	.612***
13. CBCL Ext. T1	-.049	.023	.031	-.103*	.262***	.335***	.283***	.326***	.916***	.558***	.794***
14. CBCL Ext. T2	-.031	.147**	.156**	-.084	.348***	.373***	.326***	.263***	.528***	.954***	.523***

Note. EARL = Early Assessment Risk List. CBCL = Child Behavior Checklist. Agg. = Aggressive Behavior subscale. RB = Rule-breaking Behavior subscale. Ext. = Externalizing Problems scale. T1 = Time 1 (pre-treatment). T2 = Time 2 (post-treatment). * $p < .05$, ** $p < .01$, *** $p < .001$.

Spearman's rank order correlation coefficients (r_s) for demographic variables, scale scores, treatment received, and police contacts within Target Sample

	12	13	14	15	16	17	18	19	20	21	22
1. Gender	.004	-.049	-.031	-.386***	-.298***	.202***	-.216***	-.085	-.058	-.094*	-.085
2. Age at referral	.092	.023	.147**	-.107*	-.057	.053	-.026	-.037	-.044	-.046	-.006
3. Age at admission	.102	.031	.156**	-.108*	-.062	.051	-.020	-.033	-.038	-.042	-.008
4. Days in treatment	-.102	-.103*	-.084	.031	.016	-.042	-.024	-.020	-.028	-.032	-.040
5. EARL score T1	.354***	.262***	.348***	-.042	-.073	.045	.176***	.090	.093	.121*	.142**
6. EARL score T2	.353***	.335***	.373***	-.005	-.018	.015	.221***	.140*	.135*	.156**	.143*
7. EARL rating T1	.299***	.283***	.326***	-.024	-.086	-.009	.108*	.077	.076	.103*	.088
8. EARL rating T2	.269***	.326***	.263***	-.011	-.032	-.003	.165**	.105	.122*	.126*	.118*
9. CBCL Agg. T1	.405***	.916***	.528***	.010	-.077	.053	.079	.051	.024	.054	.067
10. CBCL Agg. T2	.668***	.558***	.954***	-.012	-.070	.056	.150**	.169**	.075	.152**	.147**
11. CBCL Rule T1	.612***	.794***	.523***	.051	-.040	.002	.016	.053	.083	.088	.066
12. CBCL Rule T2	1	.550***	.834***	-.021	-.064	.089	.130*	.137*	.088	.134*	.149**
13. CBCL Ext. T1	.550***	1	.607***	.032	-.054	.053	.065	.066	.047	.084	.089
14. CBCL Ext. T2	.834***	.607***	1	-.009	-.067	.052	.161**	.177**	.092	.169**	.159**

Note. EARL = Early Assessment Risk List. CBCL = Child Behavior Checklist. Agg. = Aggressive Behavior subscale. RB = Rule-breaking Behavior subscale. Ext. = Externalizing Problems scale. T1 = Time 1 (pre-treatment). T2 = Time 2 (post-treatment). * $p < .05$, ** $p < .01$, *** $p < .001$.

Spearman's rank order correlation coefficients (r_s) for demographic variables, scale scores, treatment received, and police contacts within Target Sample

	23	24	25	26	27	28	29	30	31	32	33
1. Gender	-.032	.031	-.061	-.099*	-.052	-.008	-.135	.060	.060	-.224	.149
2. Age at referral	.013	-.026	.048	.130**	.031	-.041	.006	-.268	-.268	-.141	-.238
3. Age at admission	.016	-.029	.049	.145**	.018	-.096	.029	-.278	-.278	-.146	-.210
4. Days in treatment	-.029	-.023	-.051	-.037	-.300	-.372*	-.272	.042	.042	-.168	.210
5. EARL score T1	.156**	.120*	.099*	.134**	.181	.071	.157	-.208	-.208	-.044	.025
6. EARL score T2	.185**	.116*	.108	.153**	.328	.104	.206	-.239	-.239	.067	-.148
7. EARL rating T1	.085	.061	.038	.133**	.305	.179	.281	-.126	-.126	.094	.208
8. EARL rating T2	.149**	.086	.089	.164**	.408*	.072	.412*	-.329	-.329	.173	-.106
9. CBCL Agg. T1	.081	.049	.053	-.004	.387*	.235	.294	-.172	-.172	.189	-.172
10. CBCL Agg. T2	.145**	.139*	.085	.031	.040	-.100	-.093	-.179	-.179	-.226	-.245
11. CBCL Rule T1	.036	.036	-.030	.024	.174	.057	.128	-.184	-.184	.118	.172
12. CBCL Rule T2	.159**	.166**	.076	.059	.027	-.166	-.070	-.082	-.082	-.097	.082
13. CBCL Ext. T1	.080	.059	.029	.005	.233	.070	.190	-.279	-.279	.086	-.017
14. CBCL Ext. T2	.154**	.152**	.082	.023	-.042	-.157	-.168	-.148	-.148	-.222	-.035

Note. EARL = Early Assessment Risk List. CBCL = Child Behavior Checklist. Agg. = Aggressive Behavior subscale. RB = Rule-breaking Behavior subscale. Ext. = Externalizing Problems scale. T1 = Time 1 (pre-treatment). T2 = Time 2 (post-treatment). * $p < .05$, ** $p < .01$, *** $p < .001$.

Spearman's rank order correlation coefficients (r_s) for demographic variables, scale scores, treatment received, and police contacts within Target Sample

	34	35	36	37	38	39	40	41	42	43	44
1. Gender	.149	-.312	-.450	.345	.345	-.385	-.352	-.113	-.113	-.007	-.036
2. Age at referral	-.238	.055	.142	.069	.069	.067	.326	.203	.203	.179	.006
3. Age at admission	-.210	.219	.296	-.006	-.006	.188	.432	.152	.152	.218	.087
4. Days in treatment	.210	.305	.412	-.110	-.110	.246	.570*	-.051	-.051	.259	.292
5. EARL score T1	.025	.265	.027	.301	.301	.149	-.276	.127	.127	-.049	-.065
6. EARL score T2	-.148	.303	.150	.061	.061	.241	-.280	-.298	-.298	.359	.283
7. EARL rating T1	.208	.064	-.163	.364	.364	-.018	-.457	.028	.028	-.256	-.210
8. EARL rating T2	-.106	.613*	.492	-.006	-.006	.495	.170	-.213	-.213	.384	.434
9. CBCL Agg. T1	-.172	.446	.440	-.279	-.279	.496	.291	-.152	-.152	.355	.335
10. CBCL Agg. T2	-.245	.381	.271	.079	.079	.418	.110	.225	.225	.295	.451
11. CBCL Rule T1	.172	.451	.445	-.281	-.281	.474	.350	-.127	-.127	.088	.095
12. CBCL Rule T2	.082	.493	.436	0	0	.586	.337	.261	.261	.127	.302
13. CBCL Ext. T1	-.017	.449	.479	-.398	-.398	.492	.412	-.153	-.153	.269	.293
14. CBCL Ext. T2	-.035	.333	.267	.087	.087	.425	.136	.300	.300	.232	.409

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Spearman's rank order correlation coefficients (r_s) for demographic variables, scale scores, treatment received, and police contacts within Target Sample

	45	46	47	48	49	50	51	52	*M*	*SD*	*N*
1. Gender	.029	-.029	-.409	-.244***	-.093	.027	.024	-.043	1.34	0.48	472
2. Age at referral	.153	.099	.195	.011	-.007	.194**	.094	.184**	8.67	1.65	472
3. Age at admission	.126	.050	.415	.027	.008	.191**	.098	.184**	8.81	1.67	472
4. Days in treatment	.146	.179	.177	-.032	.062	.021	-.017	.002	496.02	453.96	472
5. EARL score T1	-.057	.082	-.095	-.192**	-.108	.080	.045	.111	16.14	5.87	408
6. EARL score T2	.162	.112	.022	.516***	.262***	.062	.042	.121	15.83	6.50	317
7. EARL rating T1	-.232	-.206	-.251	-.157**	-.385***	.076	.014	.109	2.00	0.72	406
8. EARL rating T2	-.256	-.403	.552	.282***	.550***	.035	0	.078	1.83	0.78	319
9. CBCL Agg. T1	.205	.186	.448	.119	.004	-.451***	-.210***	-.247***	71.36	9.97	394
10. CBCL Agg. T2	.239	.134	.194	.115	.016	.461***	.307***	.557***	66.43	9.69	327
11. CBCL Rule T1	-.116	.069	.358	.083	.045	-.221***	-.337***	-.160**	66.77	7.38	394
12. CBCL Rule T2	-.006	.009	.096	.102	.038	.261***	.473***	.449***	64.31	8.10	327
13. CBCL Ext. T1	.053	.099	.508	.113	.017	-.342***	-.221***	-.231***	69.85	7.32	394
14. CBCL Ext. T2	.146	.070	.224	.117	.010	.418***	.385***	.571***	65.68	8.66	326

Note. EARL = Early Assessment Risk List. CBCL = Child Behavior Checklist. Agg. = Aggressive Behavior subscale. RB = Rule-breaking Behavior subscale. Ext. = Externalizing Problems scale. T1 = Time 1 (pre-treatment). T2 = Time 2 (post-treatment). * $p < .05$, ** $p < .01$, *** $p < .001$.

Spearman's rank order correlation coefficients (r_s) for demographic variables, scale scores, treatment received, and police contacts within Target Sample

	1	2	3	4	5	6	7	8	9	10	11
15. SNAP Group	-.386***	-.107*	-.108*	.031	-.042	-.005	-.024	-.011	.010	-.012	.051
16. SNAPP Group	-.298***	-.057	-.062	.016	-.073	-.018	-.086	-.032	-.077	-.070	-.040
17. Family Counsel.	.202***	.053	.051	-.042	.045	.015	-.009	-.003	.053	.056	.002
18. Ind. Befriending	-.216***	-.026	-.020	-.024	.176***	.221***	.108*	.165**	.079	.150**	.016
19. School Advocacy	-.085	-.037	-.033	-.020	.090	.140*	.077	.105	.051	.169**	.053
20. School Meeting	-.058	-.044	-.038	-.028	.093	.135*	.076	.122*	.024	.075	.083
21. School Liaison	-.094*	-.046	-.042	-.032	.121*	.156**	.103*	.126*	.054	.152**	.088
22. Plus comps.	-.085	-.006	-.008	-.040	.142**	.143*	.088	.118*	.067	.147**	.066
23. Plus sessions	-.032	.013	.016	-.029	.156**	.185**	.085	.149**	.081	.145**	.036
24. Treatment comps.	.031	-.026	-.029	-.023	.120*	.116*	.061	.086	.049	.139*	.036
25. Treatment sessions	-.061	.048	.049	-.051	.099*	.108	.038	.089	.053	.085	-.030
26. Contacts (Total)	-.099*	.130**	.145**	-.037	.134**	.153**	.133**	.164**	-.004	.031	.024
27. Charges (Y)	-.052	.031	.018	-.300	.181	.328	.305	.408*	.387*	.040	.174
28. Convictions (Y)	-.008	-.041	-.096	-.372*	.071	.104	.179	.072	.235	-.100	.057

Note. Plus comps. = number of Plus treatment components received. Plus sessions = number of IB, FC, SL sessions received. Contacts (Total) = total police contacts recorded. (Y) = youth. * $p < .05$, ** $p < .01$, *** $p < .001$.

Spearman's rank order correlation coefficients (r_s) for demographic variables, scale scores, treatment received, and police contacts within Target Sample

	12	13	14	15	16	17	18	19	20	21	22
15. SNAP Group	-.021	.032	-.009	1	.640***	-.099*	.062	-.018	.057	.064	.036
16. SNAPP Group	-.064	-.054	-.067	.640***	1	-.009	.108*	-.051	.149**	.111*	.085
17. Family Counsel.	.089	.053	.052	-.099*	-.009	1	.418***	.260***	.276***	.354***	.681***
18. Ind. Befriending	.130*	.065	.161**	.062	.108*	.418***	1	.295***	.450***	.509***	.781***
19. School Advocacy	.137*	.066	.177**	-.018	-.051	.260***	.295***	1	.225***	.557***	.417***
20. School Meeting	.088	.047	.092	.057	.149**	.276***	.450***	.225***	1	.890***	.647***
21. School Liaison	.134*	.084	.169**	.064	.111*	.354***	.509***	.557***	.890***	1	.749***
22. Plus comps.	.149**	.089	.159**	.036	.085	.681***	.781***	.417***	.647***	.749***	1
23. Plus sessions	.159**	.080	.154**	-.002	.070	.773***	.851***	.364***	.497***	.579***	.868***
24. Treatment comps.	.166**	.059	.152**	-.015	.065	.666***	.734***	.433***	.618***	.701***	.922***
25. Treatment sessions	.076	.029	.082	.194***	.268***	.654***	.717***	.316***	.436***	.508***	.724***
26. Contacts (Total)	.059	.005	.023	-.084	-.046	-.084	-.035	-.016	.007	-.011	-.049
27. Charges (Y)	.027	.233	-.042	.171	.031	.011	.006	-.055	-.037	-.029	.141
28. Convict. (Y)	-.166	.070	-.157	.097	-.074	-.148	.014	-.049	.032	.039	-.007

Note. Plus comps. = number of Plus treatment components received. Plus sessions = number of IB, FC, SL sessions received. Contacts (Total) = total police contacts recorded. (Y) = youth. * $p < .05$, ** $p < .01$, *** $p < .001$.

Spearman's rank order correlation coefficients (r_s) for demographic variables, scale scores, treatment received, and police contacts within Target Sample

	23	24	25	26	27	28	29	30	31	32	33
15.SNAP Group	-.002	-.015	.194***	-.084	.171	.097	.099	.147	.147	.011	-.021
16.SNAPP Group	.070	.065	.268***	-.046	.031	-.074	0	.266	.266	-.069	-.043
17.Family Counsel.	.773***	.666***	.654***	-.084	.011	-.148	.140	-.187	-.187	.024	-.089
18.Ind. Befriending	.851***	.734***	.717***	-.035	.006	.014	.051	-.189	-.189	.149	-.251
19.School Advocacy	.364***	.433***	.316***	-.016	-.055	-.049	-.084	.099	.099	-.011	-.067
20.School Meeting	.497***	.618***	.436***	.007	-.037	.032	.039	-.319	-.319	.148	-.194
21.School Liaison	.579***	.701***	.508***	-.011	-.029	.039	.047	-.318	-.318	.163	-.194
22.Plus comps.	.868***	.922***	.724***	-.049	.141	-.007	.240	-.317	-.317	.165	-.211
23.Plus sessions	1	.843***	.839***	-.073	.057	-.045	.153	-.147	-.147	.139	-.247
24.Treatment comps.	.843***	1	.738***	-.056	.102	-.017	.189	-.246	-.246	.136	-.229
25.Treatment sessions	.839***	.738***	1	-.087	-.017	-.002	.076	-.115	-.115	.132	-.280
26. Contacts (Total)	-.073	-.056	-.087	1	.897***	.686***	.833***	-.004	-.004	.579**	-.085
27. Charges (Y)	.057	.102	-.017	.897***	1	.827***	.904***	.069	.069	.653***	-.098
28. Convict. (Y)	-.045	-.017	-.002	.686***	.827***	1	.712***	.030	.030	.742***	-.086

Note. Plus comps. = number of Plus treatment components received. Plus sessions = number of IB, FC, SL sessions received. Contacts (Total) = total police contacts recorded. (Y) = youth. * $p < .05$, ** $p < .01$, *** $p < .001$.

Spearman's rank order correlation coefficients (r_s) for demographic variables, scale scores, treatment received, and police contacts within Target Sample

	34	35	36	37	38	39	40	41	42	43	44
15. SNAP Group	-0.021	0.253	0.189	0.053	0.053	0.141	-0.014	0.365	0.365	0.242	-0.116
16. SNAPP Group	-0.043	0.267	0.264	0.075	0.075	0.208	0.124	0.425	0.425	0.183	0.012
17. Family Counsel.	-0.089	0.368	0.458	-0.092	-0.092	.555*	.645*	0.272	0.272	0.135	0.306
18. Ind. Befriending	-0.251	0.267	0.225	-0.178	-0.178	0.273	0.188	0.237	0.237	0.031	0.173
19. School Advocacy	-0.067	.535*	0.459	0.286	0.286	.619*	0.285	-0.167	-0.167	-0.168	-0.036
20. School Meeting	-0.194	0.109	0	-0.325	-0.325	-0.044	-0.155	-0.213	-0.213	-0.323	-0.253
21. School Liaison	-0.194	0.308	0.163	-0.005	-0.005	0.238	-0.092	-0.255	-0.255	-0.361	-0.295
22. Plus comps.	-0.211	0.432	0.389	-0.03	-0.03	0.494	0.363	0.316	0.316	0.106	0.136
23. Plus sessions	-0.247	0.337	0.297	-0.131	-0.131	0.385	0.232	0.256	0.256	0.118	0.313
24. Treatment comps.	-0.229	0.413	0.352	-0.093	-0.093	0.451	0.271	0.263	0.263	0.075	0.17
25. Treatment sessions	-0.28	0.377	0.327	-0.094	-0.094	0.365	0.211	0.355	0.355	0.015	0.117
26. Contacts (Total)	-0.085	.733**	.625*	-0.344	-0.344	.561*	0.32	-0.414	-0.414	.614**	.414*
27. Charges (Y)	-0.098	0.232	0.165	-0.403	-0.403	0.13	-0.094	-0.349	-0.349	.578*	0.245
28. Convict. (Y)	-0.086	-0.028	-0.108	-0.231	-0.231	-0.125	-0.353	-0.234	-0.234	0.178	-0.098

Note. Plus comps. = number of Plus treatment components received. Plus sessions = number of IB, FC, SL sessions received. Contacts (Total) = total police contacts recorded. (Y) = youth. * $p < .05$, ** $p < .01$, *** $p < .001$.

Spearman's rank order correlation coefficients (r_s) for demographic variables, scale scores, treatment received, and police contacts within Target Sample

	45	46	47	48	49	50	51	52	*M*	*SD*	*N*
15. SNAP Group	.324	.273	.533	-.006	-.013	-.005	-.060	-.005	10.85	1.67	472
16. SNAPP Group	.259	.196	.577	-.004	.036	.024	-.022	-.007	10.78	1.76	472
17. Family Counsel.	-.328	-.409*	.584	-.019	.007	-.041	.003	-.057	4.95	7.56	472
18. Ind. Befriending	-.140	-.140	.584	.138*	.107	.038	.098	.101	6.38	8.91	472
19. School Advocacy	-.051	-.094	.409	.179**	.058	.067	.041	.078	0.19	0.61	472
20. School Meeting	-.333	-.291	.229	.040	.080	.010	-.031	0	0.62	1.30	472
21. School Liaison	-.262	-.268	.283	.091	.054	.053	.005	.051	0.86	1.68	472
22. Plus comps.	-.197	-.236	.718*	.060	.073	.009	0	.024	1.55	1.06	472
23. Plus sessions	-.249	-.350	.613	.109	.096	.034	.085	.059	12.19	15.24	472
24. Treatment comps.	-.242	-.289	.627	.041	.071	.005	.035	.019	3.86	1.41	472
25. Treatment sessions	-.144	-.231	.622	.026	.072	.060	.066	.065	45.19	26.98	472
26. Contacts (Total)	.296	.279	.657*	.047	.051	.070	.087	.071	0.96	4.14	472
27. Charges (Y)	.324	.376	.410	.019	.136	-.239	-.265	-.191	8.39	7.78	33
28. Convict. (Y)	.254	.402	.169	-.030	-.073	-.171	-.277	-.206	2.91	2.21	33

Note. Plus comps. = number of Plus treatment components received. Plus sessions = number of IB, FC, SL sessions received. Contacts (Total) = total police contacts recorded. (Y) = youth. * $p < .05$, ** $p < .01$, *** $p < .001$.

Spearman's rank order correlation coefficients (r_s) for demographic variables, scale scores, treatment received, and police contacts within Target Sample

	1	2	3	4	5	6	7	8	9	10	11
29. Property Chrg. (Y)	-.135	.006	.029	-.272	.157	.206	.281	.412*	.294	-.093	.128
30. Violent Chrg. (Y)	.060	-.268	-.278	.042	-.208	-.239	-.126	-.329	-.172	-.179	-.184
31. SV Chrg. (Y)	.060	-.268	-.278	.042	-.208	-.239	-.126	-.329	-.172	-.179	-.184
32. Property Conv. (Y)	-.224	-.141	-.146	-.168	-.044	.067	.094	.173	.189	-.226	.118
33. Violent Conv. (Y)	.149	-.238	-.210	.210	.025	-.148	.208	-.106	-.172	-.245	.172
34. SV Conv. (Y)	.149	-.238	-.21	.210	.025	-.148	.208	-.106	-.172	-.245	.172
35. P. Chrg. (A)	-.312	.055	.219	.305	.265	.303	.064	.613*	.446	.381	.451
36. P. Prop. Chrg. (A)	-.450	.142	.296	.412	.027	.150	-.163	.492	.440	.271	.445
37. P. Vlt. Chrg. (A)	.345	.069	-.006	-.110	.301	.061	.364	-.006	-.279	.079	-.281
38. P. SV Chrg. (A)	.345	.069	-.006	-.11	.301	.061	.364	-.006	-.279	.079	-.281
39. P. Conv. (A)	-.385	.067	.188	.246	.149	.241	-.018	.495	.496	.418	.474
40. P. Prop. Conv. (A)	-.352	.326	.432	.570*	-.276	-.280	-.457	.170	.291	.110	.350
41. P. Vlt. Conv. (A)	-.113	.203	.152	-.051	.127	-.298	.028	-.213	-.152	.225	-.127
42. P. SV Conv. (A)	-.113	.203	.152	-.051	.127	-.298	.028	-.213	-.152	.225	-.127

Note. (Y) = youth. Chrg = charge. SV = serious/violent. Conv = conviction. P. = provincial. (A) = adult. Prop. = property. Vlt. = violent.
* $p < .05$, ** $p < .01$, *** $p < .001$.

Spearman's rank order correlation coefficients (r_s) for demographic variables, scale scores, treatment received, and police contacts within Target Sample

	12	13	14	15	16	17	18	19	20	21	22
29.Property Chrg. (Y)	-.070	.190	-.168	.099	0	.140	.051	-.084	.039	.047	.240
30.Violent Chrg. (Y)	-.082	-.279	-.148	.147	.266	-.187	-.189	.099	-.319	-.318	-.317
31.SV Chrg. (Y)	-.082	-.279	-.148	.147	.266	-.187	-.189	.099	-.319	-.318	-.317
32.Property Conv. (Y)	-.097	.086	-.222	.011	-.069	.024	.149	-.011	.148	.163	.165
33.Violent Conv. (Y)	.082	-.017	-.035	-.021	-.043	-.089	-.251	-.067	-.194	-.194	-.211
34.SV Conv. (Y)	.082	-.017	-.035	-.021	-.043	-.089	-.251	-.067	-.194	-.194	-.211
35.P. Chrg. (A)	.493	.449	.333	.253	.267	.368	.267	.535*	.109	.308	.432
36.P. Prop. Chrg. (A)	.436	.479	.267	.189	.264	.458	.225	.459	0	.163	.389
37.P. Vlt. Chrg. (A)	0	-.398	.087	.053	.075	-.092	-.178	.286	-.325	-.005	-.030
38.P. SV Chrg. (A)	0	-.398	.087	.053	.075	-.092	-.178	.286	-.325	-.005	-.030
39.P. Conv. (A)	.586	.492	.425	.141	.208	.555*	.273	.619*	-.044	.238	.494
40. P. Prop. Conv. (A)	.337	.412	.136	-.014	.124	.645*	.188	.285	-.155	-.092	.363
41. P. Vlt. Conv. (A)	.261	-.153	.300	.365	.425	.272	.237	-.167	-.213	-.255	.316
42. P. SV Conv. (A)	.261	-.153	.300	.365	.425	.272	.237	-.167	-.213	-.255	.316

Note. (Y) = youth. Chrg = charge. SV = serious/violent. Conv = conviction. P. = provincial. (A) = adult. Prop. = property. Vlt. = violent.
* $p < .05$, ** $p < .01$, *** $p < .001$.

Spearman's rank order correlation coefficients (r_s) for demographic variables, scale scores, treatment received, and police contacts within Target Sample

	23	24	25	26	27	28	29	30	31	32	33
29. Property Chrg. (Y)	.153	.189	.076	.833***	.904***	.712***	1	-.096	-.096	.752***	-.141
30. Violent Chrg. (Y)	-.147	-.246	-.115	-.004	.069	.030	-.096	1	1.000	-.079	.444*
31. SV Chrg. (Y)	-.147	-.246	-.115	-.004	.069	.030	-.096	1.000	1	-.079	.444*
32. Property Conv. (Y)	.139	.136	.132	.579**	.653***	.742***	.752***	-0.079	-.079	1	-.122
33. Violent Conv. (Y)	-.247	-.229	-.280	-.085	-.098	-.086	-.141	.444*	.444*	-.122	1
34. SV Conv. (Y)	-.247	-.229	-.280	-.085	-.098	-.086	-.141	.444*	.444*	-.122	1.000
35. P. Chrg. (A)	.337	.413	.377	.733**	.232	-.028	.509	-.175	-.175	.431	.
36. P. Prop. Chrg. (A)	.297	.352	.327	.625*	.165	-.108	.464	-.117	-.117	.454	.
37. P. Vlt. Chrg. (A)	-.131	-.093	-.094	-.344	-.403	-.231	-.527	-.166	-.166	-.315	.
38. P. SV Chrg. (A)	-.131	-.093	-.094	-.344	-.403	-.231	-.527	-.166	-.166	-.315	.
39. P. Conv. (A)	.385	.451	.365	.561*	.130	-.125	.393	-.119	-.119	.398	.
40. P. Prop. Conv. (A)	.232	.271	.211	.320	-.094	-.353	.289	-.359	-.359	.301	.
41. P. Vlt. Conv. (A)	.256	.263	.355	-.414	-.349	-.234	-.354	-.111	-.111	0	.
42. P. SV Conv. (A)	.256	.263	.355	-.414	-.349	-.234	-.354	-.111	-.111	0	.

Note. (Y) = youth. Chrg = charge. SV = serious/violent. Conv = conviction. P. = provincial. (A) = adult. Prop. = property. Vlt. = violent.
* $p < .05$, ** $p < .01$, *** $p < .001$.

Spearman's rank order correlation coefficients (r_s) for demographic variables, scale scores, treatment received, and police contacts within Target Sample

	34	35	36	37	38	39	40	41	42	43	44
29. Property Chrg. (Y)	-.141	.509	.464	-.527	-.527	.393	.289	-.354	-.354	.636**	.422
30. Violent Chrg. (Y)	.444*	-.175	-.117	-.166	-.166	-.119	-.359	-.111	-.111	.070	.272
31. SV Chrg. (Y)	.444*	-.175	-.117	-.166	-.166	-.119	-.359	-.111	-.111	.070	.272
32. Property Conv. (Y)	-.122	.431	.454	-.315	-.315	.398	.301	0	0	.047	.337
33. Violent Conv. (Y)	1.000	.	.	.	.	.	.	.	.	-.335	-.052
34. SV Conv. (Y)	1	.	.	.	.	.	.	.	.	-.335	-.052
35. P. Chrg. (A)	.	1	.942***	-.049	-.049	.902***	.672**	-.153	-.153	.470	.536
36. P. Prop. Chrg. (A)	.	.942***	1	-.186	-.186	.920***	.845***	-.153	-.153	.469	.686*
37. P. Vlt. Chrg. (A)	.	-.049	-.186	1	1.000	.094	-.167	.604*	.604*	-.221	-.374
38. P. SV Chrg. (A)	.	-.049	-.186	1.000	1	.094	-.167	.604*	.604*	-.221	-.374
39. P. Conv. (A)	.	.902***	.920***	.094	.094	1	.794**	0	0	.323	.526
40. P. Prop. Conv. (A)	.	.672**	.845***	-.167	-.167	.794**	1	.052	.052	.407	.725**
41. P. Vlt. Conv. (A)	.	-.153	-.153	.604*	.604*	0	.052	1	1.000	.117	.040
42. P. SV Conv. (A)	.	-.153	-.153	.604*	.604*	0	.052	1.000	1	.117	.040

Note. (Y) = youth. Chrg = charge. SV = serious/violent. Conv = conviction. P. = provincial. (A) = adult. Prop. = property. Vlt. = violent.
* $p < .05$, ** $p < .01$, *** $p < .001$.

Spearman's rank order correlation coefficients (r_s) for demographic variables, scale scores, treatment received, and police contacts within Target Sample

	45	46	47	48	49	50	51	52	*M*	*SD*	*N*
29. Property Chrg. (Y)	.052	.038	.647*	.011	.162	-.330	-.291	-.233	5.09	5.47	33
30. Violent Chrg. (Y)	.069	-.066	-.234	-.012	-.304	-.186	.070	-.148	0.42	0.83	33
31. SV Chrg. (Y)	.069	-.066	-.234	-.012	-.304	-.186	.070	-.148	0.42	0.83	33
32. Property Conv. (Y)	-.248	-.099	.454	.096	.046	-.291	-.161	-.176	1.81	1.64	32
33. Violent Conv. (Y)	-.293	-.296	.	-.167	-.295	-.225	-.162	-.313	0.06	0.25	32
34. SV Conv. (Y)	-.293	-.296	.	-.167	-.295	-.225	-.162	-.313	0.06	0.25	32
35. P. Chrg. (A)	-.004	-.001	.939***	.235	.395	.060	.262	.109	11.07	9.05	14
36. P. Prop. Chrg. (A)	-.135	-.184	.902***	.262	.414	0	.284	.099	7.64	7.30	14
37. P. Vlt. Chrg. (A)	.386	.401	-.274	-.355	-.283	.498	.319	.466	0.50	0.94	14
38. P. SV Chrg. (A)	.386	.401	-.274	-.355	-.283	.498	.319	.466	0.50	0.94	14
39. P. Conv. (A)	-.104	-.184	.788**	.117	.267	.123	.416	.232	4.00	3.33	14
40. P. Prop. Conv. (A)	-.309	-.284	.648*	.282	.550	-.028	.280	.110	2.50	2.93	14
41. P. Vlt. Conv. (A)	.205	.373	0	-.520	-.222	.451	.373	.487	0.14	0.36	14
42. P. SV Conv. (A)	.205	.373	0	-.520	-.222	.451	.373	.487	0.14	0.36	14

Note. (Y) = youth. Chrg = charge. SV = serious/violent. Conv = conviction. P. = provincial. (A) = adult. Prop. = property. Vlt. = violent.
* $p < .05$, ** $p < .01$, *** $p < .001$.

Spearman's rank order correlation coefficients (r_s) for demographic variables, scale scores, treatment received, and police contacts within Target Sample

	1	2	3	4	5	6	7	8	9	10	11
43. F. Conv. (A)	-.007	.179	.218	.259	-.049	.359	-.256	.384	.355	.295	.088
44. F. Prop. Conv. (A)	-.036	.006	.087	.292	-.065	.283	-.210	.434	.335	.451	.095
45. F. Vlt. Conv. (A)	.029	.153	.126	.146	-.057	.162	-.232	-.256	.205	.239	-.116
46. F. SV Conv. (A)	-.029	.099	.050	.179	.082	.112	-.206	-.403	.186	.134	.069
47. Conv. (Total)	-.409	.195	.415	.177	-.095	.022	-.251	.552	.448	.194	.358
48. Chng. EARL Score	-.244***	.011	.027	-.032	-.192**	.516***	-.157**	.282***	.119	.115	.083
49. Chng. EARL Rtg.	-.093	-.007	.008	.062	-.108	.262***	-.385***	.550***	.004	.016	.045
50. Chng. CBCL Agg.	.027	.194**	.191**	.021	.080	.062	.076	.035	-.451***	.461***	-.221***
51. Chng. CBCL RB	.024	.094	.098	-.017	.045	.042	.014	0	-.210***	.307***	-.337***
52. Chng. CBCL Ext.	-.043	.184**	.184**	.002	.111	.121	.109	.078	-.247***	.557***	-.160**
M	1.34	8.67	8.81	496.02	16.14	15.83	2.00	1.83	71.36	66.43	66.77
SD	0.46	1.65	1.67	453.96	5.87	6.50	0.72	0.78	9.97	9.69	7.38
N	472	472	472	472	408	317	406	319	394	327	394

Note. F = Federal. Conv. = conviction. Prop. = property. Vlt. = violent. (A) = Adult. SV = serious/violent. Conv. = convictions. Chng. = change. EARL = Early Assessment Risk List. Rtg. = clinician rating. CBCL = Child Behavior Checklist. Agg. = Aggressive Behavior subscale. RB = Rule-breaking Behavior subscale. Ext. = Externalizing Problems scale. * $p < .05$, ** $p < .01$, *** $p < .001$.

Spearman's rank order correlation coefficients (r_s) for demographic variables, scale scores, treatment received, and police contacts within Target Sample

	12	13	14	15	16	17	18	19	20	21	22
43. F. Conv. (A)	.127	.269	.232	.242	.183	.135	.031	-.168	-.323	-.361	.106
44. F. Prop. Conv. (A)	.302	.293	.409	-.116	.012	.306	.173	-.036	-.253	-.295	.136
45. F. Vlt. Conv. (A)	-.006	.053	.146	.324	.259	-.328	-.140	-.051	-.333	-.262	-.197
46. F. SV Conv. (A)	.009	.099	.070	.273	.196	-.409*	-.140	-.094	-.291	-.268	-.236
47. Conv. (Total)	.096	.508	.224	.533	.577	.584	.584	.409	.229	.283	.718*
48. Chng. EARL Score	.102	.113	.117	-.006	-.004	-.019	.138*	.179**	.040	.091	.060
49. Chng. EARL Rtg.	.038	.017	.010	-.013	.036	.007	.107	.058	.080	.054	.073
50. Chng. CBCL Agg.	.261***	-.342***	.418***	-.005	.024	-.041	.038	.067	.010	.053	.009
51. Chng. CBCL RB	.473***	-.221***	.385***	-.060	-.022	.003	.098	.041	-.031	.005	0
52. Chng. CBCL Ext.	.449***	-.231***	.571***	-.005	-.007	-.057	.101	.078	0	.051	.024
M	64.31	69.85	65.68	10.85	10.78	4.95	6.38	0.19	0.62	0.86	1.55
SD	8.10	7.32	8.66	1.67	1.76	7.56	8.91	0.61	1.30	1.68	1.06
N	327	394	326	472	472	472	472	472	472	472	472

Note. F = Federal. Conv. = conviction. Prop. = property. Vlt. = violent. (A) = Adult. SV = serious/violent. Conv. = convictions. Chng. = change. EARL = Early Assessment Risk List. Rtg. = clinician rating. CBCL = Child Behavior Checklist. Agg. = Aggressive Behavior subscale. RB = Rule-breaking Behavior subscale. Ext. = Externalizing Problems scale. * $p < .05$, ** $p < .01$, *** $p < .001$.

Spearman's rank order correlation coefficients (r_s) for demographic variables, scale scores, treatment received, and police contacts within Target Sample

	23	24	25	26	27	28	29	30	31	32	33
43. F. Conv. (A)	.118	.075	.015	.614**	.578*	.178	.636**	.070	.070	.047	-.335
44. F. Prop. Conv. (A)	.313	.170	.117	.414*	.245	-.098	.422	.272	.272	.337	-.052
45. F. Vlt. Conv. (A)	-.249	-.242	-.144	.296	.324	.254	.052	.069	.069	-.248	-.293
46. F. SV Conv. (A)	-.350	-.289	-.231	.279	.376	.402	.038	-.066	-.066	-.099	-.296
47. Conv. (Total)	.613	.627	.622	.657*	.410	.169	.647*	-.234	-.234	.454	.
48. Chng. EARL Score	.109	.041	.026	.047	.019	-.030	.011	-.012	-.012	.096	-.167
49. Chng. EARL Rtg.	.096	.071	.072	.051	.136	-.073	.162	-.304	-.304	.046	-.295
50. Chng. CBCL Agg.	.034	.005	.060	.070	-.239	-.171	-.330	-.186	-.186	-.291	-.225
51. Chng. CBCL RB	.085	.035	.066	.087	-.265	-.277	-.291	.070	.070	-.161	-.162
52. Chng. CBCL Ext.	.059	.019	.065	.071	-.191	-.206	-.233	-.148	-.148	-.176	-.313
M	12.19	3.86	45.19	0.96	8.39	2.91	5.09	0.42	0.42	1.81	0.06
SD	15.24	1.41	26.98	4.14	7.78	2.21	5.47	0.83	0.83	1.64	0.25
N	472	472	472	472	33	33	33	33	33	32	32

Note. F = Federal. Conv. = conviction. Prop. = property. Vlt. = violent. (A) = Adult. SV = serious/violent. Conv. = convictions. Chng. = change. EARL = Early Assessment Risk List. Rtg. = clinician rating. CBCL = Child Behavior Checklist. Agg. = Aggressive Behavior subscale. RB = Rule-breaking Behavior subscale. Ext. = Externalizing Problems scale. * $p < .05$, ** $p < .01$, *** $p < .001$.

Spearman's rank order correlation coefficients (r_s) for demographic variables, scale scores, treatment received, and police contacts within Target Sample

	34	35	36	37	38	39	40	41	42	43	44
43. F. Conv. (A)	-.335	.470	.469	-.221	-.221	.323	.407	.117	.117	1	.647***
44. F. Prop. Conv. (A)	-.052	.536	.686*	-.374	-.374	.526	.725**	.040	.040	.647***	1
45. F. Vlt. Conv. (A)	-.293	-.004	-.135	.386	.386	-.104	-.309	.205	.205	.428*	-.103
46. F. SV Conv. (A)	-.296	-.001	-.184	.401	.401	-.184	-.284	.373	.373	.277	-.223
47. Conv. (Total)	.	.939***	.902***	-.274	-.274	.788**	.648*	0	0	.785**	.743*
48. Chng. EARL Score	-.167	.235	.262	-.355	-.355	.117	.282	-.520	-.520	.153	.197
49. Chng. EARL Rtg.	-.295	.395	.414	-.283	-.283	.267	.550	-.222	-.222	.394	.513*
50. Chng. CBCL Agg.	-.225	.060	0	.498	.498	.123	-.028	.451	.451	.164	.297
51. Chng. CBCL RB	-.162	.262	.284	.319	.319	.416	.280	.373	.373	.282	.466*
52. Chng. CBCL Ext.	-.313	.109	.099	.466	.466	.232	.110	.487	.487	.247	.418
M	0.06	11.07	7.64	0.5	0.5	4	2.5	0.14	0.14	4.84	1.84
SD	0.25	9.05	7.30	0.94	0.94	3.33	2.93	0.36	0.36	4.45	2.21
N	32	14	14	14	14	14	14	14	14	25	25

Note. F = Federal. Conv. = conviction. Prop. = property. Vlt. = violent. (A) = Adult. SV = serious/violent. Conv. = convictions. Chng. = change. EARL = Early Assessment Risk List. Rtg. = clinician rating. CBCL = Child Behavior Checklist. Agg. = Aggressive Behavior subscale. RB = Rule-breaking Behavior subscale. Ext. = Externalizing Problems scale. * $p < .05$, ** $p < .01$, *** $p < .001$.

Spearman's rank order correlation coefficients (r_s) for demographic variables, scale scores, treatment received, and police contacts within Target Sample

	45	46	47	48	49	50	51	52	*M*	*SD*	*N*
43. F. Conv. (A)	.428*	.277	.785**	.153	.394	.164	.282	.247	4.84	4.45	25
44. F. Prop. Conv. (A)	-.103	-.223	.743*	.197	.513*	.297	.466*	.418	1.84	2.21	25
45. F. Vlt. Conv. (A)	1	.815***	.114	.014	-.034	.142	.193	.193	1.2	1.23	25
46. F. SV Conv. (A)	.815***	1	-.013	-.008	-.089	.056	.095	.082	1	1.16	25
47. Conv. (Total)	.114	-.013	1	.219	.437	-.036	.036	-.006	14.8	8.23	10
48. Chng. EARL Score	.014	-.008	.219	1	.471***	-.026	.018	.040	-0.52	4.86	302
49. Chng. EARL Rtg.	-.034	-.089	.437	.471***	1	-.001	.017	.011	-0.18	0.71	303
50. Chng. CBCL Agg.	.142	.056	-.036	-.026	-.001	1	.554***	.869***	-4.78	9.03	302
51. Chng. CBCL RB	.193	.095	.036	.018	.017	.554***	1	.731***	-2.32	6.84	302
52. Chng. CBCL Ext.	.193	.082	-.006	.040	.011	.869***	.731***	1	-4.05	6.78	302
M	1.20	1.00	14.80	-0.52	-0.18	-4.78	-2.32	-4.05			
SD	1.23	1.16	8.23	4.86	0.71	9.03	6.84	6.78			
N	25	25	10	302	303	302	302	302			

Note. F = Federal. Conv. = conviction. Prop. = property. Vlt. = violent. (A) = Adult. SV = serious/violent. Conv. = convictions. Chng. = change. EARL = Early Assessment Risk List. Rtg. = clinician rating. CBCL = Child Behavior Checklist. Agg. = Aggressive Behavior subscale. RB = Rule-breaking Behavior subscale. Ext. = Externalizing Problems scale. * $p < .05$, ** $p < .01$, *** $p < .001$.

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