

RELATIONSHIP-FOCUSED INTERVENTION FOR SUBSTANCE-INVOLVED WOMEN
AND THEIR CHILDREN

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ABSTRACT

Children of substance-using mothers experience both internal and external barriers to optimal development and mental health. High quality caregiving is protective for these children; however, substance-using women may experience difficulty providing consistent and sensitive care due to past experiences and current life stressors. The first objective of this study was to provide a profile of substance-using women to contextualize their presenting concerns, risk factors, and treatment needs. The second and third objectives of this study were to assess improvements in parent functioning, that is the cognitive component of parenting, as well as parent behaviour as a result of an integrated relationship-focused intervention and to explore the association between parent functioning and behaviour and child behaviour problems. The final objective of this study was to explore the concordance of changes in mothers and children's relationship skills and to identify patterns of change in the mother-child relationship. Case examples are provided to help contextualize the changes in relationship skills over time and with treatment. Mother-child dyads were recruited from Breaking the Cycle, a program for mothers with substance use problems and their young children. Sample A comprised 136 mothers and 122 children for whom intake questionnaires were available. Of these women and children, 59 mother-child dyads completed a free-play observation approximately one year after intake (Sample B) and 27 dyads completed a second free-play observation two years after intake (Sample C). The profile of substance-using women in this sample was characterized by high levels of relationship risks, mental health difficulties, and other life stressors. Longer periods of enrolment in the program were associated with higher levels of parent functioning and more emotionally available parenting behaviours two years after intake. Better parent functioning, in

turn, was associated with fewer child behaviour problems two years after intake. Contrary to predictions, parent behaviour was not predictive of child behaviour problems. Several patterns of change within the mother-child relationship were observed. Overall, mothers and children were significantly more likely to be concordant in their changes in relationship skills (i.e., both increasing or both decreasing) than discordant indicating that mothers and children develop and change together. Limitations and clinical implications are discussed.

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Relationship-Focused Intervention for Substance-Involved Women and their Children

Research to inform evidence-based services is critical to promoting optimal child development in high-risk populations. Children of substance-using women are at significantly heightened risk for maladaptive outcomes due to their pre-natal exposure to substances and ongoing risk factors in the post-natal environment (Carta et al., 2001; Eiden, Godleski, Colder & Schuetze, 2014). High-quality maternal caregiving is a protective factor for these children and can serve to minimize the impact of environmental and pre-natal risk factors (Curran & Chassin, 1996; Eiden et al., 2014; Motz et al., 2011). Additionally, interventions for substance-using women that include parenting components and a focus on relationships have been associated with improvements in maternal substance use and mental health difficulties above and beyond those of traditional substance use treatment (Espinet, Motz, Jeong, Jenkins, & Pepler, 2015; Luthar & Suchman, 2000; Niccols, Milligan, et al., 2010). Despite the importance of promoting the mother-child relationship in this population, a recent survey of Canadian addiction service providers revealed that only half provided services related to parenting or children and only a quarter provided services for children five years and under (Niccols, Dobbins, et al., 2010). Further, interventions that do include a parenting component predominantly focus on basic parenting skills and knowledge and rarely include interventions aimed specifically at fostering the mother-child relationship (Niccols, Dobbins et al., 2010). The objective of this study was to assess improvements in parent functioning and behaviour and the mother-child relationship in substance-involved dyads as a result of an integrated relationship-focused intervention.

Alcohol and Drug Use in Canada

Rates of heavy drinking in women are highest in the childbearing age bracket (20-34 years) with 22.6% of women engaging in heavy drinking (five drinks or more in one sitting at least once per month) (Statistics Canada, 2012a). Though the rate of illicit substance use (cannabis, cocaine/crack, speed, ecstasy, hallucinogens, heroin) in Canadian women of childbearing age is not available, it is known that the lifetime prevalence rate is 34.1% in women (Statistics Canada, 2011). Furthermore, Canadian lifetime prevalence rates of any substance abuse or dependence¹ are 16.4% and 15.6% in women aged 15-24 and 25-44 years, respectively (Statistics Canada, 2012b). With these rates of substance use disorders in the childbearing age bracket, it is crucial to investigate the associations between substance use, parenting, and children's development, as well as the impact of interventions for substance-using women.

Bio-Psycho-Social Framework

The theoretical framework for this research is based on the integrated bio-psycho-social model of stress effects on parenting in addicted individuals (Figure 1; Chaplin & Sinha, 2013). This model illustrates the cyclical pattern that links past and present life stress with addiction and poor parenting, which in turn begins the cycle again for the next generation. It is based on the premise that substance-using women are more likely to have experienced negative life events

¹ Statistic Canada defines substance abuse as “a pattern of recurrent use where at least one of the following occurs: failure to fulfill major roles at work, school or home, use in physically hazardous situations, recurrent alcohol or drug related problems, and continued use despite social or interpersonal problems caused or intensified by alcohol or drugs.” Substance dependence is the label applied “when at least three of the following occur in the same 12 month period: increased tolerance, withdrawal, increased consumption, unsuccessful efforts to quit, a lot of time lost recovering or using, reduced activity, and continued use despite persistent physical or psychological problems caused or intensified by alcohol or drugs.”

and abuse in childhood, which leads to a heightened stress response and difficulty with coping and emotion regulation. For addicted parents, typical infant and child behaviours such as crying may elicit a stress response, become overwhelming, and result in the use of maladaptive coping such as hostility or neglect (Chaplin & Sinha, 2013). This response pattern not only negatively impacts the parent and child in the moment, but also contributes to the inter-generational transmission of mental health difficulties, addiction, and maladaptive interaction patterns through modeling (Chaplin & Sinha, 2013). Intervening to reduce parenting stress and provide parenting support is critical to successful substance abuse treatment for mothers (Rutherford, Potenza, & Mayes, 2013). Further, acknowledging the neurobiological basis of maladaptive parenting and focusing on the meaning of child affect and signaling are important components of both addiction treatment and relapse prevention for mothers, as well as parenting intervention (Rutherford, Potenza, & Mayes, 2013).

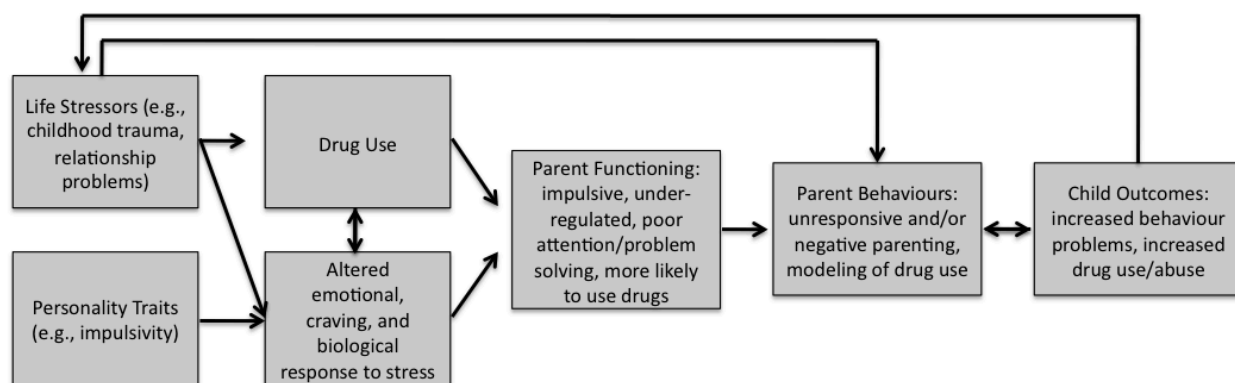


Figure 1 Integrated bio-psycho-social model of stress effects on parenting in addicted individuals (Chaplin & Sinha, 2013)

An adapted version of this bio-psycho-social model was used for the current study (Figure 2). The constructs of personality traits and altered stress response were removed, as they could not be quantified using the measures available for this study. This model is linear and does

not capture the many transactional relationships that likely influence substance-using women and their children (e.g., the influence of child behaviour on parent behaviour); however, it provides a clear organizational framework for the key constructs of interest that can be explored with a limited sample of high-risk women and children. As in the original model, this model differentiates between parent functioning and parent behaviour. Though parent functioning and behaviour are closely linked, the distinction between the two is important in the context of intervention with substance-using women. Parent functioning comprises the cognitive components (e.g., perceptions, problem solving skills, impulse control) that in turn impact parent behaviour, the physical manifestations (e.g., responsiveness, hostility). Substance-using women have been found to have more negative parenting cognitions than non-substance-using women (Flykt et al., 2012), which have, in turn, been associated with poorer parenting (Eiden, Schuetze, & Coles, 2011). Interventions aimed at addressing both parent functioning as well as behaviour are of great importance for substance-using populations.

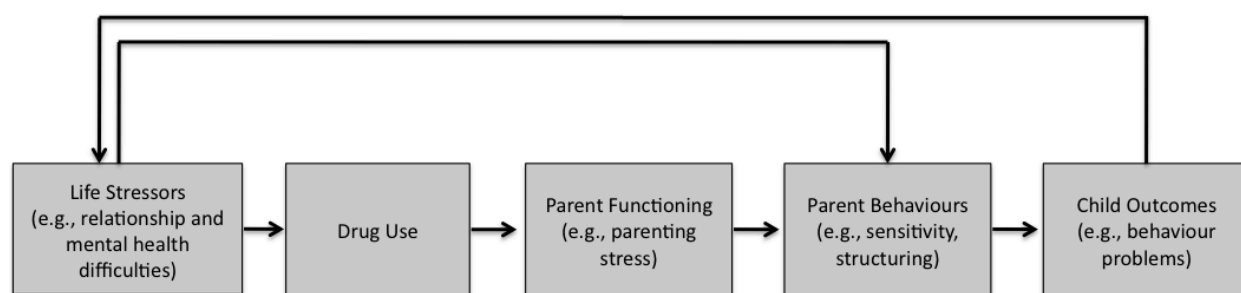


Figure 2 Adapted version of the integrated bio-psycho-social model of stress effects on parenting in addicted individuals (adapted from Chaplin & Sinha, 2013)

Substance Use and Parenting Behaviour

The association between maternal substance use and problematic parenting is well supported in the literature. Alcohol use has been associated with harsh parenting (Kim, Pears,

Fisher, Connelly, & Landsverk, 2010) and a two-fold increase in risk of physical and sexual abuse perpetration (Walsh, MacMillan, & Jamieson, 2003). Women who used cocaine during pregnancy have been shown to be more aggressive and to show more negative affect and lower levels of sensitivity during interactions with their children than non-substance-using women (Eiden, Schuetze et al., 2011; Eiden, Schuetze, & Coles, 2011; Molnar, Levitt, Eiden, & Schuetze, 2014). In line with this, cocaine-using women are also more likely to have infants with lower levels of responsiveness at 13 months of age (Eiden, Schuetze, & Coles, 2011). Additionally, a study of cocaine users identified a cyclical pattern of lower maternal sensitivity towards infants at one month of age being associated with maternal report of higher child reactivity at seven months of age, which in turn predicted lower maternal warmth and sensitivity at 13 months of age (Eiden, Schuetze, & Coles, 2011). These links indicate that maternal perceptions may both be influencing and be influenced by maternal parenting behaviours. A similar cyclical pattern was found for aggressive maternal behaviours and low child regulatory ability at 13 months (Eiden, Schuetze et al., 2011).

In addition to the direct associations between substance use and parenting, there are many indirect associations. Research supports the link between a mother's own history of childhood maltreatment, substance abuse, and current child maltreatment (Appleyard, Berlin, Rosanbalm, & Dodge, 2011). Further, substance-using women frequently experience high levels of mental health difficulties (Motz et al., 2006), which are in turn linked to lower sensitivity, higher intrusiveness, and greater hostility during interactions with children (Easterbrooks, Chaudhuri, & Gestsdottir, 2005). Substance-using women are also frequently in relationships with other substance users (Motz et al., 2006). Paternal alcoholism at 12 to 18 months of age was

predictive of lower maternal warmth and sensitivity at two years of age (Eiden, Edwards, & Leonard, 2007). These studies indicate the importance of considering other life stressors frequently experienced by substance-using women.

Maternal Behaviour, the Mother-Child Relationship, and Child Well-Being

Extensive research has been done investigating the associations between prenatal substance exposure, parenting, and child well-being. There are no direct associations of prenatal exposure with aggression in toddlerhood (Eiden, Schuetze, Colder, & Veira, 2011), behaviour problems in toddlerhood (Eiden, Granger, Schuetze, & Veira, 2011), behaviour problems in preschool aged children (Molnar et al., 2014), and internalizing problems in kindergarten (Eiden, Godleski, Colder, & Schuetze, 2014). However, indirect links between prenatal exposure and each of these indicators of child well-being are mediated by maternal behaviour (harshness, negative affect, and warmth) (Eiden et al., 2014; Eiden, Granger et al, 2011; Eiden, Schuetze et al., 2011; Molnar et al., 2014). Some studies have revealed more complex associations. For example, Eiden, Granger and colleagues (2011) found that lack of maternal warmth mediated the association between prenatal cocaine exposure and behaviour problems in toddlerhood, but only in children with high levels of cortisol reactivity. The authors concluded that physiological reactivity makes children more vulnerable to the negative influence of inadequate parenting. Additionally, the link between prenatal exposure to alcohol and cigarettes and behaviour problems in children has been shown to be mediated by maternal psychopathology, which is associated with less optimal parenting (Eiden, Granger et al., 2011). In a comparison of children of alcoholics and non-alcoholics, fathers' alcohol addiction was significantly associated with lower later maternal warmth and sensitivity, which was in turn associated with lower regulation

skills in children at three years and externalizing behaviours in kindergarten (Eiden, Edwards, & Leonard, 2007).

A high-risk caregiving environment (composite of maternal psychopathology, mothers' exposure to violence, caregiving instability) has also been implicated in the development of child behaviour problems in preschool children (Molnar et al., 2014). Prenatally exposed children living in risky caregiving environments displayed the highest levels of difficulty as compared to exposed children living in low risk environments and non-exposed children; however, children without prenatal exposure living in high risk environments were at greater risk for problems than prenatally exposed children living in low risk environments (Molnar et al., 2014). In a different substance-involved sample, the quality of the mother-child relationship was shown to mediate the relationship between pre- and post-natal risk and child neurobehavioural development (Motz et al., 2011). These studies draw attention to the key roles of environment and parenting in child well-being and the opportunity to intervene to help high-risk mothers provide stable home environments and high quality caregiving to their children.

The protective role of the mother-child relationship has also been shown in other high-risk populations. In a high-risk sample of low-income women, maternal behaviour characterized by non-hostility and greater emotional availability was associated with better emotion regulation in 12-month-old children (Little & Carter, 2005). In a sample of maltreated children, the mother-child relationship has been shown to moderate the relationship between maltreatment, emotional regulation, and behaviour problems in middle childhood (Alink, Cicchetti, Kim, & Rogosch, 2009). In this study, insecure children with histories of maltreatment had lower levels of emotion regulation, which in turn predicted higher levels of behaviour problems. No such

association was found in securely attached children (Alink et al., 2009). Additionally, maternal harshness in early childhood has been associated with earlier age of menarche, as well as risk taking in 15-year-old girls (Belsky, Steinberg, Houts, & Halpern-Felsher, 2010). Further, earlier age of menarche was associated with greater sexual risk taking (Belsky et al., 2010). These studies elucidate the wide range and diverse effects of the mother-child relationship on child development.

The Role of Attachment in Child Development

In early childhood, children develop unique behavioural systems through interactions with their caregivers and environment (Bowlby, 1969). Attachment behaviours are social behaviours activated by these behavioural systems motivated by the urge to seek and maintain proximity to another person. Mothers and their children establish stable patterns of interaction in the first year of life, which are then maintained through childhood because one member expects the other to act a certain way and elicits this behaviour. The cyclical pattern of behaviour, whether adaptive or maladaptive, maintains the mother-child relationship over time. Internal working models of the self, others, and the world are developed based on children's attachment relationships. Children's relationships with their caregivers serve as prototypes on which future relationships will be based and dictate their behaviour in these future relationships. Particularly early in development, mothering based on children's cues and meeting children's needs is highlighted as essential (Bowlby, 1969). Consequently, caregivers' inability to respond to their children's needs due to substance use or inaccurate perceptions of the cues or needs leads to disturbance in attachment relationships. Further, significant changes in behaviour caused by illnesses or events such as separations or maternal depression can cause changes in behavioural

patterns and the attachment relationship (Bowlby, 1969). Children must adjust their internal working models in response to both daily stressors and significant negative life events. Failing to make these necessary revisions may lead to future psychopathology (Bowlby, 1969).

Research has shown the importance of early attachment for later child development. Attachment security at 15 months of age has been shown to predict social-emotional development and language comprehension at three years of age (Belsky & Fearon, 2002a). In this study, a measure of contextual risk that included components such as parenting stress and maternal depression was not found to predict attachment security. Attachment security and risk did, however, interact to predict child outcomes. The effect of attachment on social competence, expressive language, and child behaviour problems was present only in high-risk contexts, with insecure-avoidant children in high-risk contexts performing most poorly. Further, secure attachment in high-risk contexts was found to be protective for expressive language development (Belsky & Fearon, 2002a). This study highlights the additional importance of the mother-child relationship in high-risk contexts. Additionally, in a meta-analysis, researchers found a significant association between attachment and externalizing problems with larger effect sizes in samples in which either a parent or a child had a clinical diagnosis (Fearon, Bakermans-Kranenburg, van IJzendoorn, Lapsley, & Roisman, 2010).

Secure attachment in infancy alone is not sufficient to ensure child well-being. Belsky and Fearon investigated the importance of attachment at 15 months of age, as well as sensitive mothering and life stress at 24 months of age (2002b). In line with the authors' predictions, children classified as securely attached were more likely to receive sensitive mothering, while insecurely attached children were more likely to receive insensitive mothering. Children with

secure attachment and sensitive mothering had the best performance on four of five measures of child outcomes, while children with insecure attachment and insensitive mothering had the worst performance on three of five outcomes. Though children with inconsistencies in security and sensitivity performed in the middle range: children with histories of insecure attachment at 15 months followed by sensitive mothering at 24 months performed better than children with secure attachment histories receiving insensitive mothering. Notably, mothers with secure infants who provided insensitive mothering experienced greater life stress than mothers with secure infants who provided sensitive mothering. Furthermore, mothers of insecure infants who provided sensitive mothering experienced significantly less life stress than mothers with insecure infants providing insensitive mothering (Belsky & Fearon, 2002b). This study confirms the influence of negative life events, in this case life stress (e.g., economic difficulties), on maternal behaviours and draws attention to the continued importance of sensitive mothering on child outcomes.

The Role of Attachment in Parenting

Attachment security and consequent internal working models of the self and others have implications for parenting representations and expectations (Lyden & Suchman, 2013). The relative stability of attachment has been confirmed by a 20-year longitudinal study that assessed attachment classification at one year and 20 to 22 years of age (Waters, Merrick, Treboux, Crowell, & Albersheim, 2000). Seventy-two percent of participants remained in the secure or insecure classification of attachment. Negative life events such as abuse in one's childhood, or loss of a parent were associated with changes in attachment security, such that individuals with more stressful life events had a greater likelihood of changing attachment status than those with fewer or no negative life events (Waters, Merrick, et al., 2000). Trauma in adulthood,

particularly trauma in relationships with previous children (e.g., loss of custody), also shapes (and sometimes modifies) mothers' internal working models of the self and relationships between caregivers and infants (Lyden & Suchman, 2013). These internal working models are activated by infants and dictate expectations and behaviours within the mother-child relationship. For example, a mother who has an internal working model of herself as unworthy and others as rejecting, may interpret a child's crying and fussing as rejection and, consequently, distance herself from the child to protect herself from rejection. This process is not only important in terms of its influence on concurrent maternal behaviour, stress, and emotion regulation, but also has implications for the transmission of these relationship models to children and for the continuation of an intergenerational cycle of insecure attachment (Lyden & Suchman, 2013).

In 2009, Bakermans-Kranenburg & van IJzendoorn amalgamated data from more than 200 studies focused on adult attachment. Using the data from these many studies, they determined that the distribution of mothers' adult attachment classifications among the general population of North America was: 58% secure, 23% dismissing, and 19% preoccupied, while the distribution among high-risk mothers was: 41% secure, 42% dismissing, and 17% preoccupied. Further they identified that in clinical samples of men and women with internalizing problems, there was an overrepresentation of preoccupied attachment, whereas in clinical samples with externalizing problems there was an overrepresentation of dismissing attachment. Additionally, high-risk and clinical samples also had an overrepresentation of unresolved loss or trauma as compared to normative samples (Bakermans-Kranenburg & van IJzendoorn, 2009). Though there were variations in the distributions, it is clear that there is an under-representation of securely attached individuals in high-risk and clinical samples.

In a high-risk sample, adult attachment is also associated with current perceived social support (Huth-Bocks, Levendosky, Bogat, & Von Eye, 2004). The researchers hypothesize that this link arises from the influence of internal working models from childhood on the way mothers perceive support. Mothers' with internal working models of others as untrustworthy, and of themselves as unworthy, may perceive current support to be insufficient or unsatisfactory. Huth-Bocks and colleagues found that this perception of social support is then associated with the quality of current mother-child attachment, thus linking mothers' own attachment with current mother-child attachment via social support. The authors also found that this association between mothers' own attachment and mother-child attachment also exists through mothers' pre- and post-natal representations of caregiving. Less sensitive and accepting representations of the infant are strongly linked to insecure representations of the self as a mother. The representations begin during pregnancy and are also influenced by risk factors such as poverty, single parenthood, and abuse. The authors of this study conclude that the influence of pre-natal representations and attachment security when the child is one year of age indicates a strong need to intervene as early as possible with high-risk mothers (Huth-Bock et al., 2004). In a study of substance-using women, mothers reported more negative pre-natal representations of their children's fathers and of themselves as mothers than non-substance-using women (Flykt et al., 2012). This heightened level of negative representations indicates the importance of intervening as early as possible to address maladaptive representations in substance-using populations.

Integrated and Non-Integrated Interventions for Substance-Using Mothers

Pregnancy may be a window of opportunity for change for substance-using women with high motivation for both personal change and protection of their unborn children's health

(Suchman, Pajulo, & Mayes, 2013; UN Office of Drug and Crime, 2004). Substance-using women experience complex risk factors and require multiple sectors of services to collaborate in supporting them (Suchman, Pajulo, & Mayes, 2013; UN Office of Drug and Crime, 2004). Multiple studies have compared integrated, also known as comprehensive, and non-integrated treatments for substance-using women. An integrated program is defined as a program offering addiction services as well as one or more services focused on pregnancy, parenting, or children (Milligan et al., 2010). Meta-analyses have shown that both integrated and non-integrated programs successfully reduce maternal substance use (Milligan et al., 2010) and mental health difficulties, with integrated programs showing a small advantage over non-integrated programs for mental health outcomes (Niccols, Milligan, et al., 2010). A meta-analysis focusing on the birth outcomes of children whose mothers participated in treatment during pregnancy showed that children of women in treatment have significantly better physical outcomes (e.g., weight, head circumference) than children of substance-using women who were not in treatment during their pregnancy (Milligan et al., 2011). These differences were not apparent when comparing type of treatment; however, women receiving integrated treatment were more likely to have attended more prenatal visits and had fewer pre-term births than those in non-integrated treatments (Milligan et al., 2011). Further, for older children, Shulman and colleagues (2000) found that recommendations for developmental assessments were significantly more likely to be completed if offered on-site (85% of referrals as compared to 10% of off-site referrals). These assessments proved valuable as 69% of the children assessed were eligible for special intervention services and 72% of these children were receiving services at the time of follow-up (Shulman, Shapira, & Hirshfield, 2000).

Relationships play a central role in women's lives; therefore, assisting women in gaining skills related to establishing and maintaining healthy relationships is integral to treatment for substance-using women (UN Office of Drug and Crime, 2004). Despite this understanding, within the domains of substance abuse research and intervention, there has been a limited focus on relationships. A qualitative meta-synthesis, which included 15 studies, indicated that women in integrated addiction treatments experienced several psychosocial processes that promoted their recovery and well-being, including the development of a sense of self, the giving and receiving of support, and recognition of maladaptive patterns (Sword, 2009). Further, women identified that having their children involved was motivating and helped sustain them throughout the treatment. Self-reported outcomes included improved maternal and child well-being, as well as parenting. With regards to quantitative parenting outcomes, a meta-analysis of integrated programs showed a small advantage in improvement of parenting capacity over treatment-as-usual, but no difference in child welfare involvement (Niccols, Milligan, Sword, et al., 2012). Further, better parenting outcomes were associated with residential treatment programs and programs that included maternal mental health services in treatment. In terms of child outcomes, a meta-analysis showed improvements from pre- to post-treatment in developmental, emotional, and behavioural scores of children whose mothers were involved in integrated programs (Niccols, Milligan, Smith, et al., 2012). Integrated programs showed a large advantage in child outcomes as compared to no treatment and a small advantage over non-integrated programs.

Breaking the Cycle

Mothercraft's Breaking the Cycle (BTC) is an integrated relationship-focused intervention program in Toronto that supports the mental health of infants and young children who are at risk of maladaptive outcomes due to maternal substance use (Motz et al., 2006). BTC's approach differs from traditional treatment programs for substance-using women as it focuses on relationships, particularly the mother-child relationship, as central to the treatment process. Within BTC's relational framework, neither the child's nor the mother's problems can be properly addressed without taking into account the mother-child relationship and the rewards and struggles it presents (Motz et al., 2006).

BTC's main objective is to help mothers provide and maintain a healthy, stable home environment for their children and to identify and address infant development and mental health problems as early as possible. The program offers wrap-around services with a range of individual and group programming designed to provide intervention and support at every level of the bio-psycho-social model of stress effects on parenting in addicted individuals. All services are provided in one setting by a small, non-judgmental staff to make the program accessible and welcoming for mothers and children. BTC promotes healthy relationships not only through formal programming, but also by modelling and promoting them at every level of the program ranging from the staff-client relationships to staff-supervisor relationships and all the way to relationships with partners, such as between BTC and child welfare agencies (Espinet et al., 2015). Women begin at BTC in the assessment phase. During this four to five month process, they have access to a subset of the many services offered at BTC. This process ensures that BTC staff gains an adequate understanding of each woman's history, current difficulties, and goals before creating an initial treatment plan and assigning them to specific addiction and parenting

counsellors. Table 1, below, lists BTC’s services in groupings that correspond to the levels from the bio-psycho-social model (see Figure 2 to review). For simplicity, services in Table 1 have each been assigned to one level of the model; however, in reality, many services are applicable to more than one level. For example, the New Moms Support group is listed in the parenting behaviours category as this group primarily focuses on teaching about topics such as breastfeeding and attachment, yet it could also be listed under life stress as it provides a consistent, predictable source of support from staff as well as other mothers.

Table 1

Contributors to the Bio-Psycho-Social Model and the BTC Component that Addresses Them

Model Component	BTC Component
Life Stressors	Basic needs support (e.g., meals, take away food, clothing) Housing assistance Child welfare assistance (e.g., access visits, case conferences) Advocacy Modeling of healthy relationships and boundaries Psychoeducation on stress Life skills/emotion coping Mental health and/or trauma counselling
Drug Use	Focus on Harm-Reduction Addiction counselling Relapse Prevention group Addiction Recovery group
Parent Functioning	Watch, Wait, and Wonder Supporting Security Parent-child psychotherapy Connections group
Parent Behaviours	Child development and parenting information Parent-Infant Program: Interaction Guidance New Moms Support group Nobody’s Perfect Parenting program Parent-Child “Mother Goose” program “Learning Through Play” program

	Home-visiting program
Child Outcomes	Fetal Alcohol Spectrum Disorders/Developmental assessment and referrals Therapeutic child care

Research at BTC has compared this relationship-focused intervention to a standard integrated treatment, which provided basic parenting information but did not aim to foster the mother-child relationship (Espinete et al., 2015). In this study, improvements in addiction severity from intake to one year of treatment were seen in women from both treatment groups. Compared to those receiving standard treatment, women receiving BTC services also showed additional improvements in measures of abstinence self-efficacy, depression, anxiety, social support from friends and family, and attachment security. An analysis of the mechanism of change in addiction severity over one year in BTC women revealed that: (1) addiction severity at intake accounted for 12% of the change; (2) abstinence self-efficacy, depression, anxiety, and social support from friends and family were not significant predictors of change in addiction severity; and (3) change in attachment security was a significant predictor and independently accounted for 10% of the change in addiction severity. This study revealed that BTC's relationship-focused approach provides an additional benefit to women above and beyond that of the standard integrated treatment for substance-using women. The authors also draw attention to other research that highlights the importance of supportive relationships in maintaining improvements in addiction severity over time.

Current Study Objectives

The first objective of this study was to present and explore the descriptive information related to the bio-psycho-social model components such as life stressors and drug use in the BTC

population. This information had not been formally assessed at BTC since 2005 and provides an updated profile of participants and assists in tailoring the program to their unique needs (Motz et al., 2006). Additionally, program participation variables such as length of intake were explored.

The second objective of the study was to investigate the influence of the program over time. Espinet and colleagues have previously investigated changes in life stressors and drug use after one year of BTC treatment (2015). This study extended this research by investigating the association between days of enrolment in the program and parent functioning (cognitive component of parenting measured using the Parenting Stress Index (PSI; Abidin, 1995)) and parent behaviours (Emotional Availability Scales (EA; Biringen, 2000/2008)) one and two years after intake. Early interventions aimed at supporting the development of parent-child relationships in other high-risk groups, such as with parents of preterm infants, as well as programs aimed at reducing life stressors and promoting positive parenting in families identified as high-risk for child abuse or neglect, have been successful in reducing mothers' parenting stress with lasting effect over time (Guterman et al., 2013; Landsem, Handegård, Tunby, Ulvund, & Rønning, 2014). Interventions aimed at improving EA in other populations (e.g., adopted children, low income mothers) have shown improvement in scores over a short period time (for a review see Biringen, Derscheid, Vliegen, Closson, & Easterbrooks, 2014). Few studies, however, have investigated the stability of EA over longer time periods or intervention effects on EA in very high-risk groups (Biringen et al., 2014). In one such study, Australian researchers found that an intervention aimed at reducing child maltreatment in a high-risk population of women involved with child welfare substantially improved discrete positive parenting behaviours in 68% of participants and the mother-child relationship, as measured by EA

sensitivity, in 5% of participants at 28 weeks after beginning treatment (Thomas & Zimmer-Gembeck, 2011). Although both parenting behaviours and EA were statistically significantly improved, the latter change in sensitivity was unlikely to be meaningfully different. This study drew attention to the differences between changes in learned behaviours as compared to maternal attributions and representations. Given the high-risk nature of the current sample, it is hypothesized that: (a) the number of days enrolled in service at BTC predicts parent functioning at both 12 and 24 months post-intake, (b) the number of days enrolled in service in the first 24 months of intervention predicts EA at 24 months.

A third objective of the study was to investigate the link between parent functioning and behaviour and child outcomes. It is hypothesized that mothers with lower parenting stress and more emotionally available relationships with their children at 24 months post-intake have children with fewer behavioural problems.

The fourth objective was to identify and explore patterns of change in mothers and children's relationship skills and quality of their mother-child relationships. Three case examples describing free-play interactions, as well as background information on the families and a breakdown of the EA scoring are provided to help contextualize the changes in relationship skills over time and with treatment.

Methods

Participants

This study was based on secondary data analyses of the research files of the mothers who participated in BTC between July 2006 and January 2013. Data were collected as part of a large longitudinal study of BTC, funded by the Institute of Gender and Health within the Canadian Institutes of Health Research. Ethics approval for this and the larger study were obtained through the York University Ethics Review Board. During the intake process, all mothers were approached and asked whether they would be willing to participate in the research. At this time, they were informed that declining to participate would in no way affect the services they received at BTC.

Data sources for the current project included questionnaires that were collected at intake and approximately 12 (Time 1), 24 months (Time 2), and 36 months (Time 3) after entering the program, as well as free-play observations of mother-child interactions at Times 1 and 2. Maternal questionnaire information (e.g., demographic, addiction, family and treatment information) was available for 136 of the 168 women who consented to be involved in the research between 2006 and 2013 (81%) and 122 of their children (73%). These families comprised Sample A for the study. These mothers and children represented 136 families and of these 59 completed the Time 1 free-play observation and comprised Sample B; 27 families completed both the Time 1 and 2 observations and comprised Sample C. Attrition was attributable to many factors associated with this population (e.g., loss of child custody, inability to contact mothers due to transiency). For a more thorough discussion of the difficulties of tracking and engaging BTC mothers, see Pepler, Moore, Motz, and Leslie (2002). Further, if a participating family had more than one child, the child with the highest number of completed

questionnaires and free-play observations was included in the sample. If children in the same family had an equal number of questionnaires and observations, a child was selected at random for the analyses.

In Sample A, the children's ages ranged from birth to 79 months during the intake process with a mean of 17.3 months, 95% CI [13.8, 20.86], $SD = 19.6$, $Mdn = 8$. Sample A contained 62 males (50.8%). Mothers' ages ranged from 18 to 50 years at intake with a mean of 29.7 years, 95% CI [28.6, 30.8], $SD = 6.5$, $Mdn = 29$. Fifty percent of women reported having only one child at the time of intake, 36.8% had two or three children, and 13.2% had four to seven children. At the time of intake, 61.8% of women had either full or joint custody of their child(ren). Almost all of the women reported child welfare involvement (97.6%; $N = 126$). Table 2 contains additional demographic information. The most frequent referral sources for families were: child welfare agency (40.4%), BTC Pregnancy Outreach Program² (POP; 24.3%), and self-referral (8.8%). Sixteen participants (19.5%; $N = 82$) stated that BTC was named on a court order; however, the prevalence of court orders cannot be determined because this question was left unanswered for 54 women. Thirty-eight percent of the women who started to engage with BTC between July 2006 and January 2013 terminated services during the intake phase (CAI), 58.8% of the sample terminated in the active service phase, and 2.9% were active at the time of writing.

² BTC Pregnancy Outreach Program was implemented in 1999 with the aim of decreasing the barriers to treatment substance-using women face and engaging pregnant women in services as early as possible to improve maternal and fetal health (Racine, Motz, Leslie, & Pepler, 2009).

Table 2

Additional Demographic Information

Demographic		Result (%)	N
Country of birth Canada		89.7	126
Preferred language English		100	116
Ethnicity	African	6.9	116
	Caribbean	6.0	116
	North American	79.3	116
	/European		
	Native/Aboriginal	4.3	116
	Other	3.4	116
Highest school grade completed	8 or lower	9.7	124
	9	12.1	124
	10	16.1	124
	11	16.9	124
	12	34.7	124
	13	10.5	124
Not currently employed		90.1	91

Z-tests of proportions and t-tests were used to confirm that the women who completed only questionnaires did not differ from those who also completed the Time 1 play observation or those who completed both the Time 1 and 2 play observations on any of the above variables. The only exceptions were three variables: referral source, child custody, and BTC phase of service. Women who completed one observation were significantly less likely to have been referred from child welfare than women who completed only questionnaires or women who completed two observations, $z = -2.30, p = .01$ and $z = -2.12, p = .02$, respectively. However, when women who completed only one observation were grouped with women who completed two observations and compared to women who completed only questionnaires, there was no significant difference in child welfare referrals indicating that the low prevalence of child

welfare referrals described above is likely due to chance. Women who completed two observations were more likely than women who completed only questionnaires to have been referred from BTC's POP, $z = 2.17, p = .02$. Women who completed only questionnaires were less likely to have full or shared custody of their children at intake than women who completed one or both observations, $z = -2.34, p = .01$. Finally, women who completed two observations were more likely than women who completed questionnaires and women who completed one observation to have progressed to active status at BTC, $z = 3.15, p = .001$ and $z = 2.04, p = .02$, respectively.

Measures

BTC intake questionnaire. The intake questionnaire was completed by all women participating in the intake process at BTC. It was usually completed with an intake counsellor. This questionnaire provides information about general demographics as well as information about life stressors, drug use, and mental health history. Additional details on the intake questionnaire are provided below under relevant categories. See Appendix A for a copy of the BTC intake questionnaire.

Life stressors.

Stress in relationships. Several different measures were used to capture stress within relationships. The BTC intake questionnaire was used to collect information about the presence or absence of various forms of abuse (i.e., emotional, physical, sexual), as well as the prevalence of addiction in romantic partners and close family members. Further, mothers were also given seven relationship quality labels (supportive, good, telephone contact, little contact, no contact, difficult/poor, abusive) and asked to endorse all labels that applied to their relationship with their

current or most recent romantic partner and biological mother and father. See Appendix A for the specific questions and response categories. Endorsements of the first three qualities were rated as 0 for a supportive relationship (i.e., positive relationship), while endorsements of the latter four labels were coded as 1 for an unsupportive relationship (i.e., not positive relationship). If the mother provided an ambivalent answer (e.g., endorsed the supportive label, but also endorsed the abusive label, or endorsed the supportive label, but also provided a description such as “violent relationship”), the relationship was coded as unsupportive as the endorsement of negative labels or negative descriptions were presumed to negate the effects of the positive labels.

Adult attachment. The Revised Adult Attachment Scale (R-AAS; Collins, 1996) is a 21-item scale measuring three factors underlying attachment processes: the capacity to be close to others, the capacity to depend on others, and anxiety over relationships. Items are rated on a 5-point Likert scale from 1 (not at all characteristic) to 5 (very characteristic). Internal consistency for the subscales ranges from .69 to .75. The Cronbach alphas for the close, depend, and anxiety subscales in the present study were .79, .72, and .89, respectively. The test-retest reliability ranges from .52 to .71 (Collins & Read, 1990; Collins, 1996). These scales can be used to categorize participants into Bartholomew’s four attachment styles: secure, fearful, dismissing, and preoccupied (Collins, 2008). Because this classification process excludes individuals whose scores fall on the boundaries between categories, it results in an average loss of 7% of the sample. Classifying individuals into different attachment styles based on their AAS scores is a relatively new use of the scale and the validity of this classification is still being ascertained, thus Collins (2008) advises some caution should be used when interpreting these results.

Social support. The Perceived Social Support – Friends Scale and Perceived Social Support – Family Scale (PSS-Fr and PSS-Fa; Procidano & Heller, 1983) were used to evaluate mothers' perceived level of social support. Each scale includes 20 statements regarding the actions of friends and family. Participants respond using “yes,” “no” or “don't know” options. Total scores are summed using all items, with higher scores reflecting higher levels of perceived social support. Internal consistency is high for both the Friend and Family scales, .85 and .87 respectively. Test-retest reliability is also quite high, .75 and .85 respectively (Zimet, Dahlem, Zimet & Farley, 1988). The Cronbach alphas for PSS-Fr and PSS-Fa in the current study were .91 and .94, respectively.

Mental health difficulties. Maternal report of depression, anxiety, eating disorders, suicide attempts, and self-harm were used to assess maternal mental health.

Maternal depression. The Center for Epidemiological Studies Depression Scale (CES-D; Radloff, 1977) is a 20-item questionnaire, which asks participants to rate the frequency of depressive symptoms experienced in the last week on a four-point Likert scale. Responses are assigned a value ranging from 0 (rarely or none of the time, i.e., less than one day in the week) to 3 (most or all of the time, i.e., five to seven times in a week). Total scores range from 0 to 60 with higher scores indicating higher levels of depressive symptoms (Radloff, 1977). Scores of 16 or higher are considered to be in the clinical range. The CES-D has a high level of internal consistency with coefficient alpha ranging from .80 to .90 and has a test-retest reliability ranging from .40 to .70 (Devins et al., 1988; Radloff, 1977). The Cronbach alpha of the total depression scale in the present study was .94.

Maternal anxiety. The Beck Anxiety Index (BAI; Beck & Steer, 1993) is a 21-item questionnaire in which participants rate the degree to which a symptom of anxiety has bothered them in the past week. Response values range from 0 (not at all) to 3 (severely). Final scores range from 0 to 63 with higher scores indicating higher levels of anxiety. The internal consistency for the BAI is high with coefficient alpha of .92 and a test-retest reliability of .75 (Beck & Steer, 1993). The Cronbach alpha of the BAI in the present study was .94.

Other mental health difficulties. Formal questionnaires were not used to assess eating disorders, suicide attempts, or self-harm. These variables were coded as present or absent based on maternal report on the BTC intake questionnaire.

Other stressors. The BTC intake questionnaire also includes questions related to stressors that impact daily life, such as income and legal problems, as well as other life stressors such as time served in prison.

Drug use. The Drug-Taking Confidence Questionnaire-8 (DTCQ-8; Sklar & Turner, 1999) is an eight-item measure of abstinence self-efficacy. Mothers were asked to indicate which substance was most problematic for them and completed the questionnaire with regards to that substance. The questionnaire presents eight high-risk scenarios and requires respondents to rate their confidence from 0% to 100% in their ability to abstain from use in each situation. The mean of the eight responses is used as a total score of self-efficacy. A self-efficacy score of 80% or above indicates a high confidence (Annis, Sklar & Turner, 1997). The DTCQ-8 demonstrates a high level of reliability (Cronbach's $\alpha = .89$; Sklar & Turner, 1999). The Cronbach alpha of the DTCQ-8 in the present study was .94.

The BTC intake questionnaire also provided information related to drug use such as reports of primary substance of addiction and history of substance-use treatment.

Parent functioning. The Parent Stress Index-Short Form (PSI; Abidin, 1995) was used to assess parent functioning. This 36-item measure completed by the mothers assesses their perception of stress within the parent-child relationship and risk for dysfunctional parenting. Its three subscales, Parent Distress, Parent-Child Dysfunctional Interaction, and Difficult Child, reflect the three major sources of stress for the parent-child dyad identified by the authors. The Parent Distress subscale measures the amount of stress the mother experiences in her role as a parent as a function of personal factors directly related to parenting (e.g., feeling of parenting competence, life roles, conflict with spouse, social support). High scores on Parent Distress indicate that the parent may be having difficulty adjusting to the parenting role. The Parent-Child Dysfunctional Interaction subscale assesses the mother's perceptions of the quality of and satisfaction with her interactions with her child (e.g., feelings of rejection by child, isolation from child, disappointment with child). High scores on this subscale are associated with threats to or the inadequate establishment of the parent-child bond. The Difficult Child subscale measures behavioural characteristics of the child that may lead parents to perceive them as difficult to parent (e.g., temperament, patterns of noncompliance, defiance, demanding behaviour). High scores on this subscale often reflect parenting difficulties related to limit setting and behaviour management strategies. Each subscale score is calculated from 12 items rated from 1 to 5 for total subscales scores of 12 to 60. Total parenting stress scores range from 36 to 180. Higher levels of parenting stress have been associated with lower levels of sensitivity and higher levels of hostility in mother-child interactions (Stack et al., 2012). All three subscales and Total Stress

were used in Objective 1, while only Total Stress was used for Objectives 2 and 3 for parsimony. Test-retest reliabilities are high and vary from .78 (Difficult Child) to .84 (Total score) (Abiden, 1995). The Cronbach alphas for the Parent Distress, Parent-Child Dysfunctional Interaction, Difficult Child, and Total Stress in the present study were .79, .82, .83, and .93, respectively.

Parent behaviours and the mother-child relationship. The Infancy/Early Childhood Version of the Emotional Availability Scales, 4th Edition (EA; Biringen, 2000; 2008) is an observational scale used to rate mother-child relationship functioning. Emotional availability refers to each partner's ability to express his/her emotions effectively, interpret his/her partner's emotions correctly, and respond appropriately (Biringen, 2000). This scale is used by an observer to rate the mother-child relationship during a videotaped 15-minute free-play session based on holistic measures, without counts of discrete behavior. All free-play observations took place in a small room at BTC. The room contained furniture along the walls, a play mat, and a box of age appropriate toys (e.g., crayons and paper, trucks, plastic food items, tea set). Cameras on tripods and research assistants were in two corners of the room. Mothers were encouraged to play with their children as if they were at home. Mothers and children were allowed to play for 15 minutes and then asked to clean up. For complete instructions on room set up and content, as well as verbal instructions given to mothers see Appendix B.

The EA comprises six domains that emphasize the quality of emotional dialogue: Parental Sensitivity, Parental Structuring, Parental Nonintrusiveness, Parental Nonhostility, Child Responsiveness, and Child Involvement (Easterbrooks & Biringen, 2005). Parental Sensitivity, inspired by Mary Ainsworth's conceptualization of sensitivity, focuses on clarity of perceptions, prompt responses, timing, and flexibility of the dyad's interactions. Parental

Structuring rates the parent's ability to support exploration without overwhelming the child's autonomy. Parental Nonintrusiveness and Parental Nonhostility refer to the parent's ability to be available to the child without interfering or overwhelming the child, and maintaining a patient, pleasant and harmonious atmosphere, respectively. Child Responsiveness encompasses age- and context-appropriate exploration and an ability to preserve a balance between connection to the parent and autonomy. Child Involvement measures the child's interest and ability to spontaneously include the parent in play and interactions in a comfortable, non-urgent and positive way. Each domain receives a score from 7 to 29 points. The domains within the parent and child scales are totaled, providing a total score for the mother and total score for the child with possible scores ranging from 28 to 116 and 14 to 58, respectively. Higher scores represent more positive ratings of relationship skills.

A formal assessment of attachment was not possible in the current study, as procedures such as the Strange Situation were deemed too stressful to be conducted at BTC. Given this ethical limitation, the EA total scores for mothers and children were used as proxies for secure and insecure attachment categories. Cut-off scores of 80 for mothers and 40 for children can be used to categorize their behaviour as indicative of secure or insecure attachment (Z. Biringen, personal communication, January 13, 2011).

In addition to the six subscales, the fourth edition of the EA scales provides an overall rating of the mother-child relationship on a scale from 0-100 (Biringen, 2008). Scores of overall relationship quality correspond to four zones of relationships: dyadic emotional availability, complicated emotional availability, detachment, and problematic. All maternal and child

subscales as well as scores of overall relationship quality were used in Objectives 1 and 4, while only total score for mother was used for Objectives 2 and 3 for parsimony.

With two other graduate students, I completed a training program led by EA's creator, Dr. Zeynep Biringen, and all of us were approved for independent use of the scale for observational coding. Nineteen percent of the videos were double coded. Intraclass correlations coefficients for inter-rater reliability were calculated for the overall screener score, the four maternal domains, and two child domains using recommended two-way random, absolute agreement (average of coders; McGraw & Wong, 1996) and ranged from .74 to .98.

This observational scale is superior to a questionnaire as it is not impacted by a self-serving bias and is not completed by one member of the dyad, whose reports would not necessarily reflect the give-and-take aspect of the relationship. Salomonsson & Sled (2010) found that mothers experiencing mental health problems may be reflecting their own struggles and issues rather than those of their child when completing child measures of functioning. Past research with a high-risk population of mothers showed the EA domains of sensitivity and non-hostility were moderately positively correlated with the Parent-Infant Relationship Global Assessment (PIRGAS; ZERO TO THREE, 2005), a well-validated clinician-completed measure based on clinical file notes, while a self-report scale was not significantly correlated with either the EA or the PIRGAS (Motz et al., 2010).

In addition to exploring parenting behaviour and the mother-child relationship using the EA scales, three case examples are provided to help contextualize the changes in relationship skills over time and with treatment. Each case includes a written description of the free-play observation, as well as a detailed breakdown of the observations noted during the scoring.

Child outcomes. Child outcomes were assessed using the Child Behavior Checklist (CBCL; Achenbach & Rescorla, 2000). The CBCL is a measure of child behaviour problems completed by mothers at Time 1, 2, and 3. The CBCL is a 99-item scale with multiple subscales. The Internalizing scale, a broadband measure of anxiety, depression, withdrawal, somatic complaints, and social problems, and Externalizing scale, a broadband measure of rule-breaking and aggressive behaviour, were used for this study. Higher scores indicate a greater number of problems. Internal consistency ranges from .56 to .95 across subscales with an average of .85. The Cronbach alphas of the internalizing and externalizing scales in the present study were .72 and .90, respectively. Test-retest reliability ranges from .68 to .92 across subscales with an average of .85 (Achenbach & Rescorla, 2000). Though the CBCL can also be used to determine scores for several syndrome scales (e.g., emotionally reactive, somatic complaints), only the internalizing and externalizing scales were used in the current study for parsimony.

Days enrolled in service. The number of days elapsed between intake, transfer to active service, and discharge were recorded and used as a general index to describe women's progress through the BTC program. The number of days enrolled in service prior to measures of parent functioning and behaviour was calculated based on the number of days elapsed between the date of intake and the date of the measure. These calculations were essential because, although every attempt was made to schedule observations at 12 and 24 months, families varied greatly in the actual timing of the completion of their measures. Additionally, mothers were invited to continue participating in the research component of the program after ending intervention services at BTC. For measures completed after discharge, the number of days between intake and discharge was recorded.

Procedure

Upon entering the BTC program, all mothers completed the intake questionnaire package with the BTC intake worker. This process ranged in duration from several weeks to several months, depending on a mother's attendance to sessions and personal history. Written consent was obtained from mothers for the BTC research team to access questionnaires and to contact them for future research activities. If mothers discontinued services at BTC, they were contacted and given the opportunity to complete the questionnaires in a community setting with a research team member or via mail. Questionnaires were collected at all three times points, while free-play observations were only available at Times 1 and 2. Free-play observations were deemed inappropriate during the intake assessment phase when women are just beginning to build a trusting relationship with BTC. Mothers were contacted by the research team every 12 months following intake to complete questionnaires and invited to participate in a free-play observation. Every effort was made to maintain and, when necessary, re-establish contact with mothers through phone calls and emails. Although every effort was made to obtain free-play observations at 12 and 24 months following intake, the timing of the observations varied widely due to several factors including: mothers' transience, child custody arrangements, mothers' use of or abstinence from substances, mothers' interest in research activities, and scheduling difficulties. Women were compensated for their time with approximately \$10 in food vouchers per hour of participation.

Ethical concerns. Data for this study were collected as part of a larger study being conducted at BTC. When clients were approached about participating in research they were informed that it was optional and that their access to services would in no way be influenced by

their participation. Informed consent was obtained from all clients for themselves and their children. It is possible that completing questionnaires on sensitive subjects such as child welfare involvement and abuse history could cause distress to participants. Thus, participants always had the option of skipping questions or discontinuing research activities that they were not comfortable with. Further, the majority of the research activities were completed at BTC, where support staff was available if needed for debriefing or to provide resources when required.

Results

Data Analysis Plan

For the first objective, descriptive statistics were used to explore maternal and child information related to components of the bio-psycho-social model such as life stressors and drug use, as well as information on families' participation in BTC services. Sample size varied by analysis due to the very high-risk, transient nature of the sample. The sample size for analyses is indicated wherever it differed from 136 for the maternal measures and 122 for the child measures. Given that many variables were not normally distributed, medians and confidence intervals were included in addition to the means and standard deviations. Due to the small sample size for parent behaviour and child outcome measures, performing a path analysis to explore the full model shown in Figure 2 was not possible.

The second objective of this study was to determine whether days of enrolment at BTC prior to measures of parent functioning at Time 1 and 2 and parent behaviour at Time 2 are predictive of these outcomes. Regression models were used to test these hypotheses. Because the data were not normally distributed and the sample size was small, there was a lack of statistical power. Consequently, bootstrapping, a resampling procedure with replacement, was used in these analyses (Howell, 2010, p. 660-662). This procedure increases power without a need for increased sample size and also addresses many of the inherent weaknesses in these data, such as the self-selected sample (Howell, 2010, p. 660-661). Bootstrapped regressions with increasing number of resamplings were run for each hypothesis. The ideal number of resamplings, which varied by hypothesis, was selected based on the size of standard error and confidence interval. Improvements in parent functioning (decreased parent stress) and behaviour (increase in maternal EA scores) were expected from Time 1 to Time 2; however, change scores

for these measures varied greatly with some women displaying large decreases, while others showed large increases in functioning and behaviour. Thus, change scores were not an appropriate outcome variable for these analyses and total scores for each time point were used.

The third objective of the study was to determine whether measures of parent functioning and behaviour at Time 2 are predictive of child outcomes at Time 2 and 3. Regression models with bootstrapping were used to test the hypotheses for Time 2. The small sample size restricted the type of analyses that could be used for Time 3: thus, scatterplots were used to provide a visual depiction of the relationship between parent functioning and behaviour and child behaviour problems.

The fourth objective was to identify and explore patterns of change in parenting behaviour and the quality of the mother-child relationship. The current sample was not large enough to use cluster analysis or latent class analysis to identify patterns; therefore, visual inspection of scatterplots and crosstab procedures were used. Three case examples were selected to help elucidate the patterns and changes in behaviour of mothers and quality of the mother-child relationship during free-play observation.

Objective 1 – BTC Population Descriptives and Services

For the first objective, descriptive statistics were used to present and explore information related to the components of the bio-psycho-social model (Figure 2) in the BTC population at time of intake, as well as information on their participation in BTC services.

Life stressors. The first component of the bio-psycho-social model is Life Stressors, which includes past and current factors. Stress in relationships, mental health difficulties, and other life stressors were explored.

Stress in relationships. Mothers had high levels of relationship risk. The majority of mothers (92.5%, $N = 120^3$) reported experiencing at least one occurrence of emotional, physical and/or sexual abuse in their lifetime. At least one experience of emotional and physical abuse was reported by most of the women (84.6% and 81.2%, respectively; $N = 117$). Sexual abuse was reported by 65.8% of the women ($N = 114$).

Substance use within close relationships was common. Of the 105 women who listed current partners (77.2%), 78.1% reported that their partners used substances and 49.3% reported that their partners were actively using substances because of addiction ($N = 83$). Further, 67.5% and 77.5% reported that their mother and/or father were substance users, respectively ($N = 114$ and $N = 102$). Fifty-two percent of women rated their relationships with their current partners as supportive or good, while the remainder reported little contact with their partners (9%) or rated their partners as difficult or abusive (39%; $N = 98$). Thirty-eight percent of women rated their relationships with their mothers as supportive, good, or telephone contact, 22% reported little or no contact with their mothers, and 40% reported difficult or abusive relationships with their mothers ($N = 117$). Twenty six percent of women rated their relationships with their fathers as supportive, good, or telephone contact, 50% reported little or no contact with their fathers, and 24% reported difficult or abusive relationships with their fathers ($N = 116$).

The Adult Attachment Scale was used to assess women's comfort in relationships and ability to depend on others, as well as to classify women's attachment into one of four categories. Mean scores for the subscales were: 2.9 for comfort with closeness in relationships, 95% CI [2.7, 3.0], $SD = .85$, $Mdn = 2.8$; $N = 114$; 2.5 for ability to depend on others, 95% CI [2.4, 2.7], $SD =$

³ The sample size for analyses is indicated wherever it differed from 136 for the maternal measures and 122 for the child measures

.76, *Mdn* = 2.5, and 3.2 for anxiety within relationships and fear of rejection, 95% CI [3.0, 3.4], *SD* = 1.1, *Mdn* = 3.4. Twenty five percent of the women fell in the Secure category, 52% in Fearful, 16% in Dismissive, and 6% in Preoccupied. Attachment classification was not possible for three women as their scores fell on the borderlines between categories.

To assess availability of social support, the Perceived Social Support scale for friends and family was used. The average score on the PSS-friends was 10.5, 95% CI [9.4, 11.5], *SD* = 5.7, *Mdn* = 9; *N* = 117, while the average score on the PSS-family was 9.1, 95% CI [7.8, 10.3], *SD* = 6.6, *Mdn* = 7; *N* = 111. These mean scores are more similar to reports of PSS in a psychiatric population (PSS-Fr = 10.9, PSS-Fa = 9.6; Lyons, Perrotta, & Hancher-Kvam, 1988) than those found in normative undergraduate populations (PSS-Fr = 13.9-15.15, PSS-Fa = 11.9-13.4; Lyons, Perrotta, & Hancher-Kvam, 1988; Procidano & Heller, 1983).

Mental health difficulties. The rate of mental health difficulties was high in this sample. The mean total depression score for this sample was 20.7, 95% CI [18.2, 23.2] (*SD* = 13.1, *Mdn* = 21; *N* = 110) with 60.0% of mothers scoring in the clinical range. The mean total anxiety score was 13.7, 95% CI [11.5, 15.8] (*SD* = 11.3, *Mdn* = 11; *N* = 109) with 35.8% of mothers reporting moderate or severe levels of anxiety. Additionally, a third of the women reported having attempted suicide (*N* = 99), 35.1% reported current or past self-harm (*N* = 94), and 24.8% reported a current or past history of an eating disorder (*N* = 105).

Other stressors. The average monthly income in this sample was \$1,085, 95% CI [955, 1216], *SD* = 754, *Mdn* = 966; *N* = 130. This is significantly lower than the median monthly income of families living in Toronto, Ontario (\$5,934/month based on 2012 yearly median income of \$71,210; Statistics Canada, 2012b). Further, it is below the Canadian definition of

low-income for individuals living in urban settings (\$1,965/month based on one adult and one child; City of Toronto, 2010). Legal problems, including family court, were reported by 76.2% of the women ($N = 126$). Seventy-one women reported being convicted of at least one crime (e.g., assault, drug possession, burglary) and 62 of these women served time in prison; however, information on convictions was frequently left blank. It is unclear if this was done because women had no criminal records or did not wish to report this sensitive information.

Drug use. The second component of the bio-psycho-social model is Drug Use. The most frequently listed primary addictions were crack (29.6%) and alcohol (25.6%; $N = 125$); however, the majority of the women were poly-substance users with 76.4% of women reporting the use of four or more substances ($N = 127$). At intake, women reported a moderate level of confidence in their ability to abstain from their primary addiction with a mean score of 75.2% confidence, 95% CI [71.1, 79.3], $SD = 21.5$, $Mdn = 77.5$; $N = 108$. Many women reported having sought previous treatment from a range of different treatment programs and modalities (Table 3).

Table 3

Treatment History (N = 121)

Type of Treatment	Result (%)
Detoxification Centre	43.8
Residential Treatment	43.0
Self-Help	41.3
Day Program	40.5
Individual Counselling	40.5
Pharmacological Treatment (e.g., methadone)	12.4
Treatment in Hospital	6.6

Parent functioning. At intake, 34% of mothers fell in the high and problematic range on at least one of the scales on the Parent Stress Index. The mean score on the parent distress scale was 28.51, 95% CI [27.1, 30.0], $SD = 7.4$, $Mdn = 28$; $N = 103$ with 25% of mothers in the high range. The mean score on the parent-child dysfunctional interaction scale was 19.54, 95% CI [18.4, 20.7], $SD = 5.69$, $Mdn = 19$ with 13% of mothers reporting high levels of dysfunctional interactions with their child. The mean score on the difficult child scale was 23.95, 95% CI [22.65, 25.25], $SD = 6.65$, $Mdn = 24$ with 11% of mothers reporting that their children were difficult to parent. The mean total PSI score was 72.01, 95% CI [68.8, 75.2], $SD = 16.28$, $Mdn = 73$ with 18% of mothers of mothers in the high range. Defensive responding was identified in 7 mothers (5.1%).

Parent behaviour. Parenting behaviour is the fourth component of the bio-psycho-social model; however, this was only assessed at Times 1 and 2. The first play observation was an average of 453 days after the first day of intake, 95% CI [401, 505], $SD = 199$, $Mdn = 447$; $N = 59$. At this time, the average score for overall quality of the mother-child relationship was 61.34, 95% CI [57.65, 65.03], $SD = 14.17$, $Mdn = 65$. This score falls on the borderline between the zones of complicated emotional availability and detachment. Table 4 provides the means, standard deviations, confidence intervals, and medians for the six domains of the EA, as well as total scores for mother and child.

Table 4

Emotional Availability Scales (N = 59)

EA Domain	Mean (SD)	95% CI	Mdn
Maternal Total	77.61 (13.33)	74.14, 81.08	77
Sensitivity	19.02 (3.72)	18.05, 19.99	19
Structuring	19.19 (3.77)	18.20, 20.17	19
Non-Intrusiveness	18.46 (4.03)	17.41, 19.51	18
Non-Hostility	20.95 (4.05)	19.90, 22.00	22
Child Total	36.36 (8.19)	34.22, 38.49	36
Child Responsiveness	18.76 (4.05)	17.71, 19.82	18
Child Involvement of Adult	17.59 (4.37)	16.46, 18.72	17

Child outcomes. Child outcomes comprise the final component of the bio-psycho-social model. Again, these were not available at the time of intake, but were collected an average of 343 days after intake, 95% CI [270, 415], $SD = 187$, $Mdn = 318$; $N = 28$. The mean externalizing problem T-score was 48.29, 95% CI [44.65, 51.92], $SD = 9.37$, $Mdn = 48$. The mean internalizing problem T-score was 50.64, 95% CI [46.61, 54.67], $SD = 10.39$, $Mdn = 51$. Twenty-nine percent of children fell within the borderline or clinical range for either internalizing or externalizing behaviour problems or both (1 child externalizing, 6 children internalizing, and 1 child with both internalizing and externalizing).

Services. The number of days enrolled in the BTC program varied widely across women. Women who were discharged during the intake phase were enrolled in the program an average of 201 days, 95% CI [147, 255], $SD = 193$, $Mdn = 159$; $N = 52$. Women who progressed to active service spent an average of 160 days completing the intake process, 95% CI [144, 176], $SD = 73$, $Mdn = 151$; $N = 84$, and then went on to spend an average of 525 days in active service,

95% CI [428, 622], $SD = 436$, $Mdn = 376$; $N = 80$. Combined, this resulted in an average total enrolment of 685 days, 95% CI [586, 784], $SD = 446$, $Mdn = 527$; $N = 80$.

Objective 2 – Changes in Parent Functioning and Behaviour with Intervention

The second objective of this study was to determine whether the length of enrolment at BTC was predictive of parent functioning (Total score on PSI) at one and two years post-intake and parent behaviour (mothers' total EA score) at two years post-intake. Three regression models were used to test the hypotheses that: (a) the number of days enrolled in service in the first 12 months of intervention is predictive of parent functioning at 12 months and (b) the number of days enrolled in service in the first 24 months of intervention is predictive of parent functioning at 24 months; (c) the number of days enrolled in service in the first 24 months of intervention is predictive of parent behaviour at 24 months. Several of the variables were not normally distributed, which further supported the use of a bootstrapping technique. Results from original regressions without bootstrapping can be found in Appendix C. Possible moderating factors such as life stressors and age were explored. Several variables including perceived social support from friends and family, depression, and anxiety were significantly associated with parent functioning (see Appendix D for specific correlations); however, the small sample size prevented their inclusion in the final model. Child age was the only moderating factor associated with parenting behaviour but did not significantly contribute to the models.

Table 5 shows the results of the bootstrapped regressions using the ideal number of resamplings for each hypothesis. The ideal number of resamplings differs as the variables used for each hypothesis are different. Contrary to the hypotheses, the regression model for parent functioning at Time 1 was not significant; however, as expected, parent functioning was

predicted by days of enrolment at BTC at Time 2 with longer enrolment predicting lower parenting stress. Parent behaviour was also predicted by days of enrolment at BTC at Time 2.

Table 5

Bootstrapped Regressions – Parent Functioning and Behaviour Predicted by Days of Enrolment

	N	Number of Re-samplings	B	Bootstrap Results				
				Bias	Standard Error	p	Bca 95% CI	
							Lower	Upper
<i>Parent Functioning T1</i>	56	200	-.020	-.002	.014	.164	-.045	-.001
<i>Parent Functioning T2</i>	28	200	-.029	.000	.010	.005	-.055	-.006
<i>Parent Behaviour T2</i>	27	200	.023	.000	.010	.030	.003	.044

Note: Bias-corrected accelerated 95% Confidence Intervals (Bca 95% CI), Time 1 (T1), and Time 2 (T2).

Objective 3 – Parent Functioning and Behaviour Predicting Child Outcomes

Given that parent functioning and behaviour were predicted by the number of days enrolled at BTC at Time 2, the third objective of the study was to determine whether these variables would predict child outcomes at Time 2 and Time 3. The bootstrapped regression results can be seen in Table 6. Parent functioning accounted for 19.6% of the variance in internalizing problems and 20.6% in externalizing problems. Parenting behaviour was not predictive of child internalizing or externalizing behaviour problems at Time 2.

Table 6

Bootstrapped Regressions – Child Behaviour Predicted by Parent Functioning and Behaviour at Time 2

Predictor	Outcome	Number of Resamplings	B	Bootstrap Results				
				Bias	Standard Error	p	Bca 95% CI	
							Lower	Upper
Parent Functioning (N = 22)	<i>Internalizing</i>	400	.238	-.010	.116	.065	-.045	.425
	<i>Externalizing</i>	300	.224	.013	.100	.050	.058	.466
Parent Behaviour (N = 19)	<i>Internalizing</i>	100	.066	.008	.172	.733	-.334	.388
	<i>Externalizing</i>	100	.110	-.057	.210	.574	-.430	.388

Note: Bias-corrected accelerated 95% Confidence Intervals (Bca 95% CI)

Due to very small sample size, regressions could not be used to determine whether parent functioning or behaviour at Time 2 predicted child behaviour at Time 3. Scatterplots of these relationships are provided for visual analysis and show the potential for a linear relationship between parent functioning and child behaviour problems one year later (Figure 3).

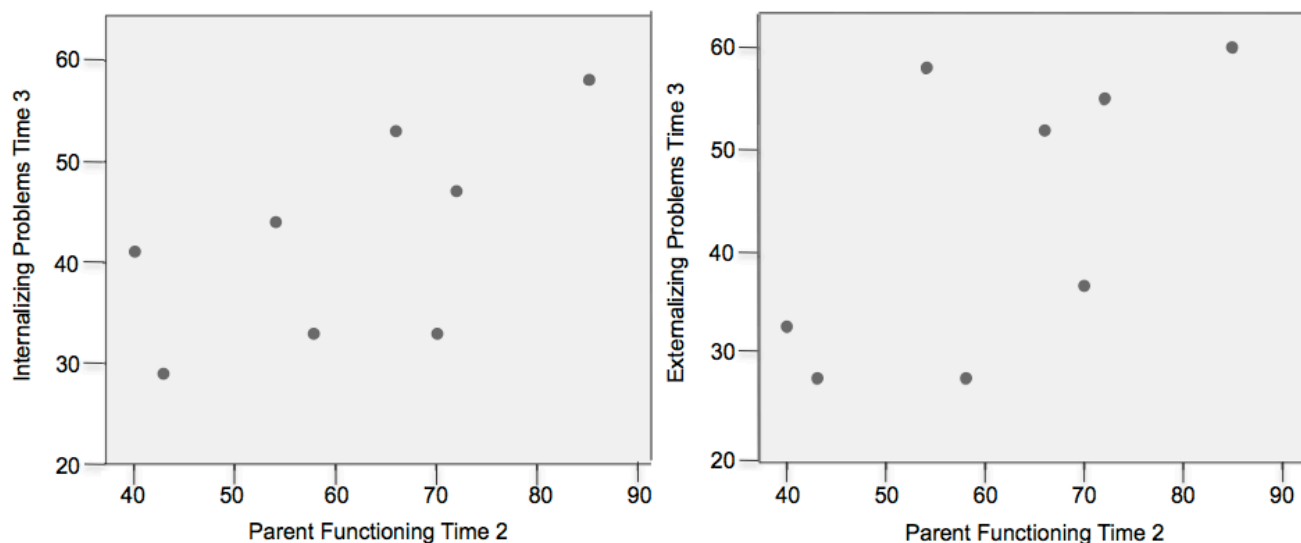


Figure 3 Scatterplots of the relationship between parent functioning at Time 2 and internalizing and externalizing problems at Time 3 ($N = 8$).

The scatterplot of parent behaviour and externalizing problems shows a possible linear relationship (Figure 4); however, it is in the opposite direction of the hypothesized relationship. There is no discernable pattern in the scatterplot for internalizing problems

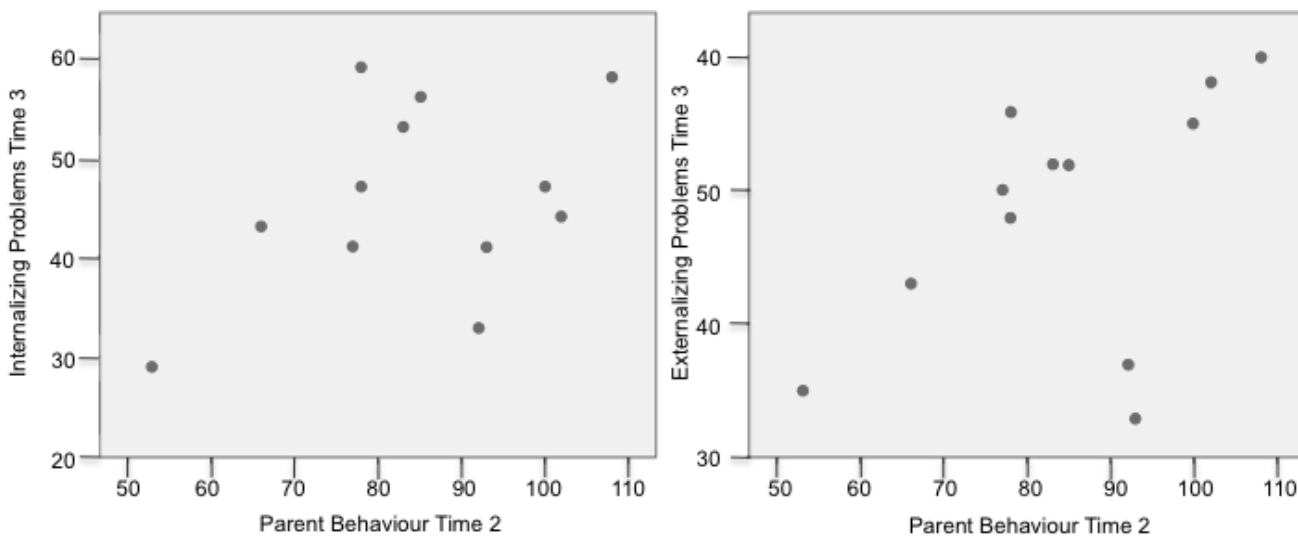


Figure 4 Scatterplots of the relationship between parent behaviour at Time 2 and internalizing and externalizing problems at Time 3 ($N = 12$).

Objective 4 – Exploring Patterns of Change in the Parent and Child Behaviour

Changes in the mother-child relationship can be best explored by looking at mothers and children's relationship skills, as measured by their behaviour during the free-play observations, and the concordance between their skills. Mothers' parenting behaviours score, calculated by summing their scores for sensitivity, structuring, non-intrusiveness, and non-hostility, can be used to classify mothers as behaving in a manner indicative of secure or insecure attachment. Children's behaviours score, calculated based on their scores for responsiveness and involvement of the parent, can also be used to classify children as behaving in a manner indicative of secure or insecure attachment. Table 7 shows the number of mothers and children classified as displaying relationship skills during the free-play observations indicative of secure or insecure attachment. All dyads with the exception of one dyad can be classified into three categories of dyads based on the match between mothers and children's relationship behaviours: secure dyads (25%), secure mother/insecure child dyads (17%), and insecure dyads (56%).

An equal proportion of secure and insecure mothers and children at Time 1 returned for the second free-play observation, $z = 0.824, p = .41$ and $z = -.189, p = .85$, respectively. The proportion of mothers classified as secure was not significantly different from Time 1 to 2, $z = -1.77, p = .08$. Of the 25 mothers classified as secure at Time 1, eight mothers remained secure at Time 2, while five mothers became insecure, and 12 did not return for the second observation. Of the 34 mothers classified as insecure at Time 1, nine mothers became secure, five mothers remained insecure, and 20 mothers did not return for the second observation. The proportion of children classified as secure tended to differ from Time 1 to 2, $z = -1.91, p = .056$, with more children classified as secure at Time 2. This increase in the proportion of securely behaving children led to a resultant significant increase in the proportion of secure dyads (25% vs. 48%), $z = -2.04, p = .04$. There was no significant difference in the proportion of secure mother/insecure child dyads (15%) or insecure dyads (37%) from Time 1 to Time 2.

Table 7

Proportion of Secure and Insecure Mothers and Children

Time 1 $N = 59$		Time 2 $N = 27$	
Secure Mom $N = 25$	15 secure children 10 insecure children	Secure Mom $N = 17$	13 secure children 4 insecure children
Insecure Mom $N = 34$	1 secure child 33 insecure children	Insecure Mom $N = 10$	0 secure child 10 insecure children

To further explore the changes in relationship skills, change scores were used to determine the magnitude and direction of changes from Time 1 to Time 2, with negative change scores indicating a decrease in positive behaviours. Both mothers and children varied greatly in the magnitude and direction of changes in their behaviours. Mothers' scores were out of 116, while children's scores were out of 58; thus, the change scores are not directly comparable. Both

positive and negative changes in relationship skills were observed in mothers and children regardless of the security of their relationship skills at Time 1. These patterns are illustrated in Table 8, which shows the mean as well as the range of change scores for each category.

Table 8

Change Scores Grouped by Security of Relationship Skills at Time 1

Variable	Minimum	Maximum	Mean (SD)
Secure mothers ($N = 14$)	-29	15	-3.92 (12.41)
Insecure mothers ($N = 13$)	-23	51	16.92 (19.65)
Secure children ($N = 7$)	-15	0	-7.86 (5.01)
Insecure children ($N = 20$)	-5	29	8.8 (10.42)

Table 9 shows the changes in the security of relationship skills for mothers and children. Cohen's Kappa was run to determine whether there was concordance between mothers' and children's changes in security. There was substantial concordance between mothers and their children, $\kappa = .653, p < .001$. This was confirmed using a z-test. Despite the variability in changes of behaviour, mothers and their children were more likely to be concordant (20 of 27) in their changes in security than discordant (7 of 27), $z = 3.54, p < .001$.

Table 9

Changes in Security from Time 1 to Time 2

			Child's Security				Total
			Became		Stayed		
			Insecure	Secure	Insecure	Secure	
Mother's Security	Became	Insecure	3*	0	2	0	5
		Secure	0	9*	0	0	9
	Stayed	Insecure	0	0	5*	0	5
		Secure	1	1	3	3*	8
Total			4	10	10	3	27

* Concordant changes in security

Descriptive Examples of Changes in EA from Time 1 to Time 2

This section provides descriptions of three families during their free-play observations at Times 1 and 2. These descriptions, as well as background information, treatment information, and a breakdown of the EA scoring are provided to contextualize the changes in EA behaviours over time and with treatment. Note that all names have been changed to protect confidentiality.

Case example 1 – Sharon and Jake. Sharon and Jake were selected as an example of a dyad that made significant gains in dyadic emotional availability. Sharon and Jake were concordant in their shift from low levels of relationship skills indicative of insecurity at Time 1 to higher levels indicative of security at Time 2. Their gains were so great that their overall relationship rating went from the most concerning range (problematic zone) to the most successful range (zone of dyadic emotional availability).

Background information. Sharon is in her mid-thirties. She was referred to BTC through the Pregnancy Outreach Program and began receiving services four months prior to the birth of her child. She remained enrolled at BTC for two years and three months. At intake, she was living with friends, unemployed, and had no contact with the father of her child. Sharon began using alcohol and marijuana at 15 years of age and cocaine at 17 years. She reported that she struggled greatly with her cocaine addiction. Prior to her enrolment at BTC, Sharon had attended residential programs twice for her addiction, but reported that these were not effective as she was not ready to change at the time. She also reported attending day treatment and Alcoholic Anonymous (AA) and Cocaine Anonymous (CA) meetings in her community. She listed a supportive partner in recovery from a crack addiction and a supportive mother. Her father, who struggled with alcohol addiction, left the family when Sharon was 14 months old and

she had little contact with him. She reported no history of physical or sexual abuse, but a history of emotional abuse from a partner (e.g., threats, destruction of her property). Scores from her intake questionnaires indicated that she was not struggling with symptoms of depression or anxiety, reported normal levels of parenting stress, and perceived a high level of social support from friends and family. Sharon's treatment goals were to stay clean, develop better parenting skills, and gain information about child development.

Jake is Sharon's first child. He was born full term without any medical concerns. Sharon confirmed her pregnancy at three months gestation and sought out prenatal care at that time. Sharon was six months into her recovery when she discovered she was pregnant, thus, Jake was only exposed to nicotine prenatally and tested negative for drugs at birth. Jake's biological father was not supportive of the pregnancy and Jake has never had any contact with him. Though the family was involved with child welfare due to maternal substance use, Sharon had full custody of and had never been separated from Jake.

Description of BTC services prior to first observation. At the time of the first observation, Sharon and Jake had been enrolled at BTC for one year and four months. During this time, Sharon attended 31 individual counselling sessions with her addictions counsellor and three sessions of the Life Skills group. Additionally, Sharon and Jake attended 31 New Moms Support group sessions, received the food program 28 times, and a therapist from the Parent-Infant Program visited their home 39 times. Sharon also reported attending weekly CA meetings in the community. A BTC developmental screening and assessment of Jake was in progress at the time of the first observation. BTC maintains contact with child welfare for many purposes

including monitoring and reporting, receiving updates, and advocacy. Though child welfare was involved with this family, BTC was not in contact with them with regards to this family.

Description of free-play observation – Time 1. The first video took place when Jake was 13 months old. At this time Jake was babbling and walking without assistance. During this video Jake explored the room, engaged in several toys briefly, and attempted to touch the cameras several times. Sharon attempted to engage him in play with several toys including a ball (e.g., bouncing it in front of him, placing him on the floor and rolling it to him), but was often unsuccessful. She attempted to redirect his attention to her and the toys by smiling at him, calling his name, and making statements (e.g., “I’ve got the doll!”). She physically redirected Jake frequently (e.g., pulling him by the wrist, picking him up and returning him to the centre of the mat). Sharon and Jake had several moments of shared enjoyment (e.g., tickling); however, these were very brief. Sharon’s affect varied throughout the video. Early in the video, her tone of voice and facial expressions ranged from appropriately positive to extreme enthusiasm, suggesting that Sharon may have been performing or exaggerating her behaviours in an attempt to meet unspoken or assumed expectations of her parenting. As the video progressed and her attempts to engage Jake were unsuccessful, her tone of voice and facial expressions showed signs of impatience and frustration (e.g., abrupt transitions from big smile to flat affect, changes in tone from enthusiastic to flat or negative, uncomfortable laughing, sighs). Though she was clearly trying to engage with Jake, she was struggling and frustrated. This culminated in her discontinuing the session after ten minutes and explaining to the research assistant that she did not realize the play session would be so difficult. Jake’s affect was generally positive throughout the session even when being physically redirected by his mother. He babbled frequently, smiled,

waved his arms excitedly, and laughed when his mother tickled or surprised him. Though he was quite happy, he did not usually direct his smiles or verbalization to his mother, but to the room. Further, he averted his gaze from Sharon's face when she held him close. Overall, Jake and Sharon appeared to be mismatched in their goals and behaviours and unable to identify and respond to each other's cues. Jake was quite happy and content, but did not include his mother in his enjoyment. Sharon was attempting to engage Jake, but was unsure of how to best do that and became discouraged.

EA scoring – Time 1. The following section contains information about the types of behaviours and relationship skills considered in each domain when assigning scores using the Emotional Availability scoring. While the EA assigns scores holistically and the coders take into consideration many things when assigning a score, this section provides some of the highlights that are most relevant to this dyad.

Sensitivity. Sharon's affect was inconsistent throughout the video and ranged from negative to appropriately positive to disingenuously extremely positive. She was unable to read Jake's signals correctly and adjust her behaviour to meet his needs.

Structuring. Sharon made many unsuccessful attempts to structure Jake's play. Despite her significant effort, she was unable to adapt or vary her attempts to engage him.

Non-intrusiveness. Sharon was unable to follow Jake's lead or to smoothly integrate herself into his play. She frequently verbally and physically interrupted his play in her attempts to redirect him. Jake indicated that she was intruding in his play by turning away from her and moving out of her reach.

Non-hostility. Sharon showed clear signs of negativity through her tone of voice, body language and sighs. Though she tried to remain positive, her frustration and impatience were visible sporadically throughout the session.

Child Responsiveness. Jake was unresponsive to many of his mother's attempts to engage him. Though his affect was positive, he rarely directed his facial expressions or vocalizations to his mother. He did successfully engage with his mother and share enjoyment for brief moments; however, he frequently avoided his mother and excluded her from his exploration.

Child Involvement of Parent. Jake made very few attempts to involve his mother in his play (e.g., verbalizing to her, looking at her, sitting near her). He rarely sought out his mother to share enjoyment or to receive practical assistance with the toys.

EA Total Scores. On maternal EA, Sharon scored 48 out of 116, which classified her behaviour as insecure. On child EA, Jake scored 22 out of 58, which classified his behaviour as insecure. Their overall relationship was rated 25 out of 100, which classified their relationship as within the problematic zone.

Description of treatment and progress at BTC. The second observation took place one year and four months after the first observation; four months after Sharon and Jake's file was closed at BTC. During their final 12 months of enrolment at BTC, Sharon attended 12 individual counselling sessions with her addictions counsellor, received the food program 8 times, and received one final visit from her therapist from the Parent-Infant Program. Sharon did not attend any BTC groups during this time; however, she continued to be active in the CA community. At the time of the second observation, Sharon was parenting both Jake and his 6-month-old brother

and child welfare was no longer involved with the family. She was unemployed but completing a General Educational Development preparatory course. Sharon reported that she continued to have supportive relationships with her partner and mother. Sharon had been abstaining from drugs and alcohol for three years and four months. She no longer reported struggling greatly with her addiction, but indicated that she continued to work hard to maintain her sobriety. She reported low levels of depressive symptoms, minimal anxiety, and normal levels of parenting stress. She continued to perceive a high level of social support from friends and family and had not experienced any abuse in the previous year.

Description of free-play observation – Time 2. Jake was two years and four months of age at the time of this observations. In this video, Jake explored the toys and engaged in several activities for several minutes each. Sharon and Jake interacted throughout the video, commenting on their play, asking each other questions, and contributing ideas. Sharon was quite successful in scaffolding Jake’s play and incorporating appropriate teaching into the play. Jake was very responsive to her attempts to engage him. She made a clear effort to follow Jake’s lead by asking him what he would like to do or following his non-verbal cues. At times, Sharon’s pace was too fast for Jake and she struggled to follow his lead. Jake was very responsive to his mother, but was also able to speak up when she changed activities before he was ready. Sharon listened to his answers to her questions and his ideas and built upon them. Jake frequently sat close to his mother and occasionally looked at her. He spoke to her frequently throughout his play. At times, Sharon asked Jake many questions quite quickly. Jake appeared to have adapted to this type of questioning by first responding “ya” to everything, then returning to talk more about the questions once his mother had paused. This indicates both his interest in sharing his

ideas with his mother, as well as his understanding of the questions and information his mother provided. The overall impression of this video was that Jake and his mother were well matched. Though Sharon was too quick for Jake at times, she made clear attempts to re-align herself and follow his lead. Jake engaged well and enjoyed the interaction with his mother. He accepted his mother's ideas and suggestions, but was also comfortable sharing his own thoughts and indicating when he disagreed.

EA scoring – Time 2.

Sensitivity. Sharon's affect was consistently content and appropriately positive throughout the video. At times, she was faced paced in her questioning and transitioning between activities and slow to pick up on her son's signalling. When cued, however, she was very responsive to her son's signalling and adjusted her behaviour to his needs.

Structuring. Sharon was very appropriate and successful in her structuring of Jake's play. Jake responded well to her contributions and was able to use them to advance his play.

Non-intrusiveness. Though Sharon struggled to follow Jake's lead at times; she frequently adjusted her behaviour to align with his cues. Her quick questioning could be intrusive, but much of her speech was used to engage Jake in appropriate two-way communication. Sharon was very successful in integrating teaching smoothly into Jake's play in a non-disruptive fashion.

Non-hostility. Sharon showed very little negativity in her facial expressions or tone of voice throughout the play.

Child Responsiveness. Jake was positive and genuine in his emotion. He was very responsive to his mother throughout the interaction and did not show any signs of anxiety or

inappropriateness in his responsiveness (e.g., overly eager to please). He was able to explore the toys and lead the play.

Child Involvement of Parent. Jake made many simple initiatives to involve his mother in his play (e.g., narrating, sharing). He was able to elaborate on some of these initiatives to maintain the interaction. In addition to involving his mother verbally, he also involved her by sitting near her, placing toys near her, and occasionally looking at her.

EA Total Scores. On maternal EA, Sharon scored 99 out of 116, which classified her behaviour as secure. On child EA, Jake scored 51 out of 58, which classified his behaviour as secure. Their overall relationship was rated 81 out of 100, which classified their relationship as within the zone of dyadic emotional availability.

Case example 2 – Amanda and Isabel. Amanda and Isabel were selected as an example of a dyad that decreased significantly in their dyadic emotional availability. Amanda and Isabel were concordant in their shift from relationship skills indicative of security at Time 1 to low levels of relationship skills indicative of insecurity at Time 2. The decrease in their ability to engage and respond to each other appropriately resulted in their overall relationship rating moving from the acceptable range (complicated emotional availability) to the concerning range (zone of detachment).

Background information. Amanda is in her late-thirties. She was referred to BTC through a public health partner and began the intake process when her daughter, Isabel, was one month old. She remained enrolled at BTC, during the intake phase, for approximately six months. At intake, she was living with her husband, unemployed, and had no contact with the

father of her child. She had completed a college degree program and had a history of incarceration due to drug related charges.

Amanda began using alcohol in late childhood and marijuana in her teenage years. She reported that her use of these substances became problematic in early adulthood. At this time, she also began using many other substances including opiates. Amanda identified opiates as her primary addiction at intake and reported struggling greatly with this addiction. Prior to her enrolment at BTC, Amanda had begun methadone treatment of her addiction during her pregnancy with Isabel, but had not engaged in any other form of treatment. Though she reported that her husband was supportive, she also reported that he was an active poly-substance user with a history of incarcerations for armed robbery and violence, and emotionally abusive towards her (e.g., threats). She stated that when he was not using he was nice to her. She also reported having a supportive mother who was recovered from an alcohol addiction. At intake, Amanda reported that her relationship with her father was good; however, she reported no contact with him at the time of the first observation. She reported a history of emotional abuse by her partner and sexual abuse perpetrated by a past partner as well as a friend's father in her late adolescence. She did not report a history of physical abuse. Scores from her intake questionnaires indicated that she was not struggling with depression, but reported a moderate level of anxiety. She perceived a high level of social support from friends and family and reported normal levels of parenting stress. Amanda's treatment goals were to stay clean, gain better control over her emotions, develop better parenting skills, and gain information about child development.

Isabel is Amanda's fifth child. Amanda's other children ranged in age from 10 to 18 years and were in the care of their biological fathers, extended family members, or child welfare.

Amanda confirmed her pregnancy with Isabel at two months gestation and sought out prenatal care at six months gestation. Isabel was prenatally exposed to nicotine throughout gestation, as well as morphine during the first and second trimesters and methadone during the third trimester. Isabel was born full term and experienced drug withdrawal at birth. Amanda was involved with child welfare during her pregnancy and Isabel was taken into their care at birth. At intake, Amanda was able to visit with Isabel for two and a half hours, eight days a month. Isabel was returned to Amanda's care at 18 months of age.

Description of BTC services prior to first observation. Amanda was enrolled at BTC for six months. She never progressed past the intake phase of treatment and was discharged from BTC prior to the first observation, but continued to participate in research. During her time at BTC, Amanda attended 14 individual counselling sessions, 11 New Moms Support group sessions, and received the food program 15 times. As Isabel was not in her care during this time, Amanda did not receive any home visitation through the Parent-Infant Program. BTC was in contact with child welfare 25 times with regards to this family. When Amanda closed at BTC, she began a day treatment program, which she attended for four months. The first observation video took place one year and 11 months after intake (one year and five months after close). A developmental screening and assessment of Isabel was in progress at the time of the first observation.

Description of free-play observation – Time 1. Isabel was two years old and speaking in short sentences at the time of the first observation. She had been in her mother's custody for six months. Amanda followed Isabel's lead throughout the session, shifting activities with her daughter, copying her daughter's actions, and modeling actions to elaborate on her daughter's

interests (e.g., demonstrating drawing a circle after Isabel showed interest in markers). The dyad showed clear moments of shared enjoyment (e.g., eye contact, smiles and exclamations when Isabel successfully capped markers by herself). Isabel involved her mother in her play by spontaneously offering information or commentary and asking questions. She was inconsistent in responding to her mother's questions. Amanda spent much of the session watching her daughter explore the toys, but was fully present and engaged with Isabel verbally. Amanda frequently repeated Isabel's words without adding to them (e.g., forming proper sentences) or elaborating on the conversation. She engaged in some mild mocking of her daughter's behaviour by repeating her daughter's word in an exaggerated tone and rolling her eyes while looking at the camera/research assistant; however, this happened infrequently. Amanda was very successful in gaining Isabel's cooperation in the clean up process. She was patient and calm in response to Isabel's refusal to clean up and was able to use many strategies to complete the clean up collaboratively (e.g., organizing the toys for easy clean up, redirecting Isabel to clean up less desirable toys). The overall impression of this video was that of a calm, enjoyable, reciprocal interaction. Though Amanda was sometimes mocking in her reactions to Isabel's behaviour and was frequently a passive playmate, she showed clear moments of enjoyment in the interaction with her daughter. Isabel engaged well and enjoyed the interaction with her mother and responded well to requests and re-direction during clean up.

EA scoring – Time 1.

Sensitivity. Amanda's affect was fairly consistent throughout the video. She was predominantly content with brief moments of enjoyment and mild annoyance (e.g., eye rolls).

Her tone of voice was calm and pleasant. Her demeanour was frequently that of an observer, but she was able to identify and respond to Isabel's cues.

Structuring. Amanda primarily used verbal means to structure the interaction with occasional physical structuring. Her attempts to structure were often successful in augmenting Isabel's play.

Non-intrusiveness. Amanda was able to follow Isabel's lead and smoothly integrate herself into her play.

Non-hostility. Amanda showed only brief moments of negativity in her voice and body language (e.g., eye rolls). She was able to remain calm and positive throughout her daughter's refusal to clean up.

Child Responsiveness. Isabel was responsive to many of her mother's verbal attempts to engage her. Her affect was calm and generally positive throughout the observation. Though she remained close to her mother for most of the observation, she was able to explore the toys and show some age-appropriate autonomy.

Child Involvement of Parent. Isabel made many attempts to involve her mother in her play (e.g., narrating her play, sitting near her). Once she engaged her mother, she was only sometimes able to elaborate on her initiation to maintain the interaction.

EA Total Scores. On maternal EA, Amanda scored 99 out of 116, which classified her behaviour as secure. On child EA, Isabel scored 48 out of 58, which classified her behaviour as secure. Their overall relationship was rated 75 out of 100, which classified their relationship as within the zone of complicated emotional availability.

Description of treatment and progress at BTC. Amanda and Isabel were not enrolled at BTC between the first and second observation. Amanda did continue to receive methadone treatment in the community during this time. At the time of the second observation, child welfare was no longer involved with the family. With the exception of methadone, Amanda reported abstaining from drugs and alcohol for three years; however, she also reported that she felt treatment for her addiction was very important. She continued to report supportive relationships with her husband and mother and no contact with her father. She remained unemployed. Her questionnaire scores indicated clinical levels of depressive symptoms and mild anxiety. Her parenting stress scores were in the normal range with the exception of the Difficult Child subscale, which was in the high range. She continued to perceive a high level of social support from friends and family and reported that she had not experienced any abuse in the previous year.

Description of free-play observation – Time 2. The second observation took place one year after the first observation. Isabel was three years and one month old. Isabel was very verbal throughout the observation, narrating her play, asking her mother questions, and making requests of her mother. Amanda was very passive throughout the session. She appeared very uncomfortable in the free-play observation. On several occasions, she looked at the camera, rolled her eyes, and laughed at Isabel's behaviour. Amanda's voice was quite monotone and she spent much of the session sitting with her hands in her lap, only responding when Isabel made direct requests of her. During brief moments, Amanda would engage with Isabel and convey enthusiasm with her tone of voice, but these moments passed quickly. When Amanda did engage, Isabel would encourage her mother with extreme enthusiasm as evidenced by a notable

and unnatural increase in the volume and pitch of her voice and laughter. During their brief playful moments, Amanda appeared uncomfortable and would redirect Isabel to a different activity. Amanda appeared more comfortable verbally engaging and was very resistant to Isabel's attempts to get her to physically play. When her mother did not join in her play, Isabel would become upset (e.g., pout, yell) or be very forceful (e.g., command her mother). Her mother would then roll her eyes or make a verbal remark of annoyance (e.g., sigh, "ok fine") and comply. Isabel did not resist clean up and responded well to her mother's praise and instructions. The impression in this video was that Isabel took on the large majority of the effort required to keep the interaction going. Amanda's voice and actions had a deadened tone and moments of shared dyadic enjoyment were infrequent and brief.

EA scoring – Time 2.

Sensitivity. Amanda's affect was predominantly bland with brief moments of enjoyment and annoyance. Her tone of voice and body language gave the interaction a deadened tone.

Structuring. Amanda made very few attempts to structure Isabel's play.

Non-intrusiveness. Though Amanda did not intrude in Isabel's play, her passivity and difficulty engaging in play meant she was not able to follow her daughter's lead.

Non-hostility. Amanda showed clear moments of negativity in her facial expressions and tone of voice throughout the play. She did not convey an impression of respect for or acceptance of her daughter.

Child Responsiveness. Isabel's affect ranged from disingenuously positive to pouty and upset. She was overly responsive to her mother, jumping on any attempt her mother made to

engage. Though she showed age-appropriate autonomy when exploring the toys, she also showed clear signs of role reversal and a need to please her mother.

Child Involvement of Parent. Isabel made many simple initiatives to involve her mother in her play (e.g., narrating, sharing). However, she struggled to elaborate on these initiatives, sometimes used negative behaviours to achieve involvement, and showed clear anxiety throughout the session (e.g., looking at her mother very frequently).

EA Total Scores. On maternal EA, Amanda scored 70 out of 116, which classified her behaviour as insecure. On child EA, Isabel scored 38 out of 58, which classified her behaviour as insecure. Their overall relationship was rated 60 out of 100, which classified their relationship as within the zone of detachment.

Case example 3 – Paula and Britney. Paula and Britney were selected as an example of a dyad that was discordant in their emotionally available skills at Time 1 and concordant at Time 2. Though Paula displayed a level of emotionally available behaviours indicative of security at Time 1, Britney did not. At Time 2, Paula's ability to engage and respond to Britney had decreased to a level indicative of insecurity and Britney's behaviours also decreased and remained at the insecure level. Like Amanda and Isabel, the decrease in their ability to engage and respond to each other appropriately resulted in their overall relationship rating moving from the acceptable range of complicated emotional availability to the concerning zone of detachment.

Background information. Paula is in her mid-thirties. She was referred to BTC by a child welfare agency and began the intake process when her daughter, Britney, was 17 months old. She remained enrolled at BTC for approximately one year and nine months. At intake, she

was living with her partner, unemployed, and had no contact with the father of her child. She had completed high school and some college courses.

Paula began using alcohol in adolescence and other substances including marijuana, opiates, cocaine, and crack in early adulthood. Paula identified that many substances became problematic for her in early adulthood and that crack was her primary addiction at intake. At this time, Paula was using alcohol and marijuana daily, as well as cocaine weekly, but had been abstinent from crack for seven months. Prior to her enrolment at BTC, Paula had attempted to treat her addiction with self-help (18 years prior), as well as by attending a detoxification program (four years prior). She reported that she had a history of emotional and physical abuse with her current partner, but that the relationship was currently more stable and that her partner had recovered from one of his substances of addiction but continued to use other substances. She also reported recently reconnecting with her mother and working on their relationship. She did not have any contact with her father, but reported supportive relationships with an aunt and a grandmother. In addition to the abuse reported in her relationship with her partner, Paula reported an extensive history of physical and sexual abuse. She reported having worked in the sex trade and experiencing abuse from clients. Scores from her intake questionnaires indicated that she was not struggling with symptoms of depression or anxiety and reported normal levels of parenting stress. On the Perceived Social Support questionnaire, she reported no social support from family and very low levels of support from friends. Paula's treatment goals were to achieve abstinence from substances, become a better parent, complete self-improvement work (e.g., schooling), gain information about child development, and seek out childcare.

Britney is Paula's only child. Britney was prenatally exposed to marijuana and nicotine throughout gestation, as well as crack during the first trimester. Additionally, Paula experienced great transiency during her pregnancy, sleeping in hotels and friends' homes. She received minimal prenatal care and suffered from anemia and a sexually transmitted infection during her pregnancy. Britney was born full term and her mother reported that she tested negative for drugs at birth. Child welfare became involved with the family during their hospital stay. Britney was removed from Paula's care at eight months of age due to neglect and remained in the custody of child welfare for one year. Paula was able to visit with Britney for 12 days a month until Britney was returned to her care at 20 months of age.

Description of BTC services prior to first observation. At the time of the first observation, Paula and Britney had been enrolled at BTC for five months. During this time, Paula attended 15 individual counselling sessions with her addictions counsellor and received the food program 15 times. Additionally, a therapist from the Parent-Infant Program had visited Paula and Britney at home five times. BTC was in contact with child welfare four times with regards to this family. A developmental screening and assessment of Britney was in progress at the time of the first observation.

Description of free-play observation – Time 1. The first observation took place when Britney was 22 months old and was speaking in short sentences. She had been returned to her mother's custody two months prior. Britney's affect throughout the play observation was quite notable. She began the session standing in front of the box of toys whimpering, yelling, glancing at her mother and the research assistants, and jumping up and down. Though she calmed with her mother's verbal support and assistance with the toys, Britney's affect remained blunted (e.g.,

drawn face, frown) throughout the interaction with occasional expressions of distress (e.g., whimpering). Paula made many attempts to verbally engage with her daughter (e.g., commenting on toys, asking questions, praising Britney); however, these attempts were frequently ignored. Britney rarely made eye contact with her mother and frequently oriented herself away from her mother or sat outside of arms reach while continuing to focus on their shared activity (e.g., drawing, cars). Paula sometimes physically moved Britney to face her; however this was not successful in engaging Britney. Despite her language abilities, Britney was silent for much of the observation. She occasionally verbalized to the room or to the toys. She engaged with her mother briefly to obtain assistance on a very limited number of occasions (e.g., pointing to a car out of reach). Britney showed one distinct moment of enjoyment when playing peek-a-boo with a doll. Though Paula also clearly enjoyed this moment, Britney did not reference her mother during this time to share her enjoyment. Paula structured the clean up of toys well and was successful in gaining Britney's cooperation for the majority of the clean up. Britney refused to relinquish the toy telephone at the end of the session. She sat with her back to the sofa, yelled, and averted her gaze while kicking her legs at her mother. Sitting on the floor, Paula was able to bring Britney into her lap and remove the telephone from her hands. She attempted to hug and kiss Britney, but Britney refused and twisted in her grasp to face outward from her mother. The overall impression of this video was that Paula was trying to engage with her daughter through teaching and used her knowledge of age-appropriate learning goals (e.g., colours, shapes) to structure the interaction. Unfortunately, Paula was unable to be flexible in her approach to Britney and was unsuccessful in engaging her. Britney did not appear to go to her mother for comfort or playful interactions. She displayed some age-appropriate exploration

of the toys, but was limited in her play and her affect remained quite blunted throughout the session.

EA scoring – Time 1.

Sensitivity. Paula's affect was fairly consistent and predominantly positive throughout the video. Intermittently, her tone of voice would change to become extremely enthusiastic or to convey impatience. She struggled to respond flexibly to Britney's cues and needs (e.g., relied solely on verbal means to engage such as questioning and labelling).

Structuring. Paula's structuring was limited to verbal means and generally consisted of asking her daughter questions and providing basic teaching (e.g., labelling colors). Her attempts to structure were often unsuccessful in engaging Britney or augmenting Britney's play.

Non-intrusiveness. Though Paula tried to follow Britney's lead in the selection of activities, her tendency to try to teach and ask questions intruded on the play. Her verbal interactions were often commands and did not support a two-way interaction. Further, her attempts to teach were not flexible to Britney's cueing.

Non-hostility. Paula showed only brief moments of negativity in her voice and body language; however, the way in which she interacted with her daughter did not convey a feeling of mutual respect and acceptance (e.g., disrespectful joking statements, laughing at her daughter's play).

Child Responsiveness. Britney's affect was generally blunted with instances of distress and only one clear example of positive affect directed at a toy. She showed signs of avoiding her mother in her direction of gaze and physical positioning.

Child Involvement of Parent. Britney made few attempts to involve her mother in her play and relied on her for instrumental assistance on only a few occasions. Her lack of initiative to involve her mother was evident in her silence, body positioning, and lack of eye contact.

EA Total Scores. On maternal EA, Paula scored 86 out of 116, which classified her behaviour as secure. On child EA, Britney scored 37 out of 58, which classified her behaviour as insecure. Their overall relationship was rated 70 out of 100, which classified their relationship as within the zone of complicated emotional availability.

Description of treatment and progress at BTC. The second observation took place one year after the first observation. Paula and Britney were still engaged in active treatment at BTC. Between the two observations, Paula attended 35 individual counselling sessions with her addictions counsellor and received the food program 20 times. Britney and Paula were visited at home by their therapist from the Parent-Infant Program nine times. Paula did not attend any BTC groups during this time. BTC was in contact with child welfare 59 times with regard to this family. A second developmental screening and assessment of Britney was in progress at the time of this observation.

At the time of the second observations, Paula was unemployed and remained highly transient, never living in one place for more than a few months at a time. She reported being considerably troubled by her addiction to alcohol, but no longer bothered by her addiction to crack. She was drinking alcohol daily and using marijuana occasionally. She continued to maintain her abstinence from crack. Paula reported being married to a cannabis user, but did not indicate whether this was the same partner as the previous time point. She reported that this relationship was good, but did not elaborate. She did not complete the sections of the

questionnaire on her relationship with her mother or father and did not report on her previously reported relationships with her aunt and grandmother. She did, however, report a moderate level of perceived social support from family and no social support from friends on the Perceived Social Support questionnaire. Additionally, she reported low levels of depressive symptoms, mild anxiety, and normal levels of parenting stress. She reported that she did not experience any abuse in the previous year.

Description of free-play observation – Time 2. Britney was two years and 11 months old at the time of the second observation. Paula and Britney began the session by playing with plastic food and dishes. During this interaction, Britney made several comments to her mother and engaged in pretend play (e.g., pouring tea, drinking). Paula engaged in some pretend play, but was predominantly focused on asking Britney to label different food items. Britney abandoned her own play early in the session and made only a few unsuccessful attempts to redirect her mother to her interests (e.g., “Look mommy.”). Though Paula was able to shift activities during the session, she was very rigid in her approach to the play, did not take into account Britney’s interests or feedback in her choice of activity, and maintained a constant stream of questioning (e.g., “What is this?” “What am I drawing?”). Five minutes into the session, Britney requested to clean up, but her mother encouraged her to stay. Britney successfully labelled many objects, but began mislabelling objects while rolling on the floor and wandering the room. It was unclear whether her mistakes were intentional or authentic. Her mother initially praised her for correct answers (e.g., “That’s mommy’s girl!”) and corrected her in a pleasant tone of voice; however, as the session progressed, Paula became impatient and confrontational, using a stern and negative tone of voice (e.g., shaking a pear and an orange

while saying “You know that isn’t a pear. This is a pear!”). Britney did not immediately react to these reprimands verbally or through facial expressions; however, her behaviour escalated gradually throughout the session. She began throwing toys. Paula struggled to maintain her composure, pointing very closely to Britney’s face and reprimanding her (e.g., “Don’t grab and don’t throw. Play nice. Get it?”). Britney averted her gaze during reprimands and continued to throw toys leading her mother to become more frustrated (e.g., sighs, “Oy vey”). Paula was enthusiastic about cleaning up, her frustration disappeared and her smile returned. She was clearly more comfortable with this task than playing. Britney complied with clean up, then left the room before her mother had fully finished. The overall impression of this video was that mother and child were mismatched in their goals and needs, as well as in their approaches to engage each other. The tone of the video was that of a vocabulary lesson and not a free-play session. Though Paula’s intent to teach Britney was well placed, her rigid approach failed to engage Britney and led to a cyclical pattern of difficult behaviour and frustration. Britney showed some attempts to engage her mother but abandoned them quickly when they were unsuccessful.

EA scoring – Time 2.

Sensitivity. Paula tried to stay positive throughout the session; however, she became upset and frustrated when Britney began throwing toys (e.g., sighed, made frustrated statements). In the latter half of the session her affect was very inconsistent, jumping from excited to frustrated. Her tone of voice ranged from unnaturally sweet to stern and forceful.

Structuring. Paula relied exclusively on verbal means to structure the play. Though her attempts were plentiful, they were rigid and unsuccessful in engaging Britney.

Non-intrusiveness. Paula was very verbally intrusive in Britney's play. She did not allow her daughter many opportunities to exert age-appropriate autonomy or to lead the play.

Non-hostility. Paula's was generally non-hostile throughout the session; however, she showed several clear moments of negativity in her facial expressions and tone of voice when Britney did not cooperate with her requests.

Child Responsiveness. Britney's affect was quite bland and blunted. Though she very frequently responded to her mother's questions, this appeared to be more out of duty than interest. There were no evident moments of shared enjoyment. Britney did not pursue her own play but wandered the room restlessly. During reprimands, she avoided her mother by averting her gaze, putting her head on the floor, or walking away.

Child Involvement of Parent. Britney made a few attempts to appropriately involve her mother in her play early in the session (e.g., commenting on toys, sharing toys, asking for her mother's attention). When these were unsuccessful, Britney resorted to negative means to involve her mother in interactions (e.g., throwing toys, rolling on the floor).

EA Total Scores. On maternal EA, Paula scored 79 out of 116, which classified her behaviour as insecure. On child EA, Britney scored 34 out of 58, which classified her behaviour as insecure. Their overall relationship was rated 55 out of 100, which classified their relationship as within the zone of detachment.

Description of treatment and progress at BTC after the second observation. Paula and Britney remained enrolled at BTC for three months. During this time, Paula attended three individual counselling sessions and received the food program three times. She did not receive

any other services during this time. BTC was in contact with child welfare 14 times with regards to this family.

Discussion

All children have the right to the best possible start in life and the opportunity to reach their full potential (United Nations, 1989). Children of substance-using mothers experience both internal and external barriers to optimal development and mental health. A healthy mother-child relationship can help to mitigate the effects of these challenges; however, substance-using mothers face many past and present risk factors that put a great strain on their ability to provide consistent, sensitive, and responsive caregiving. Breaking the Cycle was created to address the needs of pregnant or parenting women who struggle with substance use, as well as the needs of their children whose prenatal exposure to substances and/or postnatal environmental risk puts them at risk of maladaptive developmental outcomes (Pepler et al., 2002). With recognition of the importance of the mothering role, the program provides relationship-based, integrated services to both mothers and children with the aim of fostering strong and healthy mother-child relationships. Previous research has shown programs that focus on addiction as well as parenting and relationships lead to improvements in maternal substance use and mental health difficulties above and beyond those of traditional substance use treatments (Espinet et al., 2015; Luthar & Suchman, 2000; Niccols, Milligan, et al., 2010). The current study aimed to expand on this research with a particular focus on changes in parent functioning and behaviour, child outcomes, and the mother-child relationship. The four main objectives were: (1) to provide descriptive information about the women and children of BTC to provide a client profile and to help contextualize the presenting concerns and treatment needed, (2) to investigate the influence of the BTC intervention over time on parent functioning and behaviour, (3) to explore the association between parent functioning and behaviour on child behaviour problems, and (4) to

explore the patterns of change in the mother-child relationship. Given the small sample sizes, non-normal data, and the self-selected nature of the population, bootstrapping was used during analyses for the second and third objectives to increase power and provide robust standard errors and confidence intervals. The fourth objective required an exploration of the data and descriptive case examples to elucidate the changes in mothers and children's behaviours and in their relationships.

A Profile of Substance-Using Mothers

The integrated bio-psycho-social model of stress effects on parenting in addicted individuals is founded on the assumption that substance-using women have experienced significant past negative life events and abuse and continue to experience a high level of stressors in daily life (Figure 2; adapted from Chaplin & Sinha, 2013). This assumption was supported in the BTC sample with women endorsing high levels of relational, mental health, and other stressors.

Stress in relationships. Women's histories of past negative relationships were evidenced by high levels of emotional, physical, and sexual abuse, as well as frequent use of the labels "abusive", "difficult", or "no contact" to describe their relationships with their biological mothers and fathers. The majority of women also reported that their biological parents used substances, which further increases the potential for difficulties in these relationships as the women seek treatment and progress through the program. Further, the use of substances by biological parents may be a contributing factor to the women's histories of abuse as research has found a twofold increase in risk of physical and sexual abuse for children with one substance-using parent and an even greater risk of abuse if both parents were substance users (Walsh,

MacMillan, & Jamieson, 2003). Additionally, women with histories of childhood abuse are more vulnerable to revictimization by romantic partners in adulthood than women without such histories (Bensley, Van Eenwyk, & Wynkoop Simmons, 2003). This association between historical abuse and current romantic partner abuse may be a reflection of distorted views of the normalcy of conflict and violence in romantic relationships. Additionally, experiencing abuse at the hands of your parents may set the stage for later difficulties with self-worth, feelings of powerlessness, and an inability to protect oneself (Bensley, Van Eenwyk, & Wynkoop Simmons, 2003). Though half of the women in the BTC sample reported good or supportive relationships with their current partners, the large majority of women in relationships reported that their partner was actively using substances. Further, women sometimes endorsed the label of “good” or “supportive”, while also providing a written description of the relationship as volatile, abusive, or otherwise unstable. These discrepancies call into question what defines a good or supportive relationship within this high-risk context and the potential influence of past abuse and women’s own internal working models of relationships. Compared to a normative population, BTC women also reported lower levels of perceived social support from friends and family (Lyons, Perrotta, & Hancher-Kvam, 1988). It is clear that on average, BTC women have experienced and continued to experience high levels of stress within their close relationships. Additional relationship stressors experienced by some of the women included having multiple children and temporary or permanent loss of child custody of previous children or the child enrolled at BTC. BTC recognizes the important influence of women’s own parenting experiences, experiences of domestic violence, and feelings of isolation on current parenting practices, as well as on women’s ability to have healthy relationships. BTC focuses on

modelling healthy, caring relationships and providing women with a new foundation upon which they can build healthy relationships with a particular focus on the mother-child relationship.

The many relationship stressors reported by BTC women are reflected in their attachment classifications. Though this study used a questionnaire to gauge attachment and not a formal assessment, the classification distribution based on the Adult Attachment Scale can be used to approximate the results of a time-intensive formal assessment. In the current sample, only a quarter of mothers were classified as secure. This small proportion stands in contrast to normative data (58% secure), but is also lower than would be expected for high-risk mothers (41%; Bakermans-Kranenburg & van IJzendoorn, 2009). This finding highlights the very high-risk nature of the BTC sample. Further, over half the mothers in the BTC sample were classified as having a fearful attachment style. Bartholomew (1990) describes individuals with fearful attachment styles as having negative models of both the self and others. It is posited that this attachment style originates from childhood interaction patterns that present others as uncaring and unavailable and the self as unlovable. Thus, these individuals have a high need to depend on others to maintain their self-esteem, while also having a high tendency to avoid others due to pervasive distrust of others and fear of rejection. This juxtaposition of needs and tendencies leads to significant distress, as well as dysfunctional relationships (Bartholomew, 1990). Other research using a questionnaire to assess attachment in adult children of alcoholics (ACOA) found that ACOA status and perceptions of parenting characterised by rejection and low levels of monitoring in childhood significantly predicted fearful attachment styles (Kelley et al., 2005). The authors of this study proposed that ACOA have interpersonal models that predispose them to caution in adult relationships and that they may feel the need to be self-protective and defensive

(Kelley et al., 2005). The high proportion of fearful attachment styles in the current population may be partially explained by the high proportion of women in the sample who identify as ACOAs and who report negative relationships with their parents.

Parenting representations and expectations are influenced by mothers' attachment security and corresponding internal working models of the self and others (Huth-Bock et al., 2004; Lyden & Suchman, 2013). Interventions aimed at exploring maternal representations and promoting maternal reflective functioning are key to assisting mothers to provide nurturing care to their children and interrupting the transmission of the intergenerational cycle of insecure attachment (Lyden & Suchman, 2013).

Mental health difficulties and drug use. The current sample was also characterized by high levels of mental health difficulties. At intake, nearly two in three women were experiencing depression and approximately one in three women was experiencing moderate to severe anxiety, had engaged in self-harm, had attempted suicide, and/or had struggled with an eating disorder. BTC mothers are predominantly poly-substance users who identify their primary addiction as either crack or alcohol. The presence of a history of substance use and difficulty of achieving and maintaining abstinence is evidenced by the prevalence of previous treatment prior to intake at BTC, as well as the moderate level of confidence in abstaining from substances reported by the women. In addition to relationship and mental health difficulties, on average, BTC women were unemployed, had an average monthly income below the Canadian definition of low-income, and were struggling with legal difficulties at intake.

This profile of BTC women highlights the very high-risk nature of this sample and the complexity of the women's treatment needs. In a meta-analysis of addiction treatment programs,

Pearson and colleagues confirmed the key importance of: tailoring treatment to meet client needs, addressing multiple areas of need in addition to addiction, and continuously reevaluating treatment plans overtime (Pearson, Prendergast, Podus, Vazan, Greenwell, & Hamilton, 2012). This multi-dimensional and flexible approach to treatment is of particular importance in the BTC context where women have both addiction and parenting goals. BTC's integrated, one-stop-shop, long-term approach to treatment is essential to meeting the diverse needs in this population. It allows women and children to access multiple services simultaneously, including basic needs supports, and allows the focus of intervention to shift gradually as women make positive changes in their lives and reach for ever increasing goals, while always maintaining a primary focus on the mother-child relationship.

Parent functioning and behaviour. A third of BTC mothers fell in the high-risk range on at least one measure of parent functioning. In this study, the overall level of parenting stress reported by mothers during the intake process was in line with previous reports on BTC mothers (Motz et al., 2006; Pepler et al., 2002); however, it was not as high as in other research on substance-using women. Further, though the association between life stressors and parent functioning was not formally tested in this study, the bio-psycho-social model would have predicted much higher levels of parenting stress given the high levels of life stressors identified in the sample. The mean total stress score for mothers in the current sample was 72, while researchers investigating other populations of substance-using women or high-risk families (child maltreatment) report mean scores ranging from 91 to 103 (Dawe & Harnett, 2007; Guterman et al., 2013; Kelley, 1998). In fact, BTC mothers' scores are identical to those found in a low-risk sample of mothers (72; Copeland & Harbaugh, 2005). Further, researchers

investigating parenting stress in both substance-using and non-substance-using samples have shown an association between maternal psychopathology and parenting stress making the total stress score in the current study even more unexpected given the high level of mental health difficulties experienced by BTC mothers (Leigh & Milgrom, 2008; Williford, Calkins, & Keane, 2007; Sheinkopf et al., 2006). A possible explanation for the low levels of stress may be biased responding on the PSI questionnaire. This measure was administered during the intake phase at BTC, thus, it is possible that mothers were not yet trusting of staff and prepared to reveal their struggles and distress in their roles as parents. However, only a small percentage of mothers were flagged for defensive responding on the questionnaire, making this explanation less likely. Another possible explanation may be that, despite their high level of life stressors and difficulties with drug use, BTC mothers' perceive less stress in their current parenting situation with the support of BTC as compared to their previous parenting experiences when they may have had less support and been less prepared to make changes in their lives. Further, nearly a quarter of BTC mothers were referred to the program by the BTC Pregnancy Outreach Program (POP). Their involvement in the POP, which provides both social-emotional and practical support (e.g., basic needs), prior to intake at BTC may have reduced their parenting stress at intake.

There is substantial research documenting the association between current parenting behaviour and mothers' histories of abuse or harsh parenting in childhood, romantic partner violence, and mental health difficulties (Belsky, Conger, & Capaldi, 2009; Casanueva et al., 2008; Kiernan & Huerta, 2008; Moehler, Biringen, & Poustka, 2007; Nicol-Harper, Harvey, & Stein, 2007). Observational ratings of emotionally available parenting behaviours and the mother-child relationship in the current study at one year post-intake were in line with this previous research. The mean overall rating of the mother-child relationship fell on the borderline

between the zones of complicated emotional availability and detachment. Dyads in the complicated zone of emotional availability are described as having a connection between mother and child that is not fully healthy (Biringen, 2008). Though the mother and child may enjoy interacting with each other, they generally score in the mid-range on all domains of EA and their affect is seen as not fully genuine. This might be evidenced by inappropriate or inconsistent affect or exaggerated sensitivity or responsivity to their partner. This type of interaction is characterised by dependency in the child and dependency-promoting behaviours in the mother. Detached dyads with scores nearing the upper cut-off for this range are described as mismatched in the EA skills. In these dyads, either the mother or the child is detached while the other is still seeking a relationship. The detached partner scores in the low range, while the other scores in the mid to high range in EA skills. In line with this, average total score for mothers and children's relationship skills was indicative of insecure attachment, but fell very close to the secure range cut-off. This distribution of scores may reflect the difficulty of changing relationship patterns and the process of adjustment required when mothers are acquiring new parenting skills. Similar to previous research that found that discreet parenting behaviours were much easier to change than maternal sensitivity or representations (Thomas & Zimmer-Gembeck, 2011), the average relationship rating in the current study may reflect a change in discreet behaviours that is not yet matched with genuine affect and appropriate reciprocation. For example, through modelling and child development information, a mother may have learned the importance of following her child's lead in play and may be trying very hard to adjust her behaviour accordingly in the free-play observation. As this is a newly acquired skill, the mother may struggle to know how to best do this and her uncertainty and

discomfort with the new skill may lead the observer to conclude that the behaviour is disingenuous. Further, her child may not yet have adjusted to his/her mother's new pattern of interacting or, if the child has spent time in a foster placement, the child may be struggling to adjust to being returned to his/her mother's care; thus, the child may fail to respond to the mother and be judged as detached or may respond inconsistently leading the observer to conclude that there is a complicated emotional availability in the dyad. The converse is also possible, in dyads rated as having a mismatch in emotional availability skills, a child may be trying to apply EA skills they have gained via interactions with BTC staff or with a foster parent, while his/her mother may be lagging behind in skill development and not yet able to connect with the child in a sensitive and meaningful way.

Child outcomes. Based on the bio-psycho-social model, as well as past research, it is expected that, given the numerous risk factors reported by mothers at BTC and mid-range scores on maternal behaviour, the children at BTC would display high levels of problematic behaviour (Molnar et al., 2014). A year after intake, the mean t-scores for internalizing and externalizing behaviours fell within the normal range; however, nearly a third of the children fell in the clinical or borderline ranges for internalizing, externalizing, or both types of behaviour problems. The clinical cut-off for the borderline range is the 84th percentile (Achenbach & Rescorla, 2000); thus, approximately twice as many children at BTC exhibit borderline or clinical levels of behaviour problems compared to a normative North American population. Clinical levels of problematic behaviour not only have implications for the child's current sense of well-being and emotion regulation skills, but also for the way the child will be viewed and interacted with by teachers and other adults in the community. Children with behaviour problems are more difficult

to connect and interact with, thereby potentially limiting opportunities for positive experiences within these relationships with important adults. Further, children with behaviour problems place a greater tax on parents' resources leading to less optimal parenting, which in turn contributes to future child behaviour problems and propels a continuous cycle (Sameroff, 2010).

Changes in Parent Functioning and Behaviour with Intervention

BTC offers wrap-around services which provide direct support for parent functioning and behaviour, as well as indirect support to parenting by reducing life stressors via basic needs support, advocacy with other agencies such as child welfare, and mental health and addiction services. Previous research has shown improvements in many domains of mothers' well-being including addiction, mental health, and relationships (social support and attachment security) after one year of treatment at BTC (Espinet et al., 2015). Based on the bio-psycho-social model of stress effects on parenting in addicted individuals, these changes in mothers' well-being should be reflected in changes in their parenting as well.

Contrary to my prediction, parent functioning was not predicted by days of enrolment at one year. This finding is not in line with other research showing decreases in parenting stress after intervention (Guterman et al., 2013; Landsem et al., 2014); however, as noted in the previous section, parenting stress scores at intake were lower than would be expected given the level of risk experienced by the women at BTC. Biases in mothers' perceptions of parenting stress based on previous parenting experiences, the supportive context at BTC, or fear of revealing parenting concerns may have continued to influence mothers' responses on the PSI at one year post-intake and masked the association between parenting stress and days of enrolment at BTC. Additionally, the number of days enrolled at BTC does not account for the frequency

with which women access BTC services. Some women may attend BTC multiple times a week, while others may only attend once or twice a month. Thus, this lack of precision in the measurement of access to treatment may account for the lack of significant association between parent functioning and days of enrolment at Time 1.

This study did not include an analysis of the association between maternal behaviour and days of enrolment at one year. The decision to exclude this analysis was premised on previous research in a high-risk sample of mothers that showed that mothers' emotional availability behaviours did not improve in a clinically significant way over a six month period (Thomas & Zimmer-Gembeck, 2011). Further, as Bowlby described in his 1969 work, mothers and children establish stable patterns of interaction very early in their relationships and act in ways to maintain those patterns. Children learn to expect certain behaviours from their mothers and act in ways to elicit these behaviours from them. Mothers, in turn, do the same. Substantial, consistent behavioural change will be necessary to lead to enduring changes in the dyads' interaction patterns which, with time, will bring about changes in both the mothers and children's working models. These changes in behaviours and working models will be reflected in improvements in each members emotional availability score.

At two years post-intake, in line with this study's hypotheses, both parent functioning and behaviour were predicted by the number of days enrolled at BTC with the number of days accounting for approximately one sixth of the variation in each. These findings are similar to those found over much shorter time periods in interventions aimed at reducing parenting stress by reducing life stressors and supporting the mother-child relationship (Guterman et al., 2013; Landsem et al., 2014), as well as interventions aimed at improving emotional availability skills

in other high-risk populations (for a review see Biringen et al., 2014). That these associations are only seen at two years post-intake may be a reflection of the very high-risk nature of the current sample. Further, the current sample had a high proportion of insecurely attached mothers, which increases the likelihood that mothers' held less sensitive and accepting representations of their children (Huth-Bock et al., 2004). Together, insecure attachment and negative representations place the mother-child relationship at great risk (Huth-Bock et al., 2004); thus, a longer period of time may be needed to foster changes in emotionally available parenting behaviours.

The Association between Parenting and Child Behaviour Problems

Given that parent functioning and behaviour were predicted by time of enrolment at BTC at Time 2, the third objective of the study was to determine whether these variables would predict child outcomes at Time 2 and Time 3. At Time 2, the hypothesis that mothers with lower parenting stress would have children with fewer behaviour problems was supported with parenting stress accounting for approximately one fifth of the variability in maternal report of child behaviour. Though this association could not be formally tested at Time 3, scatterplots depicted a possible linear relationship between parent functioning and child behaviour problems one year later; however, it should be noted that only one child fell in the borderline range for externalizing problems and all other children fell in the normal range for internalizing and externalizing behaviours at this time point.

Caution must be used when interpreting these results as both variables were measured using maternal self-report. It is possible that mothers with lower parenting stress simply perceive their children to behave in less problematic ways or that mothers with better behaved

children consequently experience less perceived stress. To strengthen the design of the study, observational data of mother-child interactions were also gathered; however, maternal behaviour at Time 2 was not found to predict child behaviour at Time 2. This finding is not consistent with previous research that has shown the association between positive maternal behaviour and child emotion regulation or behaviour problems in non-substance-using high-risk families (Alink et al., 2009; Little & Carter, 2005). It is also inconsistent with previous research that shows this association in substance-exposed samples (Eiden et al., 2014; Eiden, Granger et al, 2011; Eiden, Schuetze et al., 2011; Molnar et al., 2014). Visual inspection of the scatterplot was done to further explore this unexpected finding. Though there was no indication of a linear relationship between parenting and child behaviour at Time 2, visual inspection revealed that all six children that fell in the borderline or clinical range for behaviour problems had mothers who scored in the secure range for emotionally available parenting behaviours. Notably, in the current study there was also no linear relationship between parenting stress and parenting behaviours at any time point. This finding is inconsistent with the existing literature on substance users (Suchman & Luthar, 2001) and in other at risk populations (Belsky & Fearon, 2002b; Gutermuth Anthony et al., 2005; Stack et al., 2012) and may highlight either a unique feature of the BTC population or a limitation in the data or measures available. Further to this point, due to missing data, I was unable to investigate the parenting stress scores of the securely behaving mothers whose children were experiencing behaviour problems. Only one mother completed the parenting stress and child behaviour questionnaires within the same time point as the first free-play observation. In this dyad, the child was exhibiting both internalizing and externalizing behaviour problems and

though his/her mother scored in the secure range on the observational measure of parenting behaviour, she scored in the clinically significant risk range on PSI total stress scale.

Additional research is needed to investigate parenting stress, parenting behaviour, and child well-being in this population with a particular focus on maternal perceptions of stress and child behaviour. Mothers' ability to reflect accurately on their own difficulties and those of their children may vary greatly within the sample based on mothers' individual risk factors. Mothers' reflective capacity is likely also influenced by their progress at BTC both in terms of number of sessions attended but also based on their individual rate of learning and their capacity to integrate and apply information to their own lives. In an unpublished study, researchers at BTC compared self and clinician reports of maternal mental health and child behaviour problems and found that mothers' reports were more closely matched to clinician reports on measures of child well-being than on reports of their own mental health (Mulagulova, 2012). This discrepancy may also apply to their ability to rate their own stress and distress in the parenting context.

Patterns within the Mother-Child Relationship

The fourth objective of this study was to explore the patterns of change over time in the mother-child relationship, as measured by the EA Scales. I began by exploring patterns in the mother-child relationship. At both time points, all dyads with the exception of one dyad at Time 1 were classified into three types of dyads: secure dyads, secure mother/insecure child dyads, and insecure dyads. These categories line up with those found in previous research. Easterbrooks, Chaudhuri, & Gestsdottir (2005) evaluated the mother-child relationship using the EA scales 3rd edition in a sample of teenage mothers enrolled in a prevention program to reduce the risk of maltreatment and promote child development. Using cluster analysis, these researchers identified four clusters of dyads which they labelled high-functioning, average functioning,

average parenting/disengaged infant, and low functioning. The sample size in the current study did not allow for cluster analysis and the use of cut-off scores to identify women and children behaving in a manner indicative of secure and insecure attachment eliminated the possibility of distinguishing high-functioning dyads from average functioning; however, the classification of dyads in the present study maps on to those found by Easterbrooks and colleagues. Notably, neither study identified an insecure mother/secure child category. Easterbrooks and colleagues posited that this category may simply not exist or that this finding could be a result of the artificial filming situation. The authors propose that since mothers are aware of the cameras and their implications in terms of potential judgement of parenting, mothers may be able to maintain atypical positive parenting during the short observation period, whereas children are less aware and more genuine in their actions. Assuming that the insecure mother/secure child category does not truly exist under more typical circumstances, the lack of secure children with insecure mothers is further evidence of the importance of mothering and its influence on children's relationship skills. These skills, first developed within the mothering context, set the foundation for the child's future interactions with peers and adults (Bowlby, 1969; Sameroff, 2010). Consequently, failure to develop sound relationship skills in this primary relationship has major implications for future relationships, development, and well-being (Sameroff, 2010). Thus, early interventions to promote positive parenting skills and the mother-child relationship are of the utmost importance.

At both time points, approximately one in six dyads was categorized as secure mother/insecure child. This pattern is very similar to the proportion of dyads found in Easterbrooks and colleague's study. In their study, dyads who fell into this category were more likely to rely on a grandmother as the primary caregiver and mothers in this category were more

likely to be focused primarily on their own personal development (e.g., focus on “growing up”, education and work). The authors posited that this focus on personal development came at a cost to the child’s experiences in the mother-child relationship. This focus on personal development may also play a key role in the BTC population. The objectives of BTC are to support both recovery from addiction and parenting. Thus, mothers at BTC must have multiple treatment goals that include both personal goals (e.g., sobriety, relationship stability, educational attainment), as well as dyadic goals. The importance of personal attainment in terms of recognizing one’s own physical, emotional, and psychological needs before gaining an understanding of your child’s needs has been identified in other samples of substance-using mothers (Belt et al., 2012; Sword et al., 2009). Consequently, BTC dyads may need much more diverse treatment and support over a greater period of time to attain a healthy mother-child relationship.

The secure mother/insecure child category may also be a indication of the ongoing process of learning and change that occurs mother-child dyads through intervention at BTC. Paula and Britney are an example of a dyad with this discordance in behaviour at Time 1. In their case, Britney was removed from Paula’s care at eight months of age due to neglect; thus, the discrepancy in their relationship skills is likely a reflection of Britney’s early learning about relationships as unreliable and Paula’s more recent learning about child development and sensitive mothering. Further, Paula’s parenting skills were also just beginning to develop. She had receive a limited number of sessions from her parent-infant therapist and her emotional availability score fell just above of the cut-off for secure behaviours. While Paula was able to make some adjustments to her behaviour towards Britney as she progressed through treatment, Britney had not yet adapted to the change in behaviour in her mother. Britney’s confusion and

inability to use her mother to soothe herself were clear throughout the free-play interaction, but were most evident in the first moments of the session when Britney whimpered, yelled, and made fleeting eye-contact with her mother. While this is a more extreme example involving child welfare and identified neglect, other BTC dyads may experience similar discrepancies in behaviour early in the program as both mother and child make gains in relationship skills through interactions with BTC staff and formal learning through BTC programming. With support mothers and children slowly learn to adjust to a new way of interacting with each other. Mothers' skills may increase more quickly as they can readily make changes to discrete parenting behaviours through intervention (Thomas & Zimmer-Gembeck, 2011) and to their representations of their child through insight gained during therapy. Children, on the other hand, will be learning behaviours through interactions with child care staff at BTC, but will rely on experiences with their mothers to change their representation of themselves, their mothers, and their relationship. As Bowlby stated in his early work, children's working models are shaped through repeated interactions with their mothers and children behave in ways to elicit expected behaviours from their mothers in a way that maintains their customary patterns of interaction (1969). Additionally, some children at BTC have experienced repeated losses of their primary caregivers as a result of transitions in and out of foster care. Consequently, these children may be unsure of how to interact with their mothers or may be reticent to engage in an emotionally available way towards their mothers. Thus, consistent effort to make changes to interaction patterns is required before children will be able to adjust their expectations and behaviour when interacting with their mothers.

Patterns of Change in the Mother-Child Relationship

Contrary to expectations, there was no clear pattern or gain in relationship/parenting skills from Time 1 to Time 2. Though an equal number of secure and insecure mothers and children returned for the second observation, gains and regressions in mothers and children's skills were observed in both groups. Thus, the status of an individual's relationship skills at Time 1 was not clearly associated with his/her skills at Time 2.

Increases in relationship skills were expected and can be attributed to the reductions in substance use and mental health difficulties and the increases in relationship capacity shown in previous research at BTC (Espinet et al., 2015). Additionally, it was expected that mothers would make gains in discrete positive parenting behaviours through direct teaching, as well as interactions and modelling from BTC staff. Sharon and Jake both made great gains in their relationship skills and concordantly moved from the insecure range at Time 1 to the secure range at Time 2. Notably, this dyad was classified as insecure at the first observation despite having received one year and four months of treatment prior to the observation. Once again, this reflects the high-risk nature of the sample and the need for consistent, long-term treatment to make significant changes in relationship quality. Further, though Sharon and Jake continued to be enrolled at BTC for an additional year before the second observation, the number of services and the frequency with which they accessed services decreased substantially. This tapering of services is typical at BTC. Frequency of sessions with counsellors and parent-infant therapists is gradually decreased as mothers gain skills and confidence. This process is done to ensure that women are given more independence at a rate that is comfortable for them and that maintains the stable relationships they have established with BTC staff. That Sharon and Jake made

significant gains during this time of reduced service speaks to the need for time to consolidate information, stabilize risk factors, and practice relationship skills all the while maintaining a sense of security by having the BTC service as a secure base in times of need.

Decreases in relationship skills from Time 1 to Time 2 were unexpected. These decreases may be due to changes in maternal risk factors (e.g., domestic violence, finances, housing) that put additional stress on some mothers. Alternatively, or in conjunction with changes in risk factors, mothers may be unable to adapt to the changing needs of their developing children. BTC mothers may experience much more difficulty adapting to the changing needs of their children as their own development as women and mothers is ongoing and may be occurring at a slower rate. The observations were a year apart meaning that over this time children acquired many new skills that their mothers needed to adjust to including reaching developmental milestones such as walking and speaking, development in their play such as the introduction of imaginative play, development in their sense of self and others such as testing of limits and seeing autonomy. Ideally, mothers' development should parallel their children's; however, some women may be unable to develop at the rate needed. Amanda and Isabel are an example of a dyad where this occurred. From Time 1 to Time 2, Amanda did not receive any support services, her symptoms of depression worsened and her ability to be emotionally available and responsive to Isabel decreased. Simultaneously, Isabel progressed from a toddler to a verbal and imaginative preschooler which greatly changed her needs and interests. In addition to difficulties in developing at a comparable rate as their children, some BTC mothers may struggle in particular with the developmentally appropriate autonomy seeking that their children develop as they transition from infants to toddlers and preschoolers. Mothers with

fearful attachment styles may interpret this autonomy seeking as a sign of no longer being needed and a warning of abandonment. They may react to this threat to their relationship by becoming intrusive and overly controlling of their child or, alternatively, they may retreat from the relationship, distancing themselves from their child as a way of protecting themselves from being abandoned.

Though there was much variability in the changes in relationship skills within the sample, mothers and children were much more likely to be concordant with each other in their movement between secure and insecure categorizations of their behaviours and relationship skills in the observed interactions. This concordance indicates that mothers and children are generally changing together. Neither member is gaining significant skills or benefit from BTC without the other gaining as well or, conversely, if one member is struggling and lagging in their relationship skills, it is likely that the other member is also struggling. Of the seven discordant dyads, two secure mothers with insecure children at Time 1 became insecure, and consequently concordant with their children, at Time 2. All other discordant dyads involved a mother that remained secure from Time 1 to Time 2 with one child that moved to security, one child that became insecure, and three children that remained insecure. Additional information and investigation of the insecure children in these dyads is needed. If mothers' skills are remaining in the secure range, why are the children not improving in their relationship skills? External risk factors such as negative interactions with other caregivers or domestic violence may be playing a role in these dyads. Alternatively, it is possible that a grandparent or other adult may be playing the role of primary caregiver and so the mother-child relationship is not as strong (Easterbrooks, Chaudhuri, & Gestsdottir, 2005).

Limitations and Future Directions

This study has several limitations. Lack of statistical power due to small sample sizes and non-normal data was a significant limitation. Additionally, the attrition between time points led to not only small but also self-selected samples. Attrition was due to multiple factors associated with the lives of struggling mothers, including unreturned or incomplete questionnaires, loss of child custody with no plan to parent in the future, inability to contact mothers due to maternal transiency, and refusal to continue to participate in the research component of BTC. Further, in several cases, questionnaires or free-play observations were obtained, but the time delay between measures meant that they could not be grouped into coherent time points for statistical analyses. Bootstrapping was used to address many of these weaknesses, but statistical analyses were still limited by sample size, particularly for the third objective.

The accuracy of maternal self-reports is a concern in many research settings, but particularly so in high-risk populations. Reading level and question comprehension, as well as honesty and trust are all factors that may influence self-reports. Further, as previously discussed, substance-using mothers may have biased perceptions of their children's challenges because of their own difficulties (Salomonsson & Sled, 2010). Future research will benefit from multi-respondent ratings of risk factors and well-being such as clinician or teacher ratings in addition to maternal reports. Additionally, mothers' histories may significantly impact their expectations in terms of relationships, safety, and parenting stress greatly altering their perceptions of many factors including "good relationships", "stressful parenting", and "difficult children". An investigation into mothers' perceptions within these domains would provide fruitful information

for both clinical intervention and future research. This line of inquiry could be pursued via focus group, interviews, or written questionnaires with open-ended questions.

A baseline measure of parent and child behaviour and the quality of the mother-child relationship using free-play observations at intake would have greatly contributed to the current study. Unfortunately, this is not clinically appropriate at BTC. As we have seen, women referred to BTC have many risk factors and are frequently referred from child welfare agencies. Consequently, women may be hesitant or ambivalent about engaging in service and may fear judgement and child welfare repercussions if their parenting is seen to be inadequate. Additionally, many women entering BTC have had difficult histories with past service providers (Motz et al., 2006). Thus, the primary focus at intake is to establish a trusting relationship between staff and clients (Motz et al., 2006). BTC staff speculate that a request to videotape mothers and children at the early intake stage may jeopardize the formation of this relationship. Further, as seen with Sharon at Time 1, the free-play observation can be a stressful interaction when mothers struggle to engage their children. Moreover, even when the play session is successful, as with all children, the clean-up process requires skilful navigation to gain children's cooperation and willingness to disengage with toys. Engaging in this process in the presence of research staff while being videotaped could result in feelings of significant pressure and discomfort. All together, this process has the potential to cause significant stress at a very vulnerable time in the therapeutic process and interrupt an important clinical journey for a high-risk mother and her child. Future research could explore the possibility of using less formal clinician or child care staff ratings of mother-child interactions at intake.

The conclusions of the current study would have been greatly benefitted by formal assessments of attachment classification for both mothers and children. However, as mentioned

in the method section, a formal child attachment measure such as the Strange Situation has been deemed inappropriate at BTC. The staff feel that this process would be much too stressful for the high-risk mothers and children seeking support from BTC. Additionally, BTC strives to provide a welcoming, non-judgemental, and supportive environment and the staff believe that a formal attachment assessment would threaten this. A formal assessment of mothers' attachment classifications was also not possible. An adult attachment measure such as the Adult Attachment Interview would not only require significant time, but would need to be administered by a staff member specially trained to conduct this type of assessment with very high-risk women in a respectful and supportive fashion so as to avoid re-traumatizing these vulnerable mothers. Though the use of proxy measures of attachment does limit my conclusions, the benefit of having such formal measures of women and children's attachment does not surpass the cost in terms of time, finances, and possible emotional toll on participants.

The association between parenting stress and children's behaviour problem requires further exploration in this population. The lack of association between these variables in the current study is inconsistent with past research (Belsky & Fearon, 2002b; Suchman & Luthar, 2001). It is unclear whether the lack of association in the current research reflects a discrepancy in mothers' actual and perceived parenting stress or a limitation of the observational measure of parenting behaviour. It is also possible that this association is truly weaker in this population as substance using mothers' parenting behaviours may be more influenced by their own upbringing, past parenting experiences, and expectations of mother-child relationships as opposed to the stress they perceive in their current situation. This research question could be explored in

conjunction with an investigation into maternal perceptions and representations of relationships, parenting, and child behaviour.

Detailed service information (e.g., number of addiction counselling sessions attended) for each woman would have provided a much richer picture of the patterns of service usage at BTC. As seen with Sharon, duration of enrolment is not directly reflective of the number or frequency of services used. In her case, she received more intensive services for the first year and four months, followed by much less frequent service for an additional year. Some women at BTC receive intensive services for much longer than Sharon, while others still are slow and hesitant to engage in the early stages and attend sessions sporadically before full engaging or discharging from BTC. Detailed information about types of services accessed would also help clarify the different ways in which each woman uses the program to pursue her primary goals. Though all women are required to access both substance use and parenting services, the frequency with which they follow through on accessing these services provides valuable information about the nature of their treatment. For example, Sharon accessed individual counselling, parenting groups, and parent-infant home visiting at a similar rate, whereas Paula accessed many more individual sessions, no groups, and few parent-infant home visiting sessions. These patterns of usage may reflect the women's different goals or priorities, individual risk factors, comfort level or willingness to engage in group work, and insight into and readiness to change parenting representations and behaviours. Future research would benefit from exploring this information and its association with gains in parent functioning and behaviour, as well as child outcomes. This information may provide greater insight into why some women never fully engage at BTC and why some dyads remain insecure in their relationship skills despite remaining in the program, while other make significant gains. This information will be critical in ensuring that

the mothers and children served at BTC receive the interventions they need to succeed. Finally, the inclusion of a comparison group of women participating in a traditional addiction program and their children would be beneficial. This would allow for a direct comparison of the improvements in parenting associated with traditional treatment as compared to integrated relationship-focused treatment.

Clinical Implications

Although conducting research in a clinical population of high-risk women and children presents many challenges and limitations, the information gained from such endeavours is critical to informing clinical practice. As seen in this study, substance-using women present with a complex profile of risk factors and treatment needs. Thus, supporting mothers and children and fostering the mother-child relationship in the interest of promoting both mothers and children's well-being is essential. Findings from parenting programs aimed at lower risk groups can significantly contribute to the foundation of programs for substance-using women; however, they cannot be applied without consideration for the context within which these high-risk families live and the skills and past relationships that mothers and children bring with them to the intervention.

In particular, this study highlights the importance of length of programming for substance-using women. Although past research at BTC has shown changes in maternal substance use and well-being after only one year of treatment (Espinet et al., 2015), changes in parent functioning and behaviour were not seen in the current study until two years post-intake. The high level of relationship risk and the high proportion of mothers with insecure attachment styles may play a role in this need for long-term treatment. In order for mothers to nurture healthy, supportive relationships with their children, they must first have experience with these

types of relationships. For many parents, the experiences of nurturing relationships come from their own childhood experiences, but this is not the case for the majority of substance-using women. Thus, many substance-using women do not have internal working models that characterise relationships as stable, safe, and supportive. Over time, consistent, reliable, and non-judgemental care, as provided through Breaking the Cycle, can be a transformative experience for women. One client described her experience:

Someone [the BTC staff] was for the first time in my life listening to me with compassion, without judgment...She sat down with me and took the time to listen, evaluate. It was like she knew me very well and she was still standing behind me and beside me. I was very raw back then, very raw. Very angry. Very street, you know, and it was amazing to me, and comforting. They stood beside me, no matter what (Pepler, Motz, Leslie, Jenkins, Espinet, & Reynolds, 2014, p. 34).

By supporting and nurturing substance-using women, BTC is setting the foundation for these mothers to support and nurture their own children; helping both women and children to embark on a healthier pathway together.

The conceptual model and research questions for the current study were developed in collaboration with BTC clinical staff and reflect the needs and interests of the program. This research will help inform BTC as it continues to strive to provide the best possible care to the mothers and children it serves. This research also contributes to the literature on this unique population and presents promising avenues for future research and intervention.

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APPENDIX A: BREAKING THE CYCLE INTAKE PACKAGE



BREAKING THE CYCLE
INTAKE PACKAGE
(mother)



Client ID: _____

Case Manager: _____

PIP worker: _____

CLIENT INFORMATION	
Name:	
_____	_____
First	Last
Alias	
Address:	

Street	
Apt. #	
_____	_____
City	Province
Postal	
Telephone:	
Home:	Contact:
Work:	Contact:

EMERGENCY CONTACT/NEXT OF KIN	
Name:	
_____	_____
First	Last
Relation to client:	
Address:	

Street	
Apt. #	
_____	_____
City	Province
Postal	
Telephone:	
Home:	Contact:
Work:	Contact:

INTAKE INFORMATION	
Date Intake Interview Began:	_____ / _____ / _____
	Month Date Year
Date Intake Interview Completed:	_____ / _____ / _____
	Month Date Year

Referral Source: _____ Contact Name: _____ Phone number: _____	Was the referral from BTC pregnancy outreach? (0)[]No (1)[]Yes → if Yes, what month during pregnancy did client begin accessing pregnancy outreach services? _____
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Intake Status: Active service (1) <input type="checkbox"/> Discharged at intake (2) <input type="checkbox"/> New mom's support group? (0)[]No (1)[]Yes

MOTHER DEMOGRAPHICS:

Age: _____ D.O.B.: _____ / _____ / _____ Month Date Year Referred by: _____ Mandatory Referral: (0)[] No (1)[] Yes Charges Pending: (0)[] No (1)[] Yes Previous Treatment: (0)[] No (1)[] Yes Health Card #: _____	Current Living Arrangement: (1)[] alone (2)[] with child/ren (3)[] with partner (and child/ren) (4)[] with partner (no children) (5)[] with family (and child/ren) (6)[] with friend(s) (and child/ren) (7)[] group/shared environment (8)[] other _____ Current Accommodation: (1)[] street (2)[] shelter/residential program (3)[] apartment (4)[] house
---	---

CHILDREN INFORMATION:

Name	Sex	D.O.B.	Where living	Biological father	Father involved in child's life (circle Y/N)	OHIP#
				* <input type="checkbox"/>	(0) N (1) Y	
				* <input type="checkbox"/>	(0) N (1) Y	
				* <input type="checkbox"/>	(0) N (1) Y	
				* <input type="checkbox"/>	(0) N (1) Y	
				* <input type="checkbox"/>	(0) N (1) Y	
				* <input type="checkbox"/>	(0) N (1) Y	

*1=in care (non-relative); 2=mother has custody; 3=in others custody (relative); 4=adopted; 5=unknown

Has child welfare ever been involved in the care of your children (check)?

(0) [] No (1) [] Yes

→ If YES

	Dates Involved		Child Name	Worker's Name	Telephone #
	From	To			
1.					
2.					
3.					
4.					

Reasons for Involvement:

1. _____
2. _____
3. _____

Perceived Social Support – Friends Scale (PSS-Fr; Procidano & Heller, 1983) –
questionnaire removed due to copyright

BACKGROUND:

Country of Birth: _____ Age Immigrated: _____	Preferred Language: _____ Language spoken at Home: _____ Other Languages Spoken: _____ _____		
<p>Ethnic heritage (check all that apply):</p> <table style="width: 100%; border: none;"> <tbody> <tr> <td style="width: 50%; vertical-align: top;"> <input type="checkbox"/> African (e.g. Ethiopia, Chad, Somalia, Ghana) <input type="checkbox"/> Caribbean (e.g. Dominica, Cuba, Jamaica, Trinidad, Puerto Rico) <input type="checkbox"/> European (e.g. France, Germany, England, Scotland, Ireland, Greece, Italy, Portugal, Ukraine, Poland) <input type="checkbox"/> East Asian (e.g. China, Japan, Korea) <input type="checkbox"/> Native/Aboriginal People (e.g. North American Indian, Métis, Inuit/Eskimo) </td> <td style="width: 50%; vertical-align: top;"> <input type="checkbox"/> North American (e.g. Canada, USA) <input type="checkbox"/> South American (e.g. Argentina, Chile, Brazil) <input type="checkbox"/> South Asian (e.g. India, Pakistan, Iran) <input type="checkbox"/> South East Asian (e.g. Philippines, Singapore, Cambodia, Vietnam, Indonesia) <input type="checkbox"/> Western Asian (e.g. Israel, Iraq, Lebanon) <input type="checkbox"/> Other (specify) _____ </td> </tr> </tbody> </table>		<input type="checkbox"/> African (e.g. Ethiopia, Chad, Somalia, Ghana) <input type="checkbox"/> Caribbean (e.g. Dominica, Cuba, Jamaica, Trinidad, Puerto Rico) <input type="checkbox"/> European (e.g. France, Germany, England, Scotland, Ireland, Greece, Italy, Portugal, Ukraine, Poland) <input type="checkbox"/> East Asian (e.g. China, Japan, Korea) <input type="checkbox"/> Native/Aboriginal People (e.g. North American Indian, Métis, Inuit/Eskimo)	<input type="checkbox"/> North American (e.g. Canada, USA) <input type="checkbox"/> South American (e.g. Argentina, Chile, Brazil) <input type="checkbox"/> South Asian (e.g. India, Pakistan, Iran) <input type="checkbox"/> South East Asian (e.g. Philippines, Singapore, Cambodia, Vietnam, Indonesia) <input type="checkbox"/> Western Asian (e.g. Israel, Iraq, Lebanon) <input type="checkbox"/> Other (specify) _____
<input type="checkbox"/> African (e.g. Ethiopia, Chad, Somalia, Ghana) <input type="checkbox"/> Caribbean (e.g. Dominica, Cuba, Jamaica, Trinidad, Puerto Rico) <input type="checkbox"/> European (e.g. France, Germany, England, Scotland, Ireland, Greece, Italy, Portugal, Ukraine, Poland) <input type="checkbox"/> East Asian (e.g. China, Japan, Korea) <input type="checkbox"/> Native/Aboriginal People (e.g. North American Indian, Métis, Inuit/Eskimo)	<input type="checkbox"/> North American (e.g. Canada, USA) <input type="checkbox"/> South American (e.g. Argentina, Chile, Brazil) <input type="checkbox"/> South Asian (e.g. India, Pakistan, Iran) <input type="checkbox"/> South East Asian (e.g. Philippines, Singapore, Cambodia, Vietnam, Indonesia) <input type="checkbox"/> Western Asian (e.g. Israel, Iraq, Lebanon) <input type="checkbox"/> Other (specify) _____		

EDUCATION:

Highest School Grade Completed (0-13): _____

	Yes/No	How long did you receive this training (months)	Notes
Trade or technical education	(0) <input type="checkbox"/> N (1) <input type="checkbox"/> Y		
Post-secondary education (including university or community college)	(0) <input type="checkbox"/> N (1) <input type="checkbox"/> Y		
Any learning difficulties?	(0) <input type="checkbox"/> N (1) <input type="checkbox"/> Y →		If YES, please specify & explain:

INCOME:Current employment status: (2) full time (1) part time (0) not currently employed

Most recent job: _____

Previous work experience(s):	How long held (months):

Are you actively seeking employment? (0) no (1) yesTotal gross **monthly** income? \$ _____**Source & Amount of monthly income:**

<input type="checkbox"/> Ontario Works: \$ _____	<input type="checkbox"/> ODSP (disability): \$ _____
<input type="checkbox"/> Family Allowance: \$ _____	<input type="checkbox"/> Employment Insurance: \$ _____
<input type="checkbox"/> OCCS (Ontario child care supplement) \$ _____	<input type="checkbox"/> Employment: \$ _____
<input type="checkbox"/> GST rebate: \$ _____	<input type="checkbox"/> Other: \$ _____
<input type="checkbox"/> Support Payments: \$ _____	(please specify) _____

Expenses:

Rent: \$ _____	<input type="checkbox"/> monthly	<input type="checkbox"/> rent includes utilities
	<input type="checkbox"/> weekly	<input type="checkbox"/> rent plus utilities

LEGAL:

Was this admission prompted or suggested by the criminal justice system?

(0) No (1) Yes

Do you have any current legal problems?

(0) No (1) Yes → if yes, type: _____

Are you on probation or parole? (0) No (1) Yes

Date: _____ Duration: _____

Probation/Parole Officer: _____ Telephone: _____

Are you presently awaiting charges, trial or sentence? (0) No (1) Yes

→ If yes, What for? _____

Past convictions and time served:

Conviction type	Time Served (# months, weeks, or days)	Where served	Year (date)
	____ M ____ W ____ D		
	____ M ____ W ____ D		
	____ M ____ W ____ D		
	____ M ____ W ____ D		
	____ M ____ W ____ D		
	____ M ____ W ____ D		

This section to be completed by research team:

How many months were you incarcerated in your life (total number of months incarcerated)?

_____ months

- if incarcerated 2 weeks or more, round this up to 1 month

How long was your last incarceration (of 2 weeks or more)? _____ months

What for? _____

How many times in your life have you been convicted of the following?

Conviction Type	# times	Conviction Type	# times
<input type="checkbox"/> Shoplift/vandal		<input type="checkbox"/> Assault	
<input type="checkbox"/> Parole/probation violations		<input type="checkbox"/> Arson	
<input type="checkbox"/> Drug charges		<input type="checkbox"/> Rape	
<input type="checkbox"/> Forgery		<input type="checkbox"/> Homicide/Manslaughter	
<input type="checkbox"/> Weapons offense		<input type="checkbox"/> Prostitution	
<input type="checkbox"/> Burglary/larceny/B&E		<input type="checkbox"/> Contempt of court	
<input type="checkbox"/> Robbery		<input type="checkbox"/> Other	

Alcohol Questions:

How much would you say you spent during the past 30 days on alcohol? _____

How many days in the past 30 have you experienced alcohol-related problems? _____
(Include: craving, withdrawal symptoms, disturbing effects of use, or wanting to stop and being unable to)

How troubled or bothered have you been in the past 30 days by these alcohol problems?

- (0) [] not at all
- (1) [] slightly
- (2) [] moderately
- (3) [] considerably
- (4) [] extremely

Other drug questions:

How many days in the past 30 have you experienced drug-related problems? _____
(Include: craving, withdrawal symptoms, disturbing effects of use, or wanting to stop and being unable to)

How troubled or bothered have you been in the past 30 days by these drug problems? How important to you now is treatment for these drug problems?

- | | |
|----------------------|----------------------|
| (0) [] not at all | (0) [] not at all |
| (1) [] slightly | (1) [] slightly |
| (2) [] moderately | (2) [] moderately |
| (3) [] considerably | (3) [] considerably |
| (4) [] extremely | (4) [] extremely |

Drug Taking Confidence Questionnaire (DTCQ-8; Sklar & Turner, 1999) – questionnaire removed due to copyright.

ALCOHOL/DRUG ABUSE:

Primary Addiction: _____ Secondary Addiction(s): _____

Name of Substance	Age/Date of First Use	Age when it became a problem	Pattern of Use	# days used in past 30 days	Periods of abstinence	Date of last use
Alcohol			*last 6 months <input type="checkbox"/>	Any use at all: _____ days Use to intoxication: _____ days		
Cannabis (marijuana, hashish)			*last 6 months <input type="checkbox"/>	Any use at all: _____ days Use to intoxication: _____ days		
Heroin [] nasal [] smoking [] non iv injection [] iv injection			*last 6 months <input type="checkbox"/>	Any use at all: _____ days Use to intoxication: _____ days		
Methadone			*last 6 months <input type="checkbox"/>	Any use at all: _____ days Use to intoxication: _____ days		
Other Opiates			*last 6 months <input type="checkbox"/>	Any use at all: _____ days Use to intoxication: _____ days		
Cocaine [] nasal [] smoking [] non iv injection [] iv injection			*last 6 months <input type="checkbox"/>	Any use at all: _____ days Use to intoxication: _____ days		

* 1=daily; 2=less than daily; 3=weekend; 4=binges; 5=occasional/abstaining

Name of Substance	Age/Date of First Use	Age when it became a problem	Pattern of Use	# days used in past 30 days	Periods of abstinence	Date of last use
Crack [] smoking [] iv injection			*last 6 months <input type="checkbox"/>	Any use at all: ____ days Use to intoxication: ____ days		
Amphetamines (speed, ice, crystal)			*last 6 months <input type="checkbox"/>	Any use at all: ____ days Use to intoxication: ____ days		
Hallucinogens (ecstasy, LSD, angel dust, PCP)			*last 6 months <input type="checkbox"/>	Any use at all: ____ days Use to intoxication: ____ days		
Barbiturates/ Sleeping Pills			*last 6 months <input type="checkbox"/>	Any use at all: ____ days Use to intoxication: ____ days		
Sedatives/Hypnotics/ Tranquilizers (valium, ativan, ketamine)			*last 6 months <input type="checkbox"/>	Any use at all: ____ days Use to intoxication: ____ days		
Inhalants			*last 6 months <input type="checkbox"/>	Any use at all: ____ days Use to intoxication: ____ days		
Nicotine			*last 6 months <input type="checkbox"/>			

Name of Substance	Age/Date of First Use	Age when it became a problem	Pattern of Use	# days used in past 30 days	Periods of abstinence When & for how long (months)?	Date of last use
Anti-depressants			*last 6 months <input type="checkbox"/>			
Other over the counter drugs/ prescription			*last 6 months <input type="checkbox"/>	Any use at all: ____ days Use to intoxication: ____ days		
More than 1 substance per day (including alcohol)			Describe:	Any use at all: ____ days Use to intoxication: ____ days		

* 1=daily; 2=less than daily; 3=weekend; 4=binges; 5=occasional/abstaining

Is there a triggering event, or series of events that precipitates heavier alcohol/drug use? (0)[] No (1)[] Yes

Longest period of abstinence since alcohol/drugs became a problem:

Does your menstrual cycle affect your cravings/use of alcohol or other drugs? (0)[] No (1)[] Yes → if yes, describe:

PREVIOUS TREATMENT FOR SUBSTANCE ABUSE:

Type of Treatment	Dates	Where	Length of abstinence (post treatment)	Was it helpful?
Detoxification				(0)[] no (1)[] yes (2)[] helpful while in treatment only Describe:
Self Help				(0)[] no (1)[] yes (2)[] helpful while in treatment only Describe:
Pharmacological Treatment for substance misuse				(0)[] no (1)[] yes (2)[] helpful while in treatment only Describe:
Residential Program				(0)[] no (1)[] yes (2)[] helpful while in treatment only Describe:
Day Program				(0)[] no (1)[] yes (2)[] helpful while in treatment only Describe:
Individual counseling				(0)[] no (1)[] yes (2)[] helpful while in treatment only Describe:
Hospital treatment program				(0)[] no (1)[] yes (2)[] helpful while in treatment only Describe:

FAMILY/SOCIAL RELATIONSHIPS:

Current relationship status:

(0) <input type="checkbox"/> single never married (1) <input type="checkbox"/> married (2) <input type="checkbox"/> common law (3) <input type="checkbox"/> separated	(4) <input type="checkbox"/> divorced (5) <input type="checkbox"/> widowed (6) <input type="checkbox"/> same sex relationship	Past significant relationships: _____ _____
--	---	--

Did you ever have any involvement with child welfare? (0) No (1) Yes → If Yes, explain: _____

Relationship to Client	D.O.B	Lives with client?	Substance use/abuse?	In recovery?	Significant medical psychiatric problems	Describe relationship	Current status of relationship (check all that apply):
Spouse or Partner		(0) <input type="checkbox"/> N (1) <input type="checkbox"/> Y	(0) <input type="checkbox"/> N (1) <input type="checkbox"/> Y, what? _____ _____	(0) <input type="checkbox"/> N (1) <input type="checkbox"/> Y, How long? _____			<input type="checkbox"/> supportive <input type="checkbox"/> good <input type="checkbox"/> telephone contact <input type="checkbox"/> little contact <input type="checkbox"/> no contact <input type="checkbox"/> difficult/poor <input type="checkbox"/> abusive
Past Relationships		(0) <input type="checkbox"/> N (1) <input type="checkbox"/> Y	(0) <input type="checkbox"/> N (1) <input type="checkbox"/> Y, what? _____ _____	(0) <input type="checkbox"/> N (1) <input type="checkbox"/> Y, How long? _____			<input type="checkbox"/> supportive <input type="checkbox"/> good <input type="checkbox"/> telephone contact <input type="checkbox"/> little contact <input type="checkbox"/> no contact <input type="checkbox"/> difficult/poor <input type="checkbox"/> abusive
		(0) <input type="checkbox"/> N (1) <input type="checkbox"/> Y	(0) <input type="checkbox"/> N (1) <input type="checkbox"/> Y, what? _____ _____	(0) <input type="checkbox"/> N (1) <input type="checkbox"/> Y, How long? _____			<input type="checkbox"/> supportive <input type="checkbox"/> good <input type="checkbox"/> telephone contact <input type="checkbox"/> little contact <input type="checkbox"/> no contact <input type="checkbox"/> difficult/poor <input type="checkbox"/> abusive
		(0) <input type="checkbox"/> N (1) <input type="checkbox"/> Y	(0) <input type="checkbox"/> N (1) <input type="checkbox"/> Y, what? _____ _____	(0) <input type="checkbox"/> N (1) <input type="checkbox"/> Y, How long? _____			<input type="checkbox"/> supportive <input type="checkbox"/> good <input type="checkbox"/> telephone contact <input type="checkbox"/> little contact <input type="checkbox"/> no contact <input type="checkbox"/> difficult/poor <input type="checkbox"/> abusive

Relationship to Client	D.O.B	Lives with client?	Substance use/abuse?	In recovery?	Significant medical psychiatric problems	Describe relationship	Current status of relationship (check all that apply):
Biological Mother		(0) [] N (1) [] Y	(0) [] N (1) [] Y, what? _____ _____ _____	(0) [] N (1) [] Y, How long? _____			[] supportive [] good [] telephone contact [] little contact [] no contact [] difficult/poor [] abusive
Biological Father		(0) [] N (1) [] Y	(0) [] N (1) [] Y, what? _____ _____ _____	(0) [] N (1) [] Y, How long? _____			[] supportive [] good [] telephone contact [] little contact [] no contact [] difficult/poor [] abusive
Siblings (list)		(0) [] N (1) [] Y	(0) [] N (1) [] Y, what? _____ _____ _____	(0) [] N (1) [] Y, How long? _____			[] supportive [] good [] telephone contact [] little contact [] no contact [] difficult/poor [] abusive
		(0) [] N (1) [] Y	(0) [] N (1) [] Y, what? _____ _____ _____	(0) [] N (1) [] Y, How long? _____			[] supportive [] good [] telephone contact [] little contact [] no contact [] difficult/poor [] abusive
		(0) [] N (1) [] Y	(0) [] N (1) [] Y, what? _____ _____ _____	(0) [] N (1) [] Y, How long? _____			[] supportive [] good [] telephone contact [] little contact [] no contact [] difficult/poor [] abusive

Relationship to Client	D.O.B	Lives with client?	Substance use/abuse?	In recovery?	Significant medical psychiatric problems	Describe relationship	Current status of relationship (check all that apply):
Siblings (con't)		(0) <input type="checkbox"/> N (1) <input type="checkbox"/> Y	(0) <input type="checkbox"/> N (1) <input type="checkbox"/> Y, what? _____ _____ _____	(0) <input type="checkbox"/> N (1) <input type="checkbox"/> Y, How long? _____			<input type="checkbox"/> supportive <input type="checkbox"/> good <input type="checkbox"/> telephone contact <input type="checkbox"/> little contact <input type="checkbox"/> no contact <input type="checkbox"/> difficult/poor <input type="checkbox"/> abusive
		(0) <input type="checkbox"/> N (1) <input type="checkbox"/> Y	(0) <input type="checkbox"/> N (1) <input type="checkbox"/> Y, what? _____ _____ _____	(0) <input type="checkbox"/> N (1) <input type="checkbox"/> Y, How long? _____			<input type="checkbox"/> supportive <input type="checkbox"/> good <input type="checkbox"/> telephone contact <input type="checkbox"/> little contact <input type="checkbox"/> no contact <input type="checkbox"/> difficult/poor <input type="checkbox"/> abusive
Other (specify)		(0) <input type="checkbox"/> N (1) <input type="checkbox"/> Y	(0) <input type="checkbox"/> N (1) <input type="checkbox"/> Y, what? _____ _____ _____	(0) <input type="checkbox"/> N (1) <input type="checkbox"/> Y, How long? _____			<input type="checkbox"/> supportive <input type="checkbox"/> good <input type="checkbox"/> telephone contact <input type="checkbox"/> little contact <input type="checkbox"/> no contact <input type="checkbox"/> difficult/poor <input type="checkbox"/> abusive
		(0) <input type="checkbox"/> N (1) <input type="checkbox"/> Y	(0) <input type="checkbox"/> N (1) <input type="checkbox"/> Y, what? _____ _____ _____	(0) <input type="checkbox"/> N (1) <input type="checkbox"/> Y, How long? _____			<input type="checkbox"/> supportive <input type="checkbox"/> good <input type="checkbox"/> telephone contact <input type="checkbox"/> little contact <input type="checkbox"/> no contact <input type="checkbox"/> difficult/poor <input type="checkbox"/> abusive

Revised-Adult Attachment Scale (AAS; Collins, 1996) – questionnaire removed due to copyright

Perceived Social Support – Family Scale (PSS-Fa; Procidano & Heller, 1983) – questionnaire removed due to copyright

HEALTH/EMOTIONAL:

Is there a history of sexual, physical, or emotional abuse (0) [] No (1) [] Yes → if yes, complete table below

Type of Abuse	No	Yes	Perpetrator(s)	Age of occurrence
Sexual Abuse				
Physical Abuse				
Emotional Abuse (including verbal or psychological abuse, or emotional neglect)				

Did you receive treatment for the above abuse? (0) [] No (1) [] Yes

Where? _____ When? _____

Helpful? _____

Are you currently experiencing flashbacks? (0) [] No (1) [] Yes → If yes, frequency

What do you find helpful in dealing with these flashbacks?

Severity of Violence Against Women (SVAW; Marshall, 1992) – questionnaire removed due to copyright

Center for Epidemiologic Studies Depression Scale (CESD; Radloff, 1977) – questionnaire removed due to copyright

Suicide attempts? (0) [] N (1) [] Y

When	Method	Hospital	Length of Stay

Self-harm behaviours? (0) [] N (1) [] Y

Treatment for self-harm behaviours? (0) [] N (1) [] Y

What? _____ Where? _____ When? _____

Beck Anxiety Inventory (BAI; Beck, 1993) – questionnaire removed due to copyright

MEDICAL/PHYSICAL HISTORY:

History of eating disorder? (0) [] N (1) [] Y → if yes, complete the following information below:

Type of eating disorder:

[] anorexia

[] bulimia

[] compulsive overeating

[] self-induced vomiting

[] laxative misuse

[] diuretic misuse

[] fasting

[] exercising

Purging:

(0) [] No

(1) [] Yes

Laxative Use:

(0) [] No

(1) [] Yes

Lowest past weight: _____ Age: _____

Highest past weight: _____ Age: _____

Treatment for eating disorder(s)? (0) [] N (1) [] Y → if yes, complete table below

Type of treatment	When

Current status of eating disorders: (1) [] active (0) [] dormant

Current height: _____

Current weight: _____

Have you ever had any of the following conditions?

	No	Yes	If yes, specify
Liver damage/cirrhosis	0	1	
Seizures	0	1	
Epilepsy	0	1	
Blackouts	0	1	
Ulcers/Digestive tract problems	0	1	
Premenstrual Symptoms	0	1	
Is substance use linked to PMS?	0	1	
Menopausal symptoms	0	1	
STD/HIV/hepatitis	0	1	
Pancreatitis	0	1	
Hallucinations	0	1	
Delirium Tremens/tremors/shakes	0	1	
Recent injury	0	1	

Do you have any concerns about your health? (0) []N (1) []Y

Are you currently taking any medications? (0) []N (1) []Y → if yes, list:

Do you have any allergies? (0) []N (1) []Y
specify: _____

Have you been hospitalized in the past year? (0) []N (1) []Y
Frequency _____
(Please include visits to emergency rooms)

Reasons for visits/admissions: _____

Are you currently using birth control? (0) []N (1) []Y → if yes, specify method(s):

(check all that apply)

- pill
- condom (for women)
- condom (for men)
- spermicides
- withdrawal
- IUD
- depo-provera
- diaphragm
- the patch
- other _____

Please complete for previous pregnancies:

# pregnancies	Name of child	Date	Terminated pregnancy			Live Birth		Birth Weight	
			Still born	miscarriage	Abortion	Male	Female	Grams	Lbs/oz

Program Goals:

What are your goals for yourself?

What are your goals for your baby?

What were some of the risks during this pregnancy?

Risk	No	Yes	Risk	No	Yes
Domestic violence	0	1	Mom > 35 years	0	1
Crack/cocaine use	0	1	Teen parent	0	1
Alcohol abuse	0	1	Minimal prenatal care (months: _____)	0	1
Nicotine	0	1	History of miscarriages (# miscarriages: _____ #terminations: _____)	0	1
Prescription drugs	0	1	Diabetes during pregnancy	0	1
Other drugs	0	1	Infections/STD (List: _____)	0	1
Transiency	0	1	Anemia	0	1
Low weight gain (mother)	0	1	Placenta Previa	0	1
High blood pressure/ pre-eclampsia	0	1	Multiple fetuses	0	1
Mother overweight prior to pregnancy	0	1	Vaginal bleeding (2 nd or 3 rd trimester)	0	1
Poor nutrition	0	1	Other risk factors (List: _____)	0	1

Use during pregnancy of: _____

1st Trimester (0-3 months) (0) [] no (1) [] yes

Substance	Frequency	Quantity

2nd Trimester (4-6 months) (0) [] no (1) [] yes

Substance	Frequency	Quantity

3rd Trimester (7-9 months) (0) [] no (1) [] yes

Substance	Frequency	Quantity

BIRTH HISTORY: (1)[] check if premature (0)[] check if not premature

Postnatal intervention:	no	yes
Incubator; length of time: _____	0	1
Tube feeding; length of time: _____	0	1
Apnea monitor	0	1
Respirator (required ventilation)	0	1
Medication required	0	1
Other (list: _____)	0	1

HEALTH HISTORY

Currently, how would you rate _____'s health:

- (1)[] excellent
 (2)[] very good
 (3)[] good
 (4)[] fair
 (5)[] poor

Do you have any concerns about _____'s medical health right now? (0)[] no (1)[] yes

→ If yes, explain: _____

Continuing health concerns:

Concern	Now	Last 6 mos.	No	Concern	Now	Last 6 mos.	No
Chronic colds	2	1	0	Slow weight gain	2	1	0
Chronic respiratory problems	2	1	0	Behind in immunization	2	1	0
Chronic ear infections	2	1	0	Visual impairment	2	1	0
Heart problems	2	1	0	Hearing impairment	2	1	0
Gastroenteritis	2	1	0	Speech impairment	2	1	0
Limitation in mobility	2	1	0	Cognitive impairment	2	1	0
Seizures	2	1	0	Frequent injuries	2	1	0
Psychological/emotional problem	2	1	0	Behavioural problem	2	1	0
Injuries	2	1	0	Asthma	2	1	0
Eating problems	2	1	0				

Does _____ have any known allergies? (0)[] no (1)[] yes

→ if yes, What? _____

How is _____ currently fed?
 (check all that apply):
 breast → how long breast fed?

 bottle
 solid food → when introduced?

How was _____ fed in the first year of life?
 (check all that apply):
 breast → how long breast fed?

 bottle
 solid food

Feeding patterns/habits: _____

Feeding concerns? (0)[] no (1)[] yes
 → if yes, explain: _____

What is the current sleeping arrangement?
 (1)[] crib/independent
 (2)[] co-sleeping

What was _____'s sleeping arrangement in
 the first year of life? (1)[] crib/independent
 (2)[] co-sleeping

Sleeping patterns: _____

Sleeping concerns? (0)[] no (1)[] yes
 → if yes, explain: _____

Has your child ever had any injuries (i.e. fractures, sprains, bruising or dental injuries)? (0)[] no (1)[] yes
 → if yes, how many? _____
 When? (please list)

Was child welfare called regarding any of these injuries? (0)[] no (1)[] yes

Was _____ ever separated from you? (0)[] no (1)[] yes

→ if yes, complete table below:

	Age of Child	Length of Separation (dates)		Length of time	Reason
		From	To		
1					
2					
3					
4					

Mother reports child has met past developmental milestones: (0)[] no (1)[] yes

Mother's description of child's development/functioning: _____

Have you ever had any developmental concerns about your child? (0)[] no (1)[] yes

→ if yes, explain: _____

Do you have patterns or routines at home? (0)[] no (1)[] yes

→ Please describe: _____

Do you find some times of the day more difficult than others? (0)[] no (1)[] yes

→ if yes, when? _____

PROGRAMS & SERVICES USED

Has your child ever attended: [] childcare → frequency: _____

[] early learning/nursery program → frequency: _____

Have you ever had a regular babysitter/caregiver for _____?

(0)[] no → if no, clarify: _____

(1)[] yes → if yes, who: _____

Have you ever attended any of the following community programs? (check all that apply)

- [] OEYC [] playgroup
 [] music program [] recreation/fitness

Have you and your child ever received the following services (outside of services received at BTC)?

Service	no	yes	frequency	description
Public Health Services	0	1		

High risk nurse	0	1		
Child welfare	0	1		
Physician	0	1		
Mental health support	0	1		
Urine screen	0	1		
Addiction support	0	1		
Speech/ Language	0	1		
Occupational Therapy	0	1		
Neonatal Follow-up	0	1		
Other_____	0	1		

PARENTING

Do you believe you are a good parent?

Never |-----| Always

→ Describe:

Is parenting a positive or negative experience for you?

Negative |-----| Positive

→ Describe:

Being a Parent (BaP; adaptation of Gibaud-Wallston & Wandersman, 1978) – questionnaire removed due to copyright

Parent-Child Interaction (NLSCY) – questionnaire removed due to copyright

Parent-Child Interaction – Activities

For parents and their children aged birth to two years.

1. Do you find the time for any of the following activities with _____. If so, how often do you and _____ participate in these activities? (check all that apply)

- | | How Often* (see codes below) |
|--|-------------------------------------|
| <input type="checkbox"/> Looking at picture books | _____ |
| <input type="checkbox"/> Singing songs to _____ | _____ |
| <input type="checkbox"/> Reading/reciting rhymes (e.g. "hickory dickory dock") | _____ |
| <input type="checkbox"/> Other activities related to songs, stories, rhymes
(Specify:_____) | _____ |
| <input type="checkbox"/> None of the above | |

*Codes: 7 – a few times a day 3 – a few times a month
 6 – daily 2 – once a month
 5 – a few times a week 1 – rarely
 4 – once a week 0 – never

2. Are there times for you or another adult to cuddle with or rock your child? (0)[] No (1)[] Yes

3. Are there times for you or another adult to play with your child at home (for infants this might mean playing with a rattle, mobile, etc)? (0)[] No (1)[] Yes

4. How often do you do activities outside of the home with _____ such as going to the park, library, the store or a place of worship?

- | | |
|----------------------------|---------------------|
| (6)[] daily | (2)[] once a month |
| (5)[] a few times a week | (1)[] rarely |
| (4)[] once a week | (0)[] never |
| (3)[] a few times a month | |

For parents and their children aged 3-6 years.

1. Do you find the time for any of the following activities with _____. If so, how often do you and _____ participate in these activities? (check all that apply)

- | | How Often* (see codes below) |
|--|-------------------------------------|
| <input type="checkbox"/> Telling stories | _____ |
| <input type="checkbox"/> Reading story books | _____ |
| <input type="checkbox"/> Looking at picture books | _____ |
| <input type="checkbox"/> Singing songs to _____ | _____ |
| <input type="checkbox"/> Singing songs together with _____ | _____ |
| <input type="checkbox"/> Playing rhyming games (e.g. "hickory dickory dock") | _____ |
| <input type="checkbox"/> Other activities related to songs, stories, rhymes
(Specify:_____) | _____ |
| <input type="checkbox"/> None of the above | |

*Codes: 7 – a few times a day 3 – a few times a month
 6 – daily 2 – once a month
 5 – a few times a week 1 – rarely
 4 – once a week 0 – never

2. Are there times when you play with your child at home? (0)[] No (1)[] Yes

3. Are there times when you teach your child skills related to sports and other activities such as throwing, catching, bouncing or kicking a ball; skipping; riding a tricycle, etc.? (0)[] No (1)[] Yes

4. How often do you do activities outside of the home with _____ such as going to the park, library, the store or a place of worship?

- | | |
|----------------------------|---------------------|
| (6)[] daily | (2)[] once a month |
| (5)[] a few times a week | (1)[] rarely |
| (4)[] once a week | (0)[] never |
| (3)[] a few times a month | |

5. How often do you sit at a table and eat meals at the same time as your child?

- | | |
|----------------------------|---------------------|
| (6)[] daily | (2)[] once a month |
| (5)[] a few times a week | (1)[] rarely |
| (4)[] once a week | (0)[] never |
| (3)[] a few times a month | |

Parenting Stress Inventory (PSI; Abidin, 1995) – questionnaire removed due to copyright

Adult Adolescent Parenting Inventory-2 (AAPI-2, form B; Bavolek & Keene, 2001) – questionnaire removed due to copyright

TREATMENT GOALS:

Parenting and child development goals:

1. _____
2. _____
3. _____

TREATMENT RECOMMENDATIONS – mother

Program

Frequency

TREATMENT RECOMMENDATIONS – child

Program

Frequency

Client's Signature: _____

Witness (BTC staff): _____

Date: _____/_____/_____
 Month Date Year

APPENDIX B: BTC OBSERVATION PROTOCOL

Observation Room Setup

- Two video cameras, each mounted on tripods, will be used to tape the interaction; one camera will focus on the child and the other will focus on the mother in such a way to allow the rater to observe facial expressions. Each camera should capture the whole context of the interaction. It is preferred that the tripods remain stationary during the interaction, with minor adjustments being made to the cameras as needed.
- The cameras should be set up with batteries rather than being plugged in. The reasons being: 1) safety - this eliminates the need for electrical cords in the close proximity of the interaction; and 2) ease of maneuverability should the tripods need to be moved during the interaction. The plug-in adapter cords should be readily available in case of battery malfunction during the taping.
- The furniture in the front room should be pushed to the perimeter of the room to allow a larger space in the centre for the interaction to take place. The rocking chair and table should be removed from the room during the observation.
- Blue foam mats should be set up on the on floor
- Box of toys at edge of mat
- During taping: The videotapers are to act in a detached manner throughout the taping, rather than as avid observers or participants. This means that the videotapers should not make themselves especially available to mother or baby/child (e.g., avoiding eye contact during the interaction). The videotapers, however, should not be rude. For example, if something funny happens and the mother looks up to the videotaper, she should feel free to smile back, but nothing more. Similarly, if something distressing to the baby occurs and the mother looks up to the videotaper, sharing an empathic facial expression is permitted. However, it is important to signal that the videotaper's focus is more on the filming process than with any interaction with those being filmed. The goal throughout the session is to be detached and uninvolved, yet not make mother or baby feel uncomfortable.

Toys

The toy box for children ages 0-18 months includes rattle, lamaze cube, doll, toy phone, and ball. The toy box for children ages 18 months-3 years includes form fitter box toy, doll, large duplo, toy phone, ball, toy trucks, and markers and paper. The toy box for children ages 3-6 years includes small duplo blocks, doll toy trucks, ball, plastic food and plates, and markers and paper.

Instructions

Provide the following instructions to mothers when describing the free play observation: We are interested in getting a better understanding of how moms and their infants/children interact and play with each other. We hope that this process will be interesting not only for us but also for you as well. We will provide you with a copy of the tape so you can have a memento of you and your child. There will be two cameras and research assistants. We will make a copy of the tapes for you; otherwise the tape will remain in locked cabinet at BTC and will only be viewed by research staff at BTC.

Provide the following instructions to mothers before beginning the observation: We are just about ready to begin. As I said, what I want to do is videotape you and [child's name] for a period of about 15 minutes. This is a free-play time with your child. Please play with your child as you normally would. There is a box of toys you may use if you choose. After about 15 minutes, I am going to ask you to get [child's name] to help with clean-up. Let me say before getting started, that I really want you to be as comfortable and relaxed as possible. In fact, to the extent possible, imagine that I am not even here and that you have time to be with your baby/child. I would like you to know that I will be real busy making the video pictures and checking the equipment, so I won't be able to talk with you or join your play in any way. Do you have any questions before I get started? [If yes, answer them] Okay, then, go ahead and enjoy your time with [child's name] I am going to turn the camera on."

After 15 minutes provide the following instructions: Okay, we have a few minutes left, I want you to get [child's name] to help with cleanup.

At the end of the taping, thank mom for participation: That's all I need. Thank you again for letting us videotape you and [child's name]. We will be making it into a DVD and will be in touch when it is ready for you."

APPENDIX C: ORIGINAL REGRESSION RESULTS

Objective 2

Days of enrollment at BTC was not predictive of parenting stress at Time 1, $\beta = -.225$, $t(55) = -1.696$, $p = .096$.

Days of enrollment at BTC was predictive of parenting stress at Time 2, $\beta = -.404$, $t(27) = -2.255$, $p = .033$, $R^2 = .164$.

Days of enrollment at BTC showed a trend towards predicting parent behaviour at Time 2, $\beta = .374$, $t(26) = 2.017$, $p = .055$, $R^2 = .140$.

Objective 3

Parent functioning at Time 2 was predictive of both internalizing, $\beta = .442$, $t(20) = 2.205$, $p = .039$, $R^2 = .196$, and externalizing problems, $\beta = .224$, $t(20) = 2.281$, $p = .034$, $R^2 = .206$, in children at Time 2.

Parent behaviour at Time 2 was not predictive of child internalizing or externalizing behaviour problems at Time 2, $\beta = .087$, $t(18) = .359$, $p = .724$ and $\beta = .129$, $t(18) = .538$, $p = .598$, respectively.

APPENDIX D: PARENT FUNCTIONING CORRELATION TABLE

Table A1

Correlations Between Life Stressors and Parent Functioning at Time 1

Variable	Spearman's <i>rho</i>	<i>p</i>	<i>N</i>
Perceived Social Support - Family	-.218	.114	54
Perceived Social Support - Friends	-.306	.023	55
Depression	.473	.001	53
Anxiety	.358	.009	52
Drug Taking Confidence	-.307	.027	52