



## Effectiveness of an attachment-focused manualized intervention for parents of teens at risk for aggressive behaviour: The Connect Program

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### A B S T R A C T

**Keywords:**  
Adolescence  
Aggression  
Violence  
Parenting  
Attachment  
Intervention

Aggressive, violent and antisocial behaviour in children and adolescents is a growing concern across the globe. Targeting parent-teen relationships is critical in reducing problem behaviour. 'Connect' is a manualized ten-week program for parents or alternative caregivers of at-risk teens that focuses on the building blocks of secure attachment: parental sensitivity, cooperation, reflective capacity, and effective dyadic affect regulation. Through didactic and experiential activities, parents develop the competence necessary to identify, understand and respond to the needs of their teen in a manner that provides structure and safety while safeguarding the quality of the parent-teen relationship. In Study 1, twenty parents reported significant increases in perceived parenting satisfaction and efficacy and reductions in adolescents' aggression, antisocial behaviour and other mental health problems following completion of Connect as compared to a waitlist control period. These effects were sustained and additional small effects were noted in decreases in conduct problems, depression and anxiety at a 12-month follow-up. The program was then transported to 17 communities serving 309 parents through standardized training and supervision of group leaders. Study 2 summarizes significant pre- to post-treatment reductions in teen externalizing and internalizing problems; enhanced social functioning; and improvements in affect regulation. Parents also reported significant increases in parenting satisfaction and perceived efficacy and reductions in caregiver burden.

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Aggression, violence and antisocial behaviour in adolescents are pressing concerns in many developed countries. The social and economic costs of violence and antisocial behaviour are substantial and rising. A recent report estimated that the average cost for a criminal career beginning as a juvenile and continuing through adulthood was approximately \$2.0 million US dollars (McGroder & Hyra, 2009). Prevention and intervention at a young age are preferable; however, studies indicate that between 70 and 90% of young children who need treatment for behaviour problems do not receive it (Brestan & Eyberg, 1998) and approximately half of all serious teen behaviour problems are first observed in adolescence (e.g., Broidy et al., 2003).

Evidence suggests that interventions which improve parenting skills and the quality of parent-teen relationships are associated with reductions in problem behaviour and improved mental health and educational outcomes (Kazdin & Weisz, 1998). However, programs for behaviour problems in adolescents are generally less effective than those for younger children (Eyberg, Nelson, & Boggs, 2008). Continued research is needed to further develop effective programs for adolescents involved in aggressive and antisocial behaviour. In this paper, we describe the development and evaluation of a brief manualized

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program for parents of pre-teens and adolescents<sup>1</sup> with severe aggressive and antisocial behaviour. The approach described here focuses on the relationship between parents and teens, drawing from research on parenting, attachment and adolescent development.

Research has consistently shown that parenting factors can place children and adolescents at risk or buffer them from adversity with respect to social-psychological health in general, and aggression and violence specifically (Steinberg, Elmen, & Mounds, 1989). Hostile, negative and controlling parental responses, such as yelling, threatening and hitting, are predictive of child aggression concurrently and prospectively, from childhood to early adulthood (Dodge, Coie, Petit, & Price, 1990; Farrington, 1991). Rejecting parenting is also linked to later parent-adolescent relationship problems (Garcia, Shaw, Winslow, & Yaggi, 2000; Ingoldsby et al., 2006). Many of the parenting characteristics associated with aggressive and violent behaviour are also linked with insecure attachment in young children and adolescents (Benson, Buehler, & Gerard, 2008; Doyle & Markiewicz, 2005; Karavasilis, Doyle, & Markiewicz, 2003).

Given the common pathway between parenting and aggression on the one hand, and parenting and attachment on the other, the link between insecure attachment and aggressive and delinquent behaviour is not surprising (e.g., Allen et al., 2002; Greenberg, Speltz, DeKlyen, & Jones, 2001; Rosenstein & Horowitz, 1996; Speltz, DeKlyen, & Greenberg, 1999). Shaw and others (e.g., Shaw & Gross, 2007) speculated that insensitive and negative parenting in early childhood contributes to insecure attachment and child behaviour problems, which in turn set the stage for coercive parenting, particularly as children become more autonomous and mobile. Taken further this model implies that such parenting characteristics and parent-child relationship problems will likely intensify as children move into adolescence and push for greater independence. Neither parent nor teen is well equipped for managing the rapid developmental changes that accompany adolescence, and with a history of negative parent-child interactions and insecure attachment, they are likely to falter as conflicts emerge. This model does not preclude the influence of child characteristics, and genetic influences, in eliciting harsh and insensitive parenting behaviour (Narusyte, Andershed, Neiderhiser, & Lichtenstein, 2007). Indeed, the transactional process between child misbehaviour and harsh, insensitive parenting may be partially mediated by the attachment relationship as suggested by research showing that parenting and attachment style each uniquely predict child adjustment, including aggressive behaviour (Muris, Meesters, Morren, & Moorman, 2004; Muris, Meesters, & van den Berg, 2003; Roelofs, Meesters, ter Huurne, Bamelis, & Muris, 2006).

In sum, research provides a strong empirical base for focusing on parenting and the parent-adolescent relationship in interventions to reduce adolescent aggression and antisocial behaviour. Attachment theory and research may be useful in this regard. Over the past two decades, a number of attachment-focused treatment programs have been developed primarily for mothers of infants or young children. A meta-analytic review of 70 studies of attachment-based interventions revealed a medium effect size for enhancing parental sensitivity and a small effect size for increased attachment security (Bakermans-Kranenburg, Van IJzendoorn, & Juffer, 2003). More recently, the Video-Feedback Intervention to Promote Positive Parenting and Sensitive Discipline (van Zeijl et al., 2006) has been found to enhance maternal sensitivity and reduce infant overactive behaviours (e.g., cannot sit still, quickly shifts activity), particularly for infants with a reactive temperament (Bakermans-Kranenburg, Van IJzendoorn, Mesman, Alink, & Juffer, 2008; Klein Velderman, Bakermans-Kranenburg, Juffer, & van IJzendoorn, 2006). The Circle of Security program (Marvin, Cooper, Hoffman, & Powell, 2002), which also enhances parental sensitivity, results in significant increases in attachment security and reductions in child behaviour problems (Hoffman, Marvin, Cooper, & Powell, 2006).

Only two attachment-focused interventions for adolescents can be found in the literature to date: Attachment-Based Family Therapy (Diamond, Reiss, Diamond, Siqueland, & Isaacs, 2002) and Multiple-Family Group Intervention (Keiley, 2002). Evaluation of these programs has been very limited. In light of the promise of an attachment-based approach, and limited availability of such programs particularly for teens who engage in extremely challenging behaviour, we developed a 10-week manualized attachment-focused program for parents (or alternative caregivers)<sup>2</sup> of adolescents who engage in aggressive, violent, and antisocial behaviour (The Connect Program; Moretti, Braber, & Obsuth, 2009). Each session of the Connect program begins with the introduction of an attachment principle that captures a key aspect of the parent-teen relationship and common parenting challenges (see Table 1 for illustrative session principles). Experiential activities, including role-plays and reflection exercises are heavily used to illustrate each principle and build parenting knowledge and skill. More specifically, the program focuses on the enhancement of skills related to the core components of secure attachment: parental sensitivity; partnership and mutuality; parental reflective function; and dyadic affect regulation (see Table 2 for definitions and program components).

While this program bears many similarities to other parenting programs, such as encouraging collaborative rather than coercive parenting strategies in monitoring, setting limits and responding to teen problem behaviour, parent-teen attachment is foremost in the theoretical rationale, structure and content of the Connect program. The program emphasizes the need to first build security within the parent-teen relationship as a *foundation* for using a range of common parenting techniques. The

<sup>1</sup> The Connect program is designed to be developmentally sensitive to parent-child issues that commonly emerge during the pre-adolescent (9–12 years) and adolescent period, such as increased desire for autonomy; peer relationships; and rejection of parental authority and beliefs. For simplicity, in this paper we refer to this age group as 'adolescent' recognizing that the ascendance of these issues typically increases from pre- to mid-adolescence. We controlled for the effects of age in Study 2.

<sup>2</sup> We use the term 'parent' to refer to parents or alternative caregivers (foster parents or guardians) who participated in the research. The vast majority of participants were biological or adoptive parents.

**Table 1**  
Illustrative connect parent group principles and goals.

Session	Title	Principle	Illustrative goals and skill development focus
2	Attachment over the lifespan	Attachment is for life	→ Enhance recognition that attachment needs continue throughout life but are expressed differently as children develop → Develop skills in reframing children's behaviour in terms of their developmental level and attachment needs
3	Conflict – an opportunity for understanding and connection	Conflict is part of attachment	→ Enhance recognition and acceptance of conflict as a normative part of relationships, particularly during adolescence, which often communicates attachment needs → Develop skills in regulating affect, maintaining connection and negotiating in the face of conflict
5	Empathy – the heartbeat attachment	Understanding, growth, and change begin with empathy	→ Enhance understanding of the role of empathy for children's and parents' experiences as essential to secure attachment → Develop skills in empathic listening with others in conflict situations.

quality of parent-teen relationships among our target families is typically negatively toned and the families are entrenched in conflict. Many of the parents are familiar with or have taken parenting courses; however, they continue to struggle because of their lack of sensitivity and skill in navigating their troubled relationship with their teen. Thus, increasing security within the relationship promotes healthy adolescent development in itself, and is a necessary prerequisite to using many basic parenting techniques adaptively. Connect also differs from other programs in avoiding a prescriptive approach to parenting. Parents are encouraged to observe how different ways of engaging with their teen either open or close opportunities for supporting a collaborative partnership and joint problem solving. This approach encourages autonomy and engagement by parents in making decisions about parenting their teen and minimizes blame and defensiveness which often diminishes engagement in treatment. Finally, Connect differs from other parenting programs in focusing specifically on issues related to adolescence, such as encouraging parental knowledge of and sensitivity to the expression of attachment needs in adolescence; the role of conflict in growth and change; and the emerging need for teen autonomy.

Two small pilot studies of the Connect program with parents of adolescents referred for serious antisocial and aggressive behaviour revealed significant pre- to post-treatment reductions in youth's internalizing and externalizing problems (Moretti, Holland, Moore, & McKay, 2004; Obsuth, Moretti, Holland, Braber, & Cross, 2006). In the current paper, we summarize two additional studies evaluating the effectiveness of the Connect program. In both studies, we predicted that parents completing the program would be more satisfied and feel more effective in their parenting and would report significant reductions in teen problem behaviour and other mental health problems. In Study 2 we also predicted that parents would report decreases in caregiver burden, and decreased verbal and physical aggression within their relationship with their teen. Study one presents findings based on a waitlist control evaluation of Connect, including post-treatment and one year follow-up outcomes. Study 2 summarizes the transportability of the Connect program to 17 communities across the province of British Columbia in Canada serving 309 parents.

## Study 1

### Participants

Participants were 20 parents (11 biological, 3 adoptive and 2 foster mothers, 1 grandmother; 1 stepfather, and 2 foster fathers) representing 20 adolescents (13 boys and 7 girls; ages 12–16;  $M = 14.50$ ,  $SD = 1.58$ ) who were consecutively referred to a provincial mental health centre designated to provide service for youth ages 12–18 with clinical behavioural and emotional problems, and typically diagnosed with conduct disorder. Socioeconomic status was classified into four categories based on parental educational level and occupation in accordance with Hollingshead's scale (Hollingshead, 1975): upper (10%;  $n = 2$ ), upper middle (35%;  $n = 7$ ), lower middle (45%;  $n = 9$ ), and lower (10%;  $n = 2$ ). Upon referral, parent ratings on the Child Behaviour Checklist (CBCL; Achenbach & Dumenci, 2001) indicated that 95% of teens fell in the borderline ( $n = 5$ ; 65th to 69th percentile) to clinical range ( $n = 14$ ; 70th percentile or above) on the externalizing behaviour scale. In addition, parents were asked whether their teen had threatened to seriously harm or kill others within the past six months. Sixty five percent of parents confirmed their teen has done so, underscoring the clinical severity of this sample.

### Procedure

Referrals to this treatment centre are received from mental health professionals (i.e., social workers; psychologists; psychiatrists) located within community mental health offices across the province. For the purpose of this study, only those referrals received from mental health offices within commuting distance to the treatment centre were considered to ensure that parents could attend the group. Upon referral, the study was described to parents who then provided informed consent for participation. All parents who were approached agreed to participate and were placed on the four-month waiting list. At

**Table 2**

Connect parent group: targeted parenting domains, definitions and illustrative program components.

Parenting Domain	Definition	Connect Parent Group – Illustrative Exercise
Caregiver sensitivity	Capacity to attend to and interpret behavior, including implicit and explicit communication, in terms of attachment attachment needs	Session 1. Following a role play illustrating parent-teen conflict, leaders ask parents to comment on what behaviour they actually saw; what the meaning of this behaviour might be; and how they might respond differently depending on the meaning they ascribed to the behavior.
Partnership and mutuality	Ability to organize care in relation with their teen's mood, interests and needs; readiness for negotiation and flexibility	Session 4. Autonomy Includes Connection. In a role play, a teen demands permission to go off with an older teen whom the parent does not know and is concerned about. The parent responds with anger in one role play and indifference in another. Leaders and parents discuss the importance of recognizing the teen's desire for autonomy but the parents need to ensure safety. A third role play demonstrates how the parent can balance these needs and negotiate with their teen.
Reflective function	Interest in and capacity to reflect on and understand their own psychological experiences and those of their teen	Session 6. Empathy. Parents are asked to reflect on and discuss what it feels like when others they are close to respond with empathy (or lack empathy) when they are upset. How might this feel for their teens; how might empathy influence the parent-teen relationship and their teen's behaviour.
Dyadic affect regulation	Capacity to hold, tolerate and explore difficult emotional states in themselves and their teen	Session 3. Conflict. Two role plays are demonstrated showing parent-teen conflict; in one the parent becomes angry and confrontational, in the other the parent withdraws. Leaders and parents discuss the effect of these two reactions on the parent-teen relationship; they 'rescript' the role play with the parent maintaining engagement and acknowledging their own and their teens emotions.

that time, they completed the study questionnaire package (described below) which was administered by program staff (social worker or trained child care worker). Following the waitlist period, parents completed the study questionnaire package at the beginning of treatment; at the end of treatment; and one year following treatment. Parents received a \$20.00 honorarium for completion of the questionnaire package at each time point.

#### *Connect parent group*

Parents attended weekly one hour group sessions led by two trained and supervised leaders where they reviewed attachment principles related to parent-teen relationships and engaged in experiential activities designed to encourage parental sensitivity; partnership and mutuality; parental reflective function; and dyadic affect regulation. All parents included in this study attended at least 7 of the 10 sessions.

Leaders were social workers, MA level therapists and BA level experienced child care workers who followed a detailed treatment manual (Moretti, Braber, & Obsuth, 2009; [www.sfu.ca/adolescenthealth/connect/](http://www.sfu.ca/adolescenthealth/connect/)) which describes: 1) the theoretical background and rationale for each attachment principle; 2) session format; goals; exercises and take home message; and 3) guidance in how to navigate group challenges. Treatment adherence was supported through training and application of the manual; observation of all sessions and hour-per-hour supervision of leaders.

#### *Measures*

*The Parenting Sense of Competence Scale (PSOC; Johnston & Mash, 1989)* is a parent report measure that yields two subscale scores: parental satisfaction (Cronbach's  $\alpha = .64$ ) and parental efficacy ( $\alpha = .81$ ).

*The Child Behaviour Checklist (CBCL; Achenbach & Edelbrock, 1981)* is a parent report measure of emotional and behavioural problems among children ages 6–18 years. We utilized the revised version of this measure (Achenbach & Dumenci, 2001) which yields DSM-oriented scales, including anxiety, oppositional defiant disorder, conduct disorder and attention deficit-hyperactivity disorder. Standardized *t*-scores are available for these scales as well as three composite scales: total problems ( $\alpha = .83$ ), externalizing problems ( $\alpha = .92$ ), and internalizing problems ( $\alpha = .80$ ).

*Treatment Engagement and Client Satisfaction* This 23 item questionnaire was developed specifically to assess the relative value and importance of various components of the Connect treatment program. Nine questions assessed the helpfulness of specific program components (e.g., learning about attachment; discussing how attachment might be related to child's and parent's behaviour; role plays; parent handouts) on a 4-point scale ranging from very helpful to unhelpful. Five items asked parents to rate the extent to which the program was helpful in understanding their relationship with their adolescent; their parenting behaviour and the behaviour of their child; as well as the degree to which they applied what they learned. The remaining questions tapped feelings of being accepted and supported in the group, and the extent to which the parenting group met their expectations. Finally, participants are asked two open-ended questions regarding challenges in attending the group and recommended changes to the program.

### Analytical approach

General linear model repeated measures analyses of variance were conducted on each of the measures with time of measurement (waitlist vs. pre-treatment vs. post-treatment vs. follow-up) as a within-subjects factor to assess change during the waitlist period, immediately following treatment, and one year after treatment. Effect sizes were calculated using Cohen's (1988)  $d$  statistic ( $d = .2$  is small,  $d = .5$  is medium,  $d = .8$  is large) by subtracting the pre-test mean from the post-test mean (and post-test mean from the follow-up mean) and dividing the result by the pooled standard deviation. Table 3 summarizes means and standard deviations for all measures at each of the four time-points.

### Results

During the waitlist period, parents did not report significant changes in parenting satisfaction ( $d = .09$ ), sense of efficacy ( $d = .08$ ), or teen internalizing problems ( $d = .04$ ). Small but non-significant decreases were noted in youths' total ( $d = .31$ ;  $p < .096$ ) and externalizing ( $d = .35$ ;  $p < .065$ ) problems. In contrast, several medium to large effect sizes were noted over the treatment period. Caregivers reported medium and significant increases in perceived parenting satisfaction ( $F(1,19) = 2.9$ ,  $p < .019$ ,  $d = .45$ ) and large significant increases in parenting efficacy ( $F(1,19) = 16.89$ ,  $p < .001$ ,  $d = .86$ ; PSOC) following treatment. Similarly, on the CBCL parents reported medium to large and significant reductions in youths' total problems ( $F(1,19) = 10.92$ ,  $p < .005$ ,  $d = .64$ ), including externalizing ( $F(1,19) = 8.11$ ,  $p < .011$ ,  $d = .68$ ) and internalizing ( $F(1,19) = 10.78$ ,  $p < .005$ ;  $d = .63$ ) problems. More specifically, significant small to moderate reductions emerged in youths' rule-breaking ( $F(1,19) = 7.6$ ,  $p < .014$ ,  $d = .42$ ) and aggressive behaviour ( $F(1,19) = 7.9$ ,  $p < .012$ ,  $d = .27$ ), as well as in their anxiety/depression ( $F(1,19) = 5.5$ ,  $p < .032$ ,  $d = .28$ ) and social problems ( $F(1,19) = 6.50$ ,  $p < .020$ ;  $d = .35$ ). With respect to the DSM-IV scales of the CBCL, significant small to moderate decreases were found in youths' conduct problems ( $F(1,19) = 6.35$ ,  $p < .022$ ,  $d = .46$ ), oppositional defiant problems ( $F(1,19) = 6.72$ ,  $p < .019$ ,  $d = .32$ ), affective problems ( $F(1,19) = 10.33$ ,  $p < .006$ ,  $d = .45$ ), and anxiety problems ( $F(1,19) = 4.7$ ,  $p < .045$ ,  $d = .32$ ). These effect sizes are comparable to other intervention trials targeting similar populations.

Seventeen of the 20 parents completed follow-up measures one year post-treatment. Analyses assessed the degree of change from post-treatment to follow-up. In no case did parents report a loss in the magnitude of post-treatment improvements. No significant relapse was noted on any of the subscales comprising the internalizing or externalizing scales of the CBCL and the parental satisfaction or parental efficacy subscales of the PSOC. Moreover, additional small but significant declines emerged in youths' total problems ( $F(1,16) = 6.78$ ,  $p < .019$ ,  $d = .24$ ). Specifically, parents reported further small to moderate significant decreases in conduct problems ( $F(1,16) = 5.14$ ,  $p < .039$ ,  $d = .24$ ), depression ( $F(1,16) = 5.46$ ,  $p < .034$ ,  $d = .34$ ), anxiety problems ( $F(1,16) = 6.89$ ,  $p < .018$ ,  $d = .31$ ), and marginally fewer rule-breaking behaviours ( $F(1,16) = 4.03$ ,  $p < .062$ ,  $d = .08$ ), and social problems ( $F(1,16) = 3.51$ ,  $p < .079$ ,  $d = .09$ ). In terms of clinical significance, it is noteworthy that at waitlist and prior to treatment 95% of the sample fell in or above the borderline clinical range on CBCL externalizing problems ( $T > 65$ ;  $n = 19$ ) but only 50% ( $n = 10$ ) fell at or above this level following treatment. Parents reported high levels of client

**Table 3**

Means and standard deviations on for all outcome variables included in Study 1,  $n = 17$ .

Caregiver measures	Waitlist		Admission		Discharge		Follow-up	
	M	SD	M	SD	M	SD	M	SD
<b>CBCL</b>								
Anxious/depressed	66.59	13.74	66.35	12.30	62.94	11.84	60.65	11.51
Withdrawn/depressed	67.41	8.96	65.29	10.41	62.76	8.76	59.82	8.08
Somatic complaints	58.94	6.46	60.29	6.53	57.29	8.17	57.06	7.97
Social problems	69.82	9.81	68.65	12.80	64.24	12.03	63.18	9.56
Thought problems	67.71	8.92	63.18	8.77	61.24	8.09	57.76	7.53
Attention problems	69.71	9.41	66.00	8.90	63.59	9.76	60.71	8.19
Rule-breaking behaviour	69.94	8.48	69.12	8.19	65.53	8.75	64.76	9.12
Aggressive behaviour	75.00	14.92	68.06	12.10	64.71	12.40	64.41	10.57
Total problems	71.12	7.56	68.53	7.96	65.12	8.28	63.06	8.64
Externalizing	72.82	8.79	68.82	7.94	61.76	10.03	59.24	11.03
Internalizing	65.94	9.41	65.53	8.94	65.29	8.77	65.12	8.55
Affective problems	69.00	9.38	67.53	9.71	63.06	9.81	61.47	8.91
Anxiety revised	64.00	8.85	64.76	9.05	61.88	8.88	59.12	8.89
Somatic problems	58.38	6.63	58.88	6.313	56.00	6.87	56.63	7.96
ADHD	66.06	8.55	64.35	7.44	62.29	7.74	58.71	8.43
Defiant problems	69.94	9.29	64.59	8.76	61.76	9.05	61.76	8.69
Conduct problems	73.24	8.85	70.41	7.72	66.59	8.74	65.41	7.86
<b>PSOC</b>								
Satisfaction	4.26	0.85	4.10	1.10	4.46	0.94	4.81	0.61
Efficacy	4.01	0.91	3.68	1.04	4.54	0.86	4.45	0.68



satisfaction: All parents agreed that learning about attachment in relation to their child's behaviour was helpful to very helpful. Moreover, 93% of caregivers felt better equipped to understand their child and 93.8% of parents also reported to better understand themselves as a result of completing a Connect parent group. Further, 89% of caregivers reported that Connect met their expectations and 80% of caregivers noted a positive change in their relationship with their child as a result of applying what they learned in Connect.

## Study 2

The promising findings from the waitlist control study led to a second trial of Connect to determine whether it could be transported from the host institution in which it was developed to community based practice. To ensure program integrity, leaders underwent standardized training and were supervised hour-per-hour to ensure adherence to the manual and achieve certification. Study 2 reports on thirty-two Connect groups delivered in 17 communities between October 2006 and May 2008.

### Participants

During the evaluation period, 511 parents related to 390 youth completed the Connect program. To avoid dependency in the data, only one parent was retained per youth where reports from multiple caregivers were available, resulting in the exclusion of 142 'duplicate' caregivers<sup>3</sup>. Since the majority of caregivers were maternal figures, we retained maternal caregivers wherever possible to limit variability in the parent sample. This reduced the potential sample to 369 parents, of whom we retained only parents who attended 70% or more of Connect sessions (84%,  $N = 309$ ) to ensure sufficient treatment exposure<sup>4</sup>. Of the 309 participants, 217 (70%) completed both pre- and post-treatment measures. A subset of measures was available for the remaining 92 participants. Analytic procedures (described below) were employed to handle missing values to include these participants in the estimation of treatment effects, maximizing the sample to an  $N$  of 309.

The 309 participants consisted of 240 (78%) biological, adoptive or step mothers, 35 (11%) foster mothers or other female caregiver; 30 (10%) biological, adoptive or step fathers; and 4 (1%) foster or other male caregiver. The parents represented 309 adolescents (174 boys;  $M = 13.53$ ,  $SD = 2.18$  and 135 girls;  $M = 13.73$ ,  $SD = 2.16$ ). Independent samples  $T$ -tests revealed no significant differences on any of the demographic variables<sup>5</sup> or between the baseline rates of youths' functioning reported by parents included and excluded from the study for any reason (i.e., attendance, incomplete measures, or elimination of 'duplicate' caregivers).

Parents were asked whether their teen had threatened to seriously harm or kill others within the past six months and if their teen had been previously arrested. Twenty eight percent of parents confirmed that their teen had made threats and 15% had been previously arrested, highlighting the clinical level of risk in this sample. Socioeconomic status was categorized based on parental educational level and occupation into four categories based on Hollingshead (1975): upper (3.2%), upper middle (27.3%), lower middle (48.8%), and lower (20.2%). Fifteen percent of caregivers had not completed high school; 28.8% completed high school and 50.8% had a college diploma or university degree.

### Measures

#### Parenting measures

In addition to the PSOC described in Study 1, parents completed the 21-item *Caregiver Strain Questionnaire* (CGSQ; Brennan, Heflinger, & Bickman, 1997) which measures: a) *objective strain* (e.g., missing work, neglecting other duties, financial strain; Cronbach's  $\alpha = .76$ ); b) *subjective externalizing strain* (e.g., feelings of anger, resentment, and embarrassment due to their youths' problems;  $\alpha = .88$ ), and c) *subjective internalized strain* (e.g., anxiety, fatigue, sadness, and worry about the family's and child's future;  $\alpha = .94$ ).

#### Youth's behaviour and other mental health indicators

The Brief Child and Family Phone Interview (BCFPI; Cunningham, Pettingill, & Boyle, 2000) was developed as a standardized assessment and service evaluation tool. Derived from the Ontario Child Health Study Scales (OCHSS), the BCFPI includes many

<sup>3</sup> Of the 142 'duplicate' parents not included in the study 20 were biological fathers, four adoptive fathers, five step fathers, two foster fathers, two step mothers, two other female relatives and one foster mother.

<sup>4</sup> Of the 309 'non-duplicate' parents included in the study, 32% ( $n = 100$ ) completed all 10 sessions, 36% ( $n = 112$ ) completed nine of the sessions, 22% ( $n = 68$ ) completed eight sessions, and 9.3% ( $n = 29$ ) completed seven sessions. Of the remaining 60 participants who were excluded from the study 22% ( $n = 13$ ) completed six sessions, 25% ( $n = 15$ ) completed five sessions, 11.6% ( $n = 7$ ) completed four sessions, 13.3% ( $n = 8$ ) completed three sessions, 16.6% ( $n = 10$ ) completed two sessions, and 11.6% ( $n = 7$ ) completed one session. Of the participants who attended less than 70% of sessions, 12 participants completed pre- and post-treatment measures and were included in the intent to treat analyses described in the results section. The most common reasons for missing sessions were scheduling problems, distance in travel, and interruptions due to personal health and mental health issues.

<sup>5</sup> For example: youth gender:  $t(449) = -.965$ ,  $p = .335$ , youth age:  $t(449) = .872$ ,  $p = .384$ ; parent education:  $t(449) = .790$ ,  $p = .430$ ; parent SES:  $t(449) = -.902$ ,  $p = .368$ ; and placed outside the home  $t(509) = -.174$ ,  $p = .862$ ; threatened to kill or harm self  $t(509) = .649$ ,  $p = .517$ ; threatened to kill or harm another  $t(509) = .396$ ,  $p = .654$ ; school attendance  $t(509) = .315$ ,  $p = .618$ .

items in common with the CBCL (Boyle, Offord, Racine, & Fleming, 1993). Both the BCFPI and its predecessor, the OCHSS, possess excellent psychometric properties and have been used in large-scale epidemiological studies (Boyle et al., 2009). In this study, six specific domains of functioning were assessed related to DSM-IV diagnoses, and comparable to domains assessed by the CBCL: ADHD (regulation of attention;  $\alpha = .87$ ), ODD (cooperativeness;  $\alpha = .89$ ), CD (conduct problems;  $\alpha = .78$ ), SAD (separation anxiety;  $\alpha = .87$ ), AD (managing anxiety;  $\alpha = .89$ ), and Dythymia (managing mood;  $\alpha = .89$ ). Like the CBCL, the BCFPI also generates three composite scores: total problems ( $\alpha = .90$ ), externalizing problems ( $\alpha = .91$ ), and internalizing problems ( $\alpha = .89$ ). Social participation ( $\alpha = .84$ ), quality of relationships ( $\alpha = .74$ ), school participation ( $\alpha = .80$ ) and global functioning ( $\alpha = .88$ ) are tapped by 8 items rated on a 5-point scale according to the degree to which various problems interfered with functioning.

*Conflict Tactics Scale-modified (CTS)* This is a widely used questionnaire taps aggressive behaviour toward others (Straus, 1979). An adapted 12-item version was used to assess youth aggression toward parents (6 items) and parents' aggression toward youth (6 items). The scale yields two subscales: physical aggression and verbal aggression as well as a total aggression score. For the purposes of this study we utilized the total aggression score for parents toward youth ( $\alpha = .88$ ) and by youth toward parents ( $\alpha = .70$ ).

*Affect Regulation Checklist (ARC; Moretti, 2003)*: this 12-item measure was adapted from published scales of emotion regulation (Gross & John, 1998, 2003; Shields & Cicchetti, 1997) and augmented with supplementary items; it taps: affect dyscontrol (e.g., "My youth has a hard time controlling his/her feelings"; "It's very hard for my youth to calm down when he/she gets upset";  $\alpha = .88$ ), affect suppression (e.g., "My youth tries hard not to think about his/her feelings"; "My youth tries to do other things to keep his/her mind off of how he/she feels";  $\alpha = .81$ ), and adaptive reflection (e.g., "Thinking about why he/she has different feelings helps my youth to learn about him/herself";  $\alpha = .91$ ). Confirmatory factor analyses revealed that the three factor model provided a good fit to the data [CFI = .96, RMSEA = .059, 90% CI (.046–.073)].

*Treatment Engagement and Client Satisfaction* measure described in Study 1 was utilized to assess participants' satisfaction with the Connect Program.

### Analytical approach

Regression analyses within a Structural Equation Modeling Framework using Full Information Maximum Likelihood (FIML) were conducted. Models were fit using AMOS 5.0 (Arbuckle & Worthke, 1999) and specified to test whether parents perceived and/or experienced significant improvement on all of the outcome variables from pre-to-post intervention, while controlling sex, age, type of caregiver, and other services received<sup>6</sup>.

## Results

A total of 309 parents who completed at least 70% of Connect sessions had complete data available on age, sex, and other demographic variables. Of these, 70% ( $n = 217$ ) had complete data on all measures pre- and post-treatment. An additional 30% ( $n = 92$ ) participants had data on parenting measures (PSOC & CGSQ) as well as a measure of aggressive behaviour (CTS) only at pre-treatment, not post-treatment; 26% ( $n = 80$ ) participants had data on youth functioning (BCFPI) at pre-treatment but not at post-treatment, and 24% ( $n = 75$ ) had pre-treatment data available on the ARC, measure of affect regulation.

In order to use all available information from pre- to post-intervention assessments, we used FIML estimation procedures within a SEM framework to test our hypotheses. Independent samples t-tests were carried out to assess whether missing data post-treatment could be predicted by any of the pre-treatment variables or demographic variables and revealed no significant relationships, suggesting the appropriateness of proceeding with FIML analyses. FIML is considered a state-of-the-art procedure for addressing missing data and has been found to produce the least amount of bias in parameter estimates when compared to other missing data techniques (Arbuckle, 1996; Enders, 2001; Raykov, 2005).

### Pre-post treatment effects

A series of regression models testing change from pre-to-post treatment (see Table 4) revealed an array of statistically significant effects for perceived parent and teen functioning after controlling for sex, age, type of caregiver and other services received. Consistent with the results in Study 1, parents reported large and significant increases in parenting satisfaction ( $B = .331, p < .001, d = .74$ ) and perceived efficacy ( $B = .354, p < .001, d = .71$ ). Large and significant decreases in caregiver

<sup>6</sup> Many treatment programs occur in the context of multiple support services and it is therefore important to determine the extent to which clinical improvement is due to the program effects apart from other components of care. Approximately 42 percent of participants in Study 2 received at least one other service within the six months prior to attending Connect. For example, 28.2% of participants worked with a case worker, 40% attended individual therapy and 12% attended family therapy.

**Table 4**

Pre- and post-treatment means and standard deviations for all outcome variables; and effect sizes for Study 2.

Variable	Time 1		Time 2		Effect size Cohen's <i>d</i>
	Mean	SD	Mean	SD	
PSOC ( <i>n</i> = 309)					
Satisfaction	3.57	.45	3.91	.47	.74
Efficacy	3.41	.05	3.76	.51	.71
CGSQ ( <i>n</i> = 309)					
Objective	2.96	.66	2.35	.65	.93
Internalized	3.75	.62	3.11	.68	.98
Externalized	2.79	.56	2.40	.55	.70
BCFPI ( <i>n</i> = 297)					
Attention	3.45	.65	3.16	.07	.71
Cooperativeness	3.84	.62	3.42	.69	.65
Conduct	2.22	.60	2.00	.60	.36
Separation	1.85	.52	1.69	.55	.30
Anxiety	2.54	.68	2.47	.64	.11
Mood	2.53	.67	2.24	.68	.43
Externalizing	3.05	.50	2.76	.53	.56
Internalizing	2.43	.50	2.26	.49	.34
Total	2.74	.41	2.50	.41	.59
Social Participation	2.98	.74	3.46	.79	.62
Quality of Relationships	3.01	.83	3.33	.92	.37
School Participation	2.83	.69	3.29	.74	.64
Global Functioning	2.94	.64	3.36	.71	.64
CTS ( <i>n</i> = 309)					
Toward Youth	1.42	.22	1.23	.18	.94
By Youth	1.82	.39	1.53	.39	.74
ARC ( <i>n</i> = 292)					
Dyscontrol	3.57	.68	3.24	.75	.46
Suppression	2.91	.64	2.74	.68	.29
Reflection	2.31	.64	2.60	.71	.43

Note: 217 participants had complete data on all measures both pre and post-treatment. The remaining participants (see small *ns* in brackets) completed measures at either pre or post-treatment and were included in the analyses utilizing the FIML method for missing data.

strain were also observed in the domains of objective strain ( $B = -.622, p < .001, d = .93$ ), subjective externalized strain ( $B = -.402, p < .001, d = .98$ ), and subjective internalized strain ( $B = -.649, p < .001, d = .70$ ; CGSQ).

Consistent with our previous findings, parents reported moderate to large significant reductions in total problems ( $B = -.235, p < .001, d = .59$ ), externalizing problems ( $B = -.295, p < .001, d = .56$ ), and internalizing problems ( $B = -.171, p < .014, d = .34$ ), as measured by the BCFPI. More specifically, moderate and significant reductions were evident in symptoms of CD ( $B = -.169, p < .022, d = .36$ ), ODD ( $B = -.428, p < .001, d = .65$ ), ADHD ( $B = -.297, p < .001, d = .71$ ) and Dysthymia ( $B = -.284, p < .003, d = .43$ ). Parents also reported large and significant reductions in their teens' aggression toward them ( $B = -.293, p < .001, d = .74$ ; CTS) as well as their own aggression toward their teens ( $B = -.188, p < .001, d = .94$ ).

In addition, moderate to large significant increases were noted in parents' reports of their teens' social participation ( $B = .477, p < .001, d = .62$ ), quality of relationships ( $B = .459, p < .001, d = .37$ ), school participation ( $B = .314, p < .007, d = .64$ ) and global functioning ( $B = .418, p < .001, d = .64$ ). Finally, parents reported moderate and significant improvements in their teens' ability to regulate affect ( $B = -.373, p < .001, d = .46$ ) and reflect on their emotional experiences ( $B = -.293, p < .003, d = .43$ ), and small but significant decreases in their teens suppression of affect ( $B = -.194, p < .031, d = .29$ ).<sup>7</sup>

To determine whether effects were similar for teens with extremely severe problem behaviour, we analyzed data for youth who scored at least one standard deviation above the mean on the BCFPI Total Problems Scale. Scores on this scale were normally distributed, with  $M = 2.73$  and  $SD = .68$ . Thus only youth whose caregivers reported an average item score of 3.41 or higher (out of a maximum score of 4) were included ( $n = 42$ ) in this analysis. Comparable findings emerged: caregivers reported significant increases in their parenting satisfaction and perceived efficacy (both at  $p < .001$ ; PSOC); and significant decreases in objective, externalized subjective, and internalized subjective strain (all at  $p < .001$ ; CGSQ). They also reported significant decreases in these youths' total, externalizing, and internalizing problems (all at  $p < .001$ ); as well as decreases in all of the subscales comprising these composite scores (all at  $p < .001$ ; BCFPI). Further, analyses confirmed increases in teens' social participation, quality of relationships, school participation and achievement, and global functioning (all at  $p < .001$ ).

<sup>7</sup> Paired samples *T*-tests on the complete cases only ( $n = 217$ ) were consistent with those reported above utilizing FIML estimation. Intent to treat analyses were completed based on all participants not included in the main analyses due to their elimination as 'redundant' caregivers ( $n = 36$ ) or because they did not attend at least 70% of sessions ( $n = 12$ ). Results were consistent with those reported above.



Caregivers also reported significant decreases in their teens' aggression toward them and significant decreases in their aggression toward their teen (both at  $p < .001$ ), improved regulation of affect, capacity for emotional self-reflection, and less reliance on affect suppression (all at or above  $p < .01$ ).

### *Treatment engagement and satisfaction*

Attendance in the program was high: 84% attended at least 70% of Connect sessions. Consistent with Study 1, 98% of parents agreed that learning about attachment in relation to their child's behaviour was helpful to very helpful; 96.8% of caregivers felt better equipped to understand their child and 94.7% of parents also reported to better understand themselves as a result of completing a Connect parent group. Further, 95.5% of caregivers reported that Connect met their expectations and 85.8% of caregivers noted a positive change in their relationship with their child as a result of applying what they learned in Connect.

## **Discussion**

Findings provide promising support for this brief attachment-focused parent treatment program in significantly reducing aggression, antisocial behaviour and internalizing problems, and enhancing social functioning among teens with serious behaviour problems. Across both studies, large effect sizes were observed for parenting measures tapping parenting satisfaction and efficacy. In Study 2 further significant increases were noted in perceived parenting satisfaction and significant reductions occurred in parental reports of caregiver burden as well as parental aggression toward youth suggesting that Connect has a substantial impact on improving the quality of the parenting experience among troubled families. This is important in this population where family functioning is precarious and there is often an elevated risk of the adolescent leaving home or the parent placing them in care.

In Study 2, moderate to large effects were also observed on parent reports of adolescent problem behaviour across several indices with the largest effect on youth's decreased aggression toward their parents. Such results are noteworthy given the brief nature of the intervention and the longstanding problem behaviour of the adolescents in this sample.

Results from Study 1 were maintained for one year post-treatment. Such findings are important to demonstrate in clinical samples where chronic problems in family and child functioning are often difficult to change in the long term. Not only were small to medium effects observed over the course of treatment, as compared to the waitlist period, but these changes were maintained or deepened over the follow-up period. While small to moderate effects are perhaps less than ideal, these effect sizes are consistent with those found for other interventions on high-risk samples (Conduct Problems Prevention Research Group, 2007). Nonetheless, further research is required to validate the long term impact of the Connect program as the follow-up study tracked only 17 of 20 participants.

The broad effect of the program on externalizing and internalizing problems, affect regulation and social functioning is notable. High co-morbidity is well documented in this population and typical in treatment studies (Moretti & Odgers, 2006; Odgers, Brunette, Chauhan, Moretti, & Repucci, 2005; Ollendick, Jarrett, Grills-Taquechel, Hovey, & Wolff, 2008). It is important that treatment studies document the extent to which intervention reduces problems across multiple domains as this may relate to the probability of sustaining treatment effects. We argue that Connect targets the building blocks of attachment security, including parental sensitivity, partnership and mutuality, parental reflective function and dyadic affect regulation. In so doing, it is possible that it promotes change across multiple domains of parent and child functioning. Increasing parental sensitivity and the capacity to reflect on their teens' psychological world may reduce reactive and hostile attributions about problem behaviour thus circumventing the escalation of coercive interactions and facilitating healthy affect regulation, and enhanced parent-teen partnership across multiple domains of teen functioning. Increased parenting satisfaction and perceived efficacy, coupled with reductions in caregiver stress, is also an important component of change. When parents derive more pleasure from parenting, and feel more competent and less stressed in their parenting role, they are more likely to engage positively with their teen.

At a fundamental level, an attachment-based approach may promote change in how parents view their teen; how they understand themselves and their parenting role; and how they and their teen experience their relationship. Mayseless and colleagues (Mayseless, 2006; Scher & Mayseless, 2000) suggest that changes in parenting representations underlie changes in parenting behaviour, which in turn influence child behaviour. Our recent research on change processes related to the Connect program documents such changes in parenting representations: significant and positive changes were observed across multiple dimensions of parenting representations related to attachment security (Moretti, Obsuth, Mayseless, & Scharf, 2009).

It is important to note that Connect incorporates evidence based strategies (Snell-Johns, Mendez, & Smith, 2004) to remove treatment barriers and enhance motivation in families who have experienced treatment challenges. These include meeting in advance of treatment to identify and collaboratively manage barriers; avoiding a prescriptive approach that is often experienced as blaming; empathizing with but not condoning problematic parenting behaviour; and encouraging autonomy in parental functioning. Parents routinely reported that Connect seemed unlike other parenting programs that they experienced as overly prescriptive and sometimes blaming. They found the focus on attachment was helpful in better understanding their child, themselves and their relationship with their child. Moreover, many parents pointed out that the

program principles were applicable across several areas of their lives, including their relationships with other family members, partners, and friends.

The current program is innovative in adopting an attachment-based approach to working with parents of teens, especially parents of teens who are engaged in high levels of aggressive and antisocial behaviour. As such, our research first focused on assessing treatment acceptance; treatment effects compared to a waitlist condition and maintenance of effects over a follow-up period; and program portability. These are important steps toward establishing program effectiveness (Westen, Novotny, & Thompson-Brenner, 2004) and our findings suggest that: 1) this approach is well received by parents; 2) parents report enhanced parenting experiences, less parenting burden and fewer adolescent problem behaviours once they complete the program; and 3) the program was effectively transported across communities and delivered by a diverse range of mental health and social service workers. We recognize fully however that the lack of randomized assignment to the Connect program vs. another treatment comparison group seriously limits conclusions we can draw regarding treatment effectiveness. The brief manualized nature of the Connect program, standardized training, good treatment portability and promising findings with this challenging clinical population make it an ideal candidate for a randomized control trial (RCT) and this is the next step in the evaluation of the Connect program.

It is also important to recognize that in this research we relied on parents' reports of their child's and their own functioning. The measures that we used are well established and many have been well validated against third party, observational measures and interview reports (e.g., CBCL and BCFPI). However, future studies require the use of multiple informants to validate the findings reported here. Finally, we wish to caution readers against the notion that the program described here can fully meet the needs of multiply challenged families of high-risk teens. Although we found that the Connect program showed effects even while controlling for other services received, a test that we believe should be reported more frequently in the literature, treatment packages for families must be tailored to meet their unique and complex needs. In this regard, the Connect program may serve as an effective component of a larger treatment package.

## Acknowledgements

Support for this chapter was provided by the Canadian Institutes of Health Research (CIHR), Institute of Gender and Health (IGH), New Emerging Team grant (#54020) and CIHR Operating Grant (#84567). For further information, contact Dr. Moretti at [moretti@sfu.ca](mailto:moretti@sfu.ca) or at Department of Psychology, Simon Fraser University, 8888 University Drive, Burnaby, British Columbia, CANADA V5A 1S6 (phone: 778 782 3604).

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