PARENTING RISK, MATERNAL FUNCTIONING, AND EGO DEVELOPMENT

AMONG SUBSTANCE-USING MOTHERS

GRANT # GA-1040 FINAL OUTCOMES REPORT

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ABSTRACT

The purpose of this investigation was to examine different profiles of psychosocial parenting risks for a sample of 82 substance-using mothers accessing intervention services and explore how these risk profiles relate to two aspects of maternal functioning: parenting perceptions and observations of mother-child interactions. More specifically, the study also explored the role of maternal ego development (ED) as a moderator in this association. Latent Class Profile Analyses were used to identify two meaningful profiles of parenting risk (i.e., high and moderate parenting risk groups) based on the following psychosocial risk index variables: attachment (measured using the Revised Adult Attachment Scale; Collins, 1996), maternal depression (measured using the Center for Epidemiological Studies, Depression Scale; Radloff, 1977), substance use (measured using the Drug-Taking Confidence Questionnaire; Sklar & Turner, 1999), and social support (measured using the Perceived Social Support scales; Procidano & Heller, 1983). With regard to maternal functioning variables, parenting perceptions were measured using the Parenting Stress Index – Short Form (Abidin, 1990) and observations of mother-child interactions were assessed in a subset of the total sample (n = 38) using the Emotional Availability (EA) Scales, 4th Edition (Biringen, 2000). Maternal ED was measured using the Washington University Sentence Completion Task – short form (Hy & Loevinger, 1996). Results revealed that compared to mothers in the moderate parenting risk group, mothers in the high parenting risk group reported significantly more distress in the parenting role and were observed to show greater hostility in interactions with their children. High maternal ED was not found to be a statistically significant
buffer for adaptive maternal functioning outcomes in the face of high parenting risk; however, higher levels of maternal ED was significantly related to lower levels of parenting risk as well as more adaptive perceptions of parenting stress and less hostile mother-child interactions. Research and clinical implications are discussed.
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INTRODUCTION

Positive early parenting experiences play a critical role in healthy child development (Crockenberg & Leerkes, 2000). Mothers’ substance-use problems often exacerbate the challenges of parenting, thus placing their children at greater risk for maltreatment and less optimal development (Mayes & Truman, 2002). The high-risk conditions which often coexist with substance use among women – including unstable housing, poverty, inadequate nutrition, and exposure to high-risk/dangerous situations in order to attain their drug (i.e., sex trade work, drug-dealing activities) – may further interfere with appropriate parenting practices. In fact, there is strong evidence that substance-involved mother-infant dyads are at risk for problematic interactions (Blackwell, Kirkhart, Schmitt, & Kaiser, 1998; Burns, Chethik, Burns, & Clark, 1997; Hans, Bernstein, & Henson, 1999; Johnson et al., 2002; Mayes et al., 1997; Minnes, Singer, Arendt, & Satayathum, 2005; Pajulo et al., 2001; Schuler, Nair, & Black, 2002) and are at greater risk than non-exposed dyads for insecure and disorganized attachment patterns (Swanson, Beckwith, & Howard, 2000). There are also high rates of documented neglect (Chaffin, Kelleher, & Hollenberg, 1996; Kelley, 1998; Magura & Laudet, 1996) and child maltreatment (Chaffin et al., 1996; Kelley, 1992, 1998; Locke & Newcomb, 2003; Magura & Laudet, 1996; Walsh, MacMillan, & Jamieson, 2003) among substance-involved families. Therefore, substance-exposed mother-infant dyads are at risk for developing problematic, maladaptive relationships which have profound implications for child development.
Despite the wealth of literature highlighting the parenting problems of substance-using mothers, few researchers have attempted to examine the impact of the broader context of risk on parenting for these women and what protective factors may buffer these risks and help support more adaptive parenting outcomes. The current study explores the impact of psychosocial parenting risks often experienced by substance-using mothers and the protective role of higher maternal ego development on two aspects of maternal functioning: parenting perceptions and observations of mother-child interactions in a subset of the total sample. Figure 1 illustrates the general model that was used to explore the association between levels of parenting risk and maternal functioning for substance-using mothers, as well as the moderating role of maternal ego development.

Briefly, ego development is conceptualized as an individual’s level of personality development including one’s capacity for internal and interpersonal reflection and overall world view (Loevinger, 1976)

*Figure 1. General Conceptual Model.*
Data for this investigation were drawn from mothers and children who had accessed service at Mothercraft’s Breaking the Cycle (BTC) program. BTC is a comprehensive and integrated mother-child early intervention program for substance-using women who are pregnant or parenting and their very young children (ages 0-6 years). This unique program focuses on the importance of the maternal role of these women as well as the multiplicity of problems they face. To meet these complex needs, BTC offers comprehensive services designed to reduce the risk and enhance the development of substance-exposed children by addressing maternal substance use issues and promoting a positive mother-child relationship.

Consistent with the broad literature on substance-using mothers, research at BTC has emphasized the complex systems of risk that these women face, including: histories of unresolved trauma, mental health problems, poverty, unsafe living environments, limited education and limited social support (Freeman, 2006; Motz, 2003; Motz, Leslie, Pepler, Moore, & Freeman, 2006). Despite this range of risks there is variability among substance-using mothers when it comes to caregiving: some mothers manage to parent their children effectively, whereas others experience significant challenges in their parenting role and struggle to establish healthy and adaptive mother-child relationships (Rodning, Beckwith, & Howard, 1991). Therefore, a comprehensive understanding of the impact of substance-using mothers’ contextual parenting risks on actual maternal functioning, as well as the potential protective role of higher maternal ego development will help critically inform parenting programs at BTC and other intervention programs for this vulnerable population of substance-using mothers and their children.
The five main objectives of the present investigation were to:

1. identify naturally occurring subgroups of substance-using mothers based on psychosocial parenting risk variables.
2. examine how different levels of parenting risk relate to:
   (a) the parenting perceptions of substance-using mothers; and
   (b) the emotional quality of observed mother-child interactions;
3. explore the association between levels of parenting risk and maternal ego development;
4. examine how maternal ego development relates to:
   (a) the parenting perceptions of substance-using mothers; and
   (b) the emotional quality of observed mother-child interactions;
5. explore the potential protective role of higher maternal ego development in different levels of parenting risk on the following measures of maternal functioning:
   (a) the parenting perceptions of substance-using mothers; and
   (b) the emotional quality of observed mother-child interactions.

Theoretical Framework

Theoretical models of parenting emphasize that parenting is a complex, multiply-determined process (Belsky, 1984; Lerner, Castellino, Terry, Villaruel, & McKinney, 1995). Belsky used an ecological framework to develop a model to understand differences in parenting behaviour (Belsky, 1984). Adapting Bronfenbrenner’s division of ecological space to the study of the determinants of parenting behaviour, Belsky
proposed that parenting is a dynamic system with multiple levels of influence from micro-, exo-, and macrosystemic, as well as ontogenetic factors. The microsystem involves factors within the immediate family context, the exosystem refers to the larger social system in which the family is embedded, and the macrosystem involves the cultural beliefs and values of society at large. In addition, Belsky included ontogenetic factors which refer to the individual characteristics of parents and their own developmental histories (Belsky, 1980). Belsky’s model of parental functioning includes three domains of determinants of parenting behaviour: (1) the parent’s own developmental history and psychological resources (parent’s internal resources); (2) contextual sources of support and stress (parent’s external resources); and (3) individual characteristics of the child (Belsky, 1984). He proposed that each domain may directly or indirectly influence parenting, and that parenting is a ‘buffered system’ such that weaknesses in one domain may be compensated by strengths in another. This model suggests that it is not the presence of any individual risk or domain that affects parenting but rather the broader context and combination of risk and protective factors that are critical in understanding parenting outcomes (Belsky, 1984; Belsky & Jaffee, 2006). It is important to note, however, that factors relevant to each domain were not considered equally powerful in influencing parenting. In testing the relative importance of the determinants of parenting, Belsky found parental developmental history to be the most powerful predictor of parenting behaviour (Belsky, Hertzog & Rovine, 1986). In fact, more recent discussions of Belsky’s parenting model explicitly emphasize the primary importance of parent characteristics (both internal and external resources and risks).
because of their direct and indirect impact on factors relevant to parenting (Belsky & Jaffee, 2006). Therefore, the current study focuses on maternal internal and external resources and risks for parenting.

Parenting Risk Model

Belsky’s model of the determinants of parenting provides a useful framework for the study of risk and protective factors for the parenting of substance-using mothers. This model highlights the role of a variety of internal risks or resources for parenting such as parents’ own relationship histories and psychological functioning including depression and substance use. External parental resources such as perceived social support are also emphasized. Substance-using mothers experience complex difficulties in several of these areas (Mayes & Truman, 2002), which according to Belsky’s theory, place them at heightened risk for problematic parenting. The relevance of each of these risk factors as it pertains to parenting for substance-using women is reviewed below.

Attachment and Relationship History

Belsky’s parenting model emphasizes the critical influence of parents’ own relationship histories, particularly their experiences of being parented themselves, on their current functioning as a parent. It is well documented that substance-involved families often experience intergenerational cycles of abuse within the context of close family relationships and romantic relationships (Harmer, Sanderson, & Mertin, 1999; Mayes & Truman, 2002; Motz et al., 2006). In fact, women with substance-use problems experience higher rates of abuse in their lives compared to the general population (Harmer et al., 1999; Horrigan, Schroeder, & Schaffer, 2000).
According to attachment theory, internal working models, or internal representations of relationships are the key mechanism through which a parent’s relationship history is carried forward into future generations (Bretherton & Munholland, 1999; Main, Kaplan, & Cassidy, 1985). Bowlby (1973) proposed that it is through early experiences with a primary caregiver that children develop internal working models of self and other in relationships. If children receive sensitive and emotionally available caregiving, then they develop models of others in relationships as being able to provide needed care and protection and models of themselves as worthy of care and protection. Children whose needs have not been appropriately met construct working models of others as unable to provide protection and care, and of themselves as undeserving of care and affection. Therefore, according to attachment theory, abuse and relational trauma in children’s relationships with their caregivers will influence the development of working models of others as untrustworthy and themselves as undeserving of gratifying relationships (Alexander, 1992). In fact, individuals with substance use disorders are more likely to have maladaptive attachment representations compared to controls (Schindler, Thomasius, Sack, Gemeinhardt, Kustner, & Eckert, 2005). These unhealthy cognitive representations of relationships are related to mothers’ representations of caregiving (George & Solomon, 1996), thus putting mothers at risk for problems in parenting.

Psychological Functioning

Depression. According to Belsky’s parenting model, parents’ own mental health, particularly maternal depression and depressive symptoms, plays an important role in
their capacities to parent effectively. The negative effects of maternal depression on the mother-child relationship and children’s social and emotional functioning among high risk families have been well established in the literature (for review see Lovejoy, Graczyk, O’Hare, & Neuman, 2000). Substance-using mothers, in particular, experience high rates of depression and mood disorders (Hans et al., 1999; Horrigan et al., 2000; Pajulo et al., 2001). Among a sample of 78 mothers seeking treatment for substance abuse problems, 90% met criteria for at least one mood or anxiety-related mental health diagnosis (Luthar, Cushing, Merikangas, & Rounsaville, 1998). In an epidemiological study, Kessler and colleagues (1996) reported that among individuals with a lifetime addictive disorder, 18.9%-39.1% also had a lifetime history of at least one affective disorder. Therefore, substance-using mothers are at high risk for problematic parenting.

Maternal depression among substance-using mothers has also been associated with negative parenting outcomes. For example, depression has been linked to less sensitive (Beckwith, Howard, Espinosa, and Tyler, 1999) and less attentive (Ball, Mayes, DeToso, Schottenfield, 1997) caregiving behaviours in mother-child interactions among cocaine-using mothers. Even after accounting for the effect of maternal substance abuse on parenting, Hans and colleagues (Hans et al., 1999) reported that maternal personality and depression remained significant predictors of observed parenting behaviours (e.g., sensitive responsiveness, harsh negativity) in mother-child interactions. More severe maternal depression among substance-using mothers has also been associated with greater rigidity and less flexibility in mothers’ parenting perceptions (Suchman, Slade, McMahon, & Luthar, 2005). Finally, Nair and colleagues (1997) identified maternal
depression as a critical risk factor for mother-child separations due to child welfare
involvement among substance-using mothers.

Substance-use problems. Although substance-use problems are closely related to
and often associated with complex mental health problems, substance-abuse problems
alone reflect very poor psychological adjustment that threatens a mother’s capacity to
parent effectively. From clinical and theoretical perspectives, proponents of the self-
medication hypothesis emphasize the critical role of affect, specifically problems
tolerating, expressing and regulating painful affective states, in understanding the
etiology of substance-use problems. Given substance-using women’s complex histories
of trauma and abuse, it is expected that they would struggle to express and regulate their
emotions effectively. From this view, substance-use is conceptualized as a maladaptive
attempt to regulate negative affect that would otherwise be experienced as intense,
unbearable emotional pain (Khantzian, 1997; Wurmser, 1997). In other words, a key
psychological determinant in substance abuse problems is extreme affect dysregulation.

Empirical research has linked problems with affect regulation and substance
abuse. For example, adults with substance-use problems exhibited significant
impairments in affect tolerance and affect expression compared to controls, and greater
drug use cravings were associated with more problematic affect dysregulation (Keller &
Wilson, 1994). Therefore, substance use severity is closely linked with different levels of
affect regulation dysfunction.

With regard to parenting, a critical developmental task for infants and young
children is regulation of behavioural and emotional states. Young children develop these
capacities within the context of their relationships with their caregivers through a process described as mutual regulation (Tronick, Cohn, & Shea, 1986) or attunement (Field, 1994) where the caregiver responds appropriately and contingently to the baby’s cues, shares in the baby’s positive affect and soothes the baby to help the baby manage distressing affective states. If caregivers are unable to regulate emotions effectively themselves as a function of their substance-use problems, then the parent-child relationship and child development are at risk (Beeghly & Tronick, 1994). Therefore, applying the literature linking substance use and affect regulation to parenting, I would expect that the more severe a mother’s substance use problems, the more impaired would be her capacity to regulate negative affect effectively; thus making it more difficult for her to adequately manage the emotional demands of caregiving. In fact, the literature indicates that parents with more severe substance use problems (i.e., use of multiple illicit drugs) are less likely to maintain custody of their children compared to parents with less severe substance-use problems (Forrester, 2000). In addition, Suchman and colleagues (2005) found that mothers’ substance-use severity was significantly related to more problematic parenting perceptions (i.e., greater rigidity and less flexibility in attitudes about parenting). Therefore, the severity of substance-use problems is of critical importance to parenting capacity, parent-child relationships, and children’s developmental outcomes.

**External Resources**

*Social support.* Belsky’s ecological model of parenting emphasizes the importance of external resources such as supportive social networks in understanding
parenting. Researchers define perceived social support “as the extent to which an individual believes that his/her needs for support, information, and feedback are fulfilled” (Procidano & Heller, 1983, p.2). In their comprehensive review of social support and parenting, Cochran and Niego (1995) highlight the critical protective role of social support for families living in complex contexts of sociodemographic risk (e.g., single parent households, minority ethnic status, poverty, limited access to supports). Social support is thought to promote adaptive parenting by acting as a buffer in the face of stressful life events (Cochran & Niego, 1995).

Substance-using mothers are highly vulnerable to limited social support. They report significantly lower levels of perceived social support compared to non substance-using normative samples (Harmer et al., 1999). In addition, their social relationships are often characterized by high rates of physical, sexual and emotional abuse (Freeman, 2006; Harmer et al., 1999; Motz et al., 2006). Substance-using women are often involved in various antisocial behaviours associated with substance use (e.g., prostitution, drug dealing, and illegal activities) which further limit their exposure to adaptive social networks. Mothers with substance-use problems are also marginalized from community services as their extreme shame about their substance use, fear of judgmental attitudes of service providers, and fear of losing custody of their children limit their ability to access supportive services. Research suggests that greater social support may be an important protective factor for parenting among substance-using mothers. For example, maternal perceptions of greater social support are associated with more flexible attitudes about
parenting (Suchman et al., 2005) and more positive mother-child interactions (Schuler, Black, & Starr, 1995) among substance-using mothers.

Combination of Risks and Resources

The above research consistently identifies the range of risks often present in the lives of substance-involved families, placing them at risk for problematic parent-child relationships. However, Belsky’s theory emphasizes that it is not the presence of any individual risk or domain that affects parenting, but rather the broader context and combination of risk and protective factors that are critical in understanding parenting outcomes (Belsky, 1984; Belsky & Jaffee, 2006).

There is an emerging body of research that examines the impact of the combination of risk factors in predicting parenting among substance-using mothers. For example, Jeremy and Bernstein (1984) were among the first researchers to report that the combination of maternal psychological and psychosocial resources (e.g., cognitive functioning, academic history, relationship with baby’s father, and psychopathology) were more important predictors of maternal interactive capacity than substance-use problems alone. Beckwith and colleagues (1999) found that the combination of mental health and personality features had the most negative impact on mother-child interactions compared to either factor alone, highlighting the complexity of psychological risks for parenting among substance-using mothers. In another study, a series of regression analyses were used to examine how a range of psychosocial risks (i.e., relationship history of with caregivers, depression, drug use severity, and perceived social support) operated together to predict parenting outcomes among substance-using mothers. In this
study, Suchman and colleagues (2005) found that perceived social support mediated the association between mothers’ own relationship history and current parenting perceptions of adaptability. This finding underscores the complex interplay of internal perceptions of relationships and psychosocial risks in understanding the parenting of substance-using women (Suchman et al., 2005). Other research has focused on the cumulative impact of psychosocial risks on parenting. A number of studies have shown that greater accumulation of maternal psychosocial risks (such as depression, stressful life events, domestic abuse, incarceration, large family size, and homelessness) is associated with higher levels of parenting stress and more problematic parenting perceptions on measures of child abuse potential (Kettinger, Nair, & Schuler, 2000; Nair, Schuler, Black, Kettinger, & Harrington, 2003).

Overall, this research supports Belsky’s focus on the combination of risks in understanding parenting. However, the body of literature to date has focused on a more variable-oriented approach using regression analyses or crude measures of cumulative risk based on dichotomizing and summing various risk variables. The current investigation builds on this body of literature by using latent class/profile analysis (LPA), a more sophisticated analysis technique to identify multidimensional parenting risk profiles among substance-using mothers based on mothers’ reports of internal (e.g., adult attachment, depression, substance-use severity) and external (e.g., perceived social support) psychosocial risk factors.

LPA is a person-oriented statistical technique that allows researchers to identify groups of people with similar profiles rather than groups of variables as is common in

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research using exploratory or confirmatory factor analysis. In LPA, individuals are assigned to one mutually exclusive class (or profile) based on their responses to observed variables of interest, in this case, indicators of parenting risk. Each resulting class or profile is characterized by a specific pattern of responses (Lanza, Flaherty & Collins, 2003; Muthén, 2001). Therefore, this analysis technique will allow a combination of risk indices to be considered simultaneously in the process of determining class membership rather than having to analyze each risk indicator in separate regression analyses or relying on a crude sum of dichotomized risk factors.

Maternal Functioning

Parenting provides a central context for healthy child development. It is especially important to understand parenting among substance-using mothers because the postnatal environment, particularly the parenting a child receives, has the potential to play a substantial role in reducing the risks associated with substance-use and promoting optimal child development (Beeghly et al., 2003; O’Connor, Kogan, & Findlay, 2002; Singer et al., 2004). Perceptions of parenting stress and observations of parenting behaviour during mother-child interactions are two important aspects of maternal functioning. The relevance of these two domains is discussed below.

Perceptions of Parenting Stress

Definitions of parenting stress emphasize the discrepancy between an individual’s perceived resources and the actual demands of the parenting role (Deater-Deckard & Scarr, 1996). It is a relevant index variable in the measurement of parenting because it is associated with problems for the mother, the child, and the mother-child dyad. In terms
of maternal functioning, high parenting stress has been linked to low perceived social support and low maternal confidence in the parenting role (Sepa, Frodi, & Lugvigsson, 2004). Additionally, using path analyses, Rodgers (1993) demonstrated a direct link between parenting stress and parent psychological symptoms in the following areas: somatization, obsessive-compulsive, depression, anxiety, phobic anxiety, and paranoid ideation. For child development, parenting stress is significantly related to insecure attachment (Jarvis & Creasey, 1991), and predicts child behaviour problems in cross-sectional (Anthony et al., 2005; Benzies, Harrison, & Magill-Evans, 2004; Creasey & Jarvis, 1994; Eyberg, Boggs & Rodriguez, 1992) and longitudinal studies (Abidin, Jenkins, & McGaughey, 1992; Baker et al., 2003). The difficulties the mother and child experience may further exacerbate the impact of parenting stress through the dynamic process of mother-child interactions. Parenting stress is directly related to more negative self-reported parenting strategies (Rodgers, 1993) and is associated with more impaired maternal competence based on observations of mother-child interactions (Pianta & Egeland, 1990; Gelfand, Teti, & Fox, 1992). Research has also demonstrated elevated child abuse potential in families reporting greater parenting stress (Rodriguez & Murphy, 1997; Rodriguez & Green, 1997; Crouch & Behl, 2001).

*Observations of Mother-Child Interactions*

Positive parent-child interactions play an important role in children’s cognitive and social development. Various aspects of early mother-child interactions have been linked to a child’s later cognitive abilities. Longitudinal research emphasizes the importance of observed maternal sensitivity in mother-infant face-to-face interactions.
(Murray, Fiori-Cowley, Hooper, & Cooper, 1996) and in free play interactions (Stams, Juffer, & van Ijzendoorn, 2002) in predicting a child’s cognitive outcomes. According to attachment theory, maternal sensitivity plays an important role in forming secure attachments and subsequent social development (Ainsworth, Blehar, Waters, & Wall, 1978). Specifically, mother-infant attachment status has been shown to predict children’s subsequent social competence (Stams et al., 2002) and behaviour problems (Hubbs-Tait, Osofsky, Hann, & McDonald Culp, 1994). Other elements of mother-child interactions have been associated with child social outcomes. Lower levels of observed emotional availability in mother-child interactions predicted later behaviour problems in girls, but not boys (Carter, Garrity-Rokous, Chazan-Cohen, Little, & Briggs-Gowan, 2001) as well as various teacher-rated child outcomes for boys and girls such as aggression with peers and internalizing and externalizing symptoms (Biringen et al., 2005). Observations of maternal emotional availability were also linked to infants’ capacities to regulate negative affect effectively (Little & Carter, 2005). Child noncompliance in early mother-child interactions significantly predicted more aggression towards peers in peer interactions two years later (Chen, Wang, Chen, Liu, 2002). Also, greater maternal controlling behaviour in observed interactions was related to increases in child behaviour problems from 2 to 4 years of age (Smith, Calkins, Keane, Anastopoulos, & Shelton, 2004). Finally, when there are problems in the mother-child relationship, there is a greater risk of child maltreatment (Crittenden & Ainsworth, 1989). In fact, maltreating and non-maltreating mothers could be discriminated based on covert hostility and interfering behaviours in their interactions with their infants (Lyons-Ruth, Connell, Zoll, & Stahl,
Therefore, this research highlights the importance of assessing parenting behaviours in mother-child interactions as an index variable in examining parenting.

Maternal Ego Development as a Moderator

Ego development (ED), as measured by the Washington University Sentence Completion Test (WUSCT; Hy & Loevinger, 1996), is conceptualized as a broad, multidimensional construct that reflects an individual’s level of personality development including one’s capacity for internal and interpersonal reflection and overall world view. In other words, ED is a cognitive construct such that ED is a frame of reference that enables individuals to understand and interpret intra- and inter-personal experiences and create meaning about the world around them (Hauser, 1993; Loevinger, 1976). Given its association with various characteristics relevant to parenting such as impulse control, empathy, and moral reasoning (Loevinger, 1976; Loevinger, 1981; Manners & Durkin, 2001; Noam, Young, & Jilnina, 2006; Starrett, 1983; Westenberg & Block, 1993), maternal ED may be an important internal resource for parenting in the face of complex psychosocial parenting risks.

ED involves a progression from a global, undifferentiated state to a progressively integrated state of being. In general, individuals with higher ED have a greater capacity to reflect on and experience the complex dynamics of internal and interpersonal relationships. These individuals are better able to understand the interplay between their internal “self” and that of others, while at the same time recognizing the distinction and separateness between them. Individuals with higher ED are better able to appreciate that their own thoughts and actions may affect not only the physical but also the
psychological experience of others. In addition, high ED allows individuals to integrate and reflect upon past, current and future experiences (Hauser, 1993; Hy & Loevinger, 1996; Loevinger, 1976).

Loevinger (Hy & Loevinger, 1996) proposes that the ego develops progressively along qualitatively distinct stages or levels, with eight developmental categories of personality growth: Impulsive (level E2); Self-Protective (level E3); Conformist (level E4); Self-Aware (level E5); Conscientious (level E6); Individualistic (level E7); Autonomous (level E8); and Integrated (level E9). Each ego level is defined by a unique set of characteristics in the following domains: (1) character development (reflecting impulse control and moral understanding); (2) cognitive capacity (reflecting cognitive complexity and development); (3) interpersonal style (reflecting perceptions and expectations in interpersonal relationships); and (4) conscious preoccupations (reflecting the main focus of an individual’s thoughts). As the ego develops, these four domains are redefined and integrated in increasingly more complex ways (Loevinger, 1976; Manners & Durkin, 2001).

At the lowest level of ED, the Impulsive Stage, individuals are preoccupied with their own physical needs and perceptions of the world and others are dichotomized as ‘good’ or ‘bad’. There is also no distinction between physical and emotional needs at this level. In the Self-Protective Stage, individuals have a basic capacity for impulse control and delaying gratification, however, they tend to view the world and others as hostile and threatening. The Conformist Stage is characterized by a need to belong to a group and reliance on external social conventions to determine appropriate behaviour. Also,
internal experiences at this level are understood mostly in simple terms (e.g., sad, happy, angry). At the Self-Aware Stage, the modal ED level in community samples of adults (Loevinger, 1976; 1993), individuals develop a greater capacity to describe emotions and inner states. There is also an emerging awareness of the self as distinct from the group, and recognizing alternatives. The Conscientious Stage is characterized by a sense of responsibility for others, capacity for self-reflection and making decisions based on one’s own conscience as opposed to making decisions on the basis of impulsiveness or normative standards. Inner states are described in more complex ways. A sense of individuality emerges at the Individualistic Stage. At this stage there is a tolerance for individual differences and an ability to distinguish inner and outer states. The Autonomous Stage is achieved when individuals fully appreciate the complexity and the interrelations of the self and the broader world. At this stage there is a greater appreciation for the autonomy of others and tolerance for ambiguity. The highest ED level, Integrated Stage, is very rarely achieved. It is not fully described due limited empirical evidence, but it is considered similar to Maslow’s “self-actualizing” person (Hy & Loevinger, 1996). Table 1 provides a summary of the ED levels and their characteristic features as outlined by Hy and Loevinger (1996).
Table 1

ED Stages and Corresponding Characteristics as Outlined by Hy and Loevinger (1996)

<table>
<thead>
<tr>
<th>Stage</th>
<th>Character Development</th>
<th>Interpersonal Style</th>
<th>Conscious Preoccupations</th>
</tr>
</thead>
<tbody>
<tr>
<td>E2 Impulsive</td>
<td>Impulsive</td>
<td>Egocentric, dependent</td>
<td>Bodily feelings</td>
</tr>
<tr>
<td>E3 Self-Protective</td>
<td>Opportunistic</td>
<td>Manipulative, wary</td>
<td>“Trouble”, control</td>
</tr>
<tr>
<td>E4 Conformist</td>
<td>Respect for rules</td>
<td>Cooperative, loyal</td>
<td>Appearances, behaviour</td>
</tr>
<tr>
<td>E5 Self Aware</td>
<td>Exceptions allowable</td>
<td>Helpful, self-aware</td>
<td>Feelings, problems, adjustment</td>
</tr>
<tr>
<td>E6 Conscientious</td>
<td>Self-evaluated standards, self-critical</td>
<td>Intense, responsible</td>
<td>Motives, traits, achievements</td>
</tr>
<tr>
<td>E7 Individualistic</td>
<td>Tolerant</td>
<td>Mutual</td>
<td>Individuality, development, roles</td>
</tr>
<tr>
<td>E8 Autonomous</td>
<td>Coping with conflict</td>
<td>Interdependent</td>
<td>Self-fulfillment, psychological causation</td>
</tr>
<tr>
<td>E9 Integrated</td>
<td>(not described)</td>
<td>Cherishing individuality</td>
<td>Identity</td>
</tr>
</tbody>
</table>

Note.  E = ego development level

There is extensive literature documenting the reliability and validity of Loevinger’s measure of ED (Loevinger, 1976; Loevinger, 1981; Manners & Durkin, 2001; Noam et al., 2006; Starrett, 1983; Westenberg & Block, 1993). However, there is
relatively less research that explores the correlates of different ED levels. The existing literature suggests that high levels of ED are associated with more adaptive outcomes such as openness (McCrae & Costa, 1980), tolerance (Helson & Roberts, 1994), greater impulse control, empathy, and more complex cognitive and moral reasoning abilities (Loevinger, 1976; Loevinger, 1981; Manners & Durkin, 2001; Noam et al., 2006; Starrett, 1983; Westenberg & Block, 1993).

Given the general adaptive value of high ED, researchers have begun to explore the role of ED in relation to the quality of parenting among high-risk mothers, particularly mothers with histories of substance-use problems. Luthar, Doyle, Suchman, and Mayes (2001) found that high ED was related to more positive emotional experiences in the maternal role among non-drug-using mothers; however, this advantage was lost among mothers with opiate addiction problems. They interpreted these findings to suggest that higher self-reflective capacities characteristic of high ED levels may not always be protective. From this perspective, mothers with high ED who also have substance-use problems may be more prone to experience heightened emotional discomfort including guilt and self-criticism thus resulting in less positive emotional experiences in the parenting role. Given the focus on maternal emotional experiences in this study, it is not clear to what extent these findings translate into actual parenting practices. It is also important to note that there was a restricted range of ED levels among the substance-using mothers compared to the non-drug-using mothers, which may have obscured any positive relationship between ED and parenting. In fact, research focusing more specifically on parenting behaviours as opposed to maternal emotional experiences
suggests that higher levels of ED may be related to more adaptive parenting practices. For example, in a sample of drug-abusing mothers, Fineman, Beckwith, Howard, and Espinosa (1997) found that high maternal ED was a significant predictor of higher levels of observed maternal sensitivity in interactions with their infants. A recent study of 182 opiate-addicted mothers similarly demonstrated that mothers at higher levels of ED were more likely to report more adaptive parenting behaviours (e.g., less aggression, less neglect, and more warmth) compared to those at lower levels of ED (Suchman, McMahon, Luthar, DeCoste, & Castiglioni, 2008).

Overall, these studies suggest that high ED may represent an important protective factor for parenting among these high-risk samples of substance-abusing mothers. Therefore, maternal ED may help us to understand why some mothers manage to parent effectively under conditions of high risk (i.e., context of substance abuse) whereas others do not. At this point, there are no studies examining maternal ED as a moderator of the relationship between parenting risk and maternal functioning outcomes. ED is a critical internal resource that intervention efforts could target as a means of helping to buffer risks and promote more adaptive outcomes. In fact, research has already demonstrated that specific intervention efforts can actually help adults achieve higher levels of ED (Manners, Durkin, & Nesdale, 2004). Therefore, this study has important implications for intervention with substance-using mothers and their young children.

Objectives and Hypotheses

Using Belsky’s (1984; Belsky & Jaffee, 2006) parenting model as a framework, the current study focused on the context of psychosocial parenting risks for substance-
using mothers and examine how these risks relate to two aspects of maternal functioning: parenting perceptions and observations of mother-child interactions. More specifically, the study also focused on the role of maternal ED as a moderator in this association. The first objective was to use LPA to identify naturally occurring subgroups of substance-using mothers based on psychosocial parenting risk variables. I expected that among this high-risk sample of mothers, there are some mothers with extremely high levels of parenting risk and others with relatively lower levels of parenting risk. The second objective was to examine how different levels of psychosocial parenting risks relate to mothers’ perceptions of parenting stress and observations of mother-child interactions. I hypothesized that higher levels of parenting risk are associated with more problematic parenting perceptions and lower quality mother-child interactions. The third objective was to explore the association between levels of parenting risk and maternal ED. I expected that higher levels of parenting risk are related to lower levels of maternal ED. Fourth, the current study also examined how maternal ED relates to mothers’ perceptions of parenting stress and observed mother-child interaction. I hypothesized that higher levels of maternal ED are associated with more adaptive parenting outcomes. The final objective of the current study was to explore the potential moderating role of maternal ego development in association between levels of parenting risk and maternal functioning outcomes: parenting perceptions and observed mother-child interactions. I hypothesized that high maternal ED acts as a protective factor for parenting in the presence of high risk conditions.
METHOD

Participants

The participants for this study were drawn from Mothercraft’s Breaking the Cycle (BTC), a Toronto-based intervention program for mothers with substance-use problems and their young children, up to six years of age. The BTC program is designed to reduce the risk of substance use on child development by addressing mothers’ addiction issues and the parent-child relationship. BTC is based on a single access model in which clients access a variety of programs from different partner agencies at one community-based location, with street outreach and home visitation components. Admission to the program requires mothers to be willing to participate in both parenting and addiction services.

The current investigation is a part of an ongoing program of research at BTC. All mothers who access services at BTC are asked to participate in program evaluation and other research activities relevant to program planning. During the research consent process, mothers were made aware that declining participation in research would not affect the nature of the clinical services they received at BTC. The current sample included 82 families who had consented to participate in research activities at BTC between February 2006 and March 2010. Families excluded from the present study were those who did not complete any of the measures needed to assessing parenting risk. In addition, for those families with more than one child, the older child was selected to be the focal child for the current investigation. Demographic and relevant background information for the mothers and children is summarized in Tables 2 and 3, respectively.
Table 2

*Means and Percentages for Mothers’ Background Information*

<table>
<thead>
<tr>
<th>Variable</th>
<th>M or %</th>
<th>SD</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mother’s age at intake (years) (N=82)</td>
<td>29.79</td>
<td>6.84</td>
</tr>
<tr>
<td>Ethnic Background (N=70)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>North American</td>
<td>60.0</td>
<td></td>
</tr>
<tr>
<td>European</td>
<td>17.1</td>
<td></td>
</tr>
<tr>
<td>African</td>
<td>8.6</td>
<td></td>
</tr>
<tr>
<td>Caribbean</td>
<td>7.1</td>
<td></td>
</tr>
<tr>
<td>Native Canadian/ Aboriginal People</td>
<td>2.9</td>
<td></td>
</tr>
<tr>
<td>South American</td>
<td>2.9</td>
<td></td>
</tr>
<tr>
<td>South Asian</td>
<td>1.4</td>
<td></td>
</tr>
<tr>
<td>Education (N=77)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Some elementary school</td>
<td>1.3</td>
<td></td>
</tr>
<tr>
<td>Completed elementary school</td>
<td>9.1</td>
<td></td>
</tr>
<tr>
<td>Some secondary school</td>
<td>44.2</td>
<td></td>
</tr>
<tr>
<td>Completed secondary school</td>
<td>18.2</td>
<td></td>
</tr>
<tr>
<td>Some post secondary education</td>
<td>27.3</td>
<td></td>
</tr>
<tr>
<td>Employment (N=81)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Currently employed (part time)</td>
<td>6.2</td>
<td></td>
</tr>
<tr>
<td>Not currently employed</td>
<td>93.8</td>
<td></td>
</tr>
<tr>
<td>Relationship Status (N=44)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Relationship</td>
<td>Percentage</td>
<td></td>
</tr>
<tr>
<td>----------------------------</td>
<td>------------</td>
<td></td>
</tr>
<tr>
<td>Single</td>
<td>45.5</td>
<td></td>
</tr>
<tr>
<td>Married/common law</td>
<td>36.4</td>
<td></td>
</tr>
<tr>
<td>Separated/divorced</td>
<td>18.2</td>
<td></td>
</tr>
</tbody>
</table>

**Primary Addiction Substance (N=75)**

<table>
<thead>
<tr>
<th>Substance</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Alcohol</td>
<td>25.3</td>
</tr>
<tr>
<td>Crack/cocaine</td>
<td>38.7</td>
</tr>
<tr>
<td>Cannabis</td>
<td>12.0</td>
</tr>
<tr>
<td>Other drugs&lt;sup&gt;a&lt;/sup&gt;</td>
<td>24.0</td>
</tr>
</tbody>
</table>

**Trauma History**

<table>
<thead>
<tr>
<th>Type</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Emotional abuse (N=72)</td>
<td>88.9</td>
</tr>
<tr>
<td>Physical abuse (N=68)</td>
<td>86.8</td>
</tr>
<tr>
<td>Sexual abuse (N=63)</td>
<td>71.4</td>
</tr>
</tbody>
</table>

<sup>a</sup>Other drugs include: heroin and other opiates, amphetamines or methylenedioxymethamphetamine (MDMA/ecstasy).
Table 3

Means and Percentages for Children’s Background Information

<table>
<thead>
<tr>
<th>Variable</th>
<th>N</th>
<th>M or %</th>
<th>SD</th>
</tr>
</thead>
<tbody>
<tr>
<td>Child age at intake (months)</td>
<td>82</td>
<td>21.38</td>
<td>20.07</td>
</tr>
<tr>
<td>Sex</td>
<td>82</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Male</td>
<td>55</td>
<td>55</td>
<td></td>
</tr>
<tr>
<td>Female</td>
<td>45</td>
<td>45</td>
<td></td>
</tr>
<tr>
<td>Birth weight (kg.)</td>
<td>72</td>
<td>3.14</td>
<td>0.70</td>
</tr>
<tr>
<td>Gestational age (weeks)</td>
<td>66</td>
<td>38.8</td>
<td>2.35</td>
</tr>
<tr>
<td>Prenatal Substance Exposure(^a)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Alcohol</td>
<td>71</td>
<td>56.3</td>
<td></td>
</tr>
<tr>
<td>Crack/cocaine</td>
<td>71</td>
<td>49.3</td>
<td></td>
</tr>
<tr>
<td>Nicotine</td>
<td>70</td>
<td>85.7</td>
<td></td>
</tr>
<tr>
<td>Other drugs(^b)</td>
<td>71</td>
<td>54.9</td>
<td></td>
</tr>
<tr>
<td>Prenatal risk factors (in addition to prenatal substance exposure)(^c)</td>
<td>69</td>
<td>84.1</td>
<td></td>
</tr>
<tr>
<td>Child Welfare Involvement</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Family involved with child welfare services</td>
<td>73</td>
<td>91.8</td>
<td></td>
</tr>
<tr>
<td>Mother-child separations due to child welfare involvement</td>
<td>72</td>
<td>56.9</td>
<td></td>
</tr>
</tbody>
</table>

\(^a\)The percentages for this variable do not add up to 100% as mothers often reported using more than one substance during their pregnancies.  
\(^b\)Other drugs may include: heroin, methadone, tranquilizers, sedatives,
amphetamines, or hallucinogens. Prenatal risk factors include: minimal prenatal care, mother history of miscarriages, transient living situations, infections or anemia during the pregnancy.

As a part of the research consent process, all mothers who access service at BTC are also asked to participate in video-taped mother-child interactions. According to the data collection protocol at BTC, these observation data are routinely collected around the time of the children’s birthdays. As a result, the observation data are collected after mothers complete the intake questionnaires. Thirty-eight families participated in videotaped mother-child interactions. These families comprised a subset of the total sample for the study. On average, these families completed the video-taped mother-child interactions after 13 months ($SD=5.1$ months; range= 4-32 months) of service involvement at BTC. The reasons why the remaining families of the original sample ($n = 44$) did not complete the video-taped interactions are summarized in Appendix A.

There were no statistically significant differences between the subsample with observation data ($n = 38$) and the remainder of the original sample of families ($n = 44$) on parenting risk level, $X^2(1, N = 82) = 0.56, p = .45$, maternal ED level (i.e., high ED versus low ED), $X^2(1, N = 66) = 0.56, p = .45$, or any of the other variables used for analysis in this investigation. The comparison displayed in Table 4 demonstrates that there were no significant differences between the videotaped and non-videotaped mothers on the domains of the Parenting Stress Index.
Table 4

Comparison of Videotaped and Non-Videotaped Mothers on PSI (N=36)

<table>
<thead>
<tr>
<th>PSI Scale</th>
<th>Videotaped</th>
<th>Non-videotaped</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>M (SD)</td>
<td>M (SD)</td>
</tr>
<tr>
<td>Parent Distress</td>
<td>27.58 (6.23)</td>
<td>28.52 (6.47)</td>
</tr>
<tr>
<td>Parent-Child Dysfunctional Interaction</td>
<td>19.50 (5.25)</td>
<td>20.25 (5.55)</td>
</tr>
<tr>
<td>Difficult Child</td>
<td>24.50 (6.23)</td>
<td>24.57 (8.18)</td>
</tr>
<tr>
<td>Total Stress Scale</td>
<td>71.58 (15.26)</td>
<td>73.35 (16.89)</td>
</tr>
</tbody>
</table>

Measures and Procedure

Parenting Risk

Latent class/profile analysis (LPA) was conducted to identify the optimal number of latent profiles that best described the pattern of associations among the observed parenting risk variables. In the current study, the latent profiles represented subgroups of substance-using mothers who had experienced similar patterns of psychosocial parenting risk. Observed variables included the following internal and external psychosocial parenting risk index variables: adult attachment, depression, substance-use, and perceived social support. Measures for all of these variables were collected as a part of the intake process at BTC through semi-structured interviews conducted by clinicians. For the current study, I included only those mothers who consented for their intake data to be analyzed for research purposes. Further details about each of these variables are described below.
Adult Attachment

The Revised Adult Attachment Scale (AAS; Collins, 1996) was used to assess mothers’ attachment. The AAS is a 21-item scale with six items for each of three subscales or attachment dimensions: Close (the extent to which the mother feels comfortable with closeness and intimacy), Depend (extent to which the mother feels that she can depend on others to be available when needed), and Anxiety (extent to which the mother feels fearful about being rejected or unloved in relationships). Each subscale score is obtained by calculating the mean of the responses for the 6 items in each subscale. On this measure, mothers were asked rate the extent to which each statement described their feelings about romantic relationships on a five-point Likert scale (range 1 to 5). Response options ranged from ‘not at all characteristic of me’ to ‘very characteristic of me’. Internal consistency for the subscales ranges from .69 to .75 and the two-month test-retest reliability correlations range from .52 to .71 (Collins, 1996; Collins & Read, 1990).

Consistent with N. Collins’ (personal communication September 8, 2006) suggestions for an exploratory means for classifying participants into ‘secure’ and ‘not secure’ attachment groups using the AAS, individuals with high scores on both the Close and Depend dimensions (i.e., mean of Close and Depend scores combined were greater than 3) and low scores on the Anxiety dimension (i.e., scores less than 3) were classified as having ‘secure’ attachment representations. Individuals were classified as ‘not secure’ if their pattern of dimension scores did not meet these criteria. A cluster analysis examining the relation between the AAS dimensions and Hazan and Shaver’s (1987)
attachment styles (i.e., secure, anxious-ambivalent, and avoidant) provides support for the attachment classification approach taken in the current study (Collins & Read, 1990).

**Depression**

The Center for Epidemiological Studies, Depression Scale (CES-D; Radloff, 1977) was used to measure mothers’ depressive symptoms. The CES-D is a 20-item questionnaire where mothers were asked to rate the frequency of their depressive symptoms during the past week on a four-point Likert scale (range 0 to 3). Response options ranged from ‘rarely or none of the time (less than one day)’ to ‘most or all of the time (5-7 days)’. The total score is based on the sum of the item responses and ranges from 0 to 60. Higher scores indicate greater impairment with respect to depressive symptoms and total scores of 16 or higher are considered in the ‘clinical’ range (Radloff, 1977). The coefficient alpha for the CES-D ranged from .80 to .90 and the test-retest reliability ranged from .40 to .70 (Devins et al., 1988; Radloff, 1977).

**Substance Use**

Mother’s self-efficacy with regard to their substance-use problems was measured using the Drug-Taking Confidence Questionnaire (DTCQ-8; Sklar & Turner, 1999). This 8-item questionnaire is a global measure of coping self-efficacy among alcohol and drug users. It assesses an individual’s perceptions of self-confidence about their capacity to effectively cope and resist the urge to use alcohol or other drugs in various common relapse situations. Mothers rated the level of their confidence that they could resist the urge to use drugs or alcohol in each of the eight situations on a six-point scale ranging from 0 (‘not at all confident’) to 100 (‘very confident’). The total score on the DTCQ-8
is a mean of the participant’s responses to the 8 items. Higher scores reflect greater perceived capacities to effectively cope and manage in various difficult situations. The alpha coefficient for the DTCQ-8 is .89 (Sklar & Turner, 1999).

**Social Support**

The Perceived Social Support, Friends (PSS-Fr) and the Perceived Social Support, Family (PSS-Fa) scales were used to measure mothers’ overall perceptions of the level of social support they receive from family and friends. Each scale is a 20-item self-report questionnaire and responses are rated on a two-point (yes-no) scale. Total scores for the PSS-Fr and PSS-Fa are obtained by calculating a sum the item responses. Higher scores reflect greater levels of perceived social support. Previous research using this measure with substance using mothers suggests that raw scores below 11.9 and 8.0 are in the clinical range for the PSS-Fa and PSS-Fr scales, respectively (Suchman et al., 2005). Both scales have high levels of construct validity and test-retest reliability (Cronbach’s $\alpha=.88$ for PSS-Fr, and .90 for PSS-Fa) (Procidano & Heller, 1983). In the current study, the family and friends support scales were conceptually and statistically related ($r = .59, p < .001$) and had similar relations with other variables. Therefore, a single measure of perceived social support was obtained by calculating the mean of the total scores for the PSS-Fr and PSS-Fa scales.

**Maternal Ego Development**

Maternal ego development (ED) was measured using the Washington University Sentence Completion Task – short form (WUSCT; Hy & Loevinger, 1996). Mothers completed the WUSCT as a part of intake data collection at BTC. This projective
measure consists of 18 open-ended sentences that the mother is asked to complete. This measure allows individuals to project their own ego level, or internal frame of reference, onto a series of incomplete sentences. Using a detailed coding manual (Hy & Loevinger, 1996), responses to each sentence stem (or item) are coded based on the ED levels consistent with Loevinger’s theory: Impulsive (E2), Self-Protective (E3), Conformist (E4), Self-Aware (E5), Conscientious (E6), Individualistic (E7), and Autonomous (E8). Total protocol scores are obtained by summing all 18 item level ratings. Finally, overall ED levels are assigned based on the combination of item-level ratings from participants’ entire protocols using the procedures outlined by Hy and Loevinger (1996).

Table 5 displays examples of typical responses at each ED level for one of the items on the WUST ("A good father….”). For this item, responses progress from a focus on concrete, physical descriptions of virtues and activities, and introducing emotional qualities to integrating contrasting ideas and promoting individuality and autonomy.
### Table 5

*Example of a Scored Item (Hy & Loevinger, 1996)*

<table>
<thead>
<tr>
<th>Stage</th>
<th>Response to sample item: “A good father…”</th>
</tr>
</thead>
<tbody>
<tr>
<td>E2 Impulsive</td>
<td>“…is good to have.”</td>
</tr>
<tr>
<td></td>
<td>“…buys you things.”</td>
</tr>
<tr>
<td>E3 Self-Protective</td>
<td>“…never leaves his family.”</td>
</tr>
<tr>
<td></td>
<td>“…plays ball with his kids.”</td>
</tr>
<tr>
<td>E4 Conformist</td>
<td>“…is a father who is there.”</td>
</tr>
<tr>
<td></td>
<td>“…is a good provider.”</td>
</tr>
<tr>
<td>E5 Self Aware</td>
<td>“…spends quality time with his family.”</td>
</tr>
<tr>
<td></td>
<td>“…shows affection and sensitivity.”</td>
</tr>
<tr>
<td>E6 Conscientious</td>
<td>“…is loving and caring but fun and consistent.”</td>
</tr>
<tr>
<td></td>
<td>“…is one who provides well for his family both socially and financially.”</td>
</tr>
<tr>
<td>E7 Individualistic</td>
<td>“…is supportive when he needs to be, enjoys and loves his children when he can, and exhorts them to make something of their lives.”</td>
</tr>
<tr>
<td>E8 Autonomous</td>
<td>“…accepts responsibility, is conscientious of his role in forming his children, and will release his hold on his children when needed.”</td>
</tr>
<tr>
<td>E9 Integrated</td>
<td>“…accepts the individuality and limitations of his children, recognizes that they too have problems, and manages to be sympathetic at a distance.”</td>
</tr>
</tbody>
</table>

Note. E = ego development level

In a comprehensive review of the reliability and validity of the WUSCT, Noam and colleagues (2006) report that the test-retest, inter-rater reliability, and internal consistency were sufficiently high for normal and clinical populations. In terms of external validity, ego level assessed with the WUSCT has been found to correlate with...
ego level as assessed by interviews as well as with other stage tests of personality (e.g., Kohlberg’s moral judgment test) and projective measures of personality (Noam et al., 2006). Evidence supports the theoretical notion that ego level follows a developmental progression from low ego levels to higher ones. For example longitudinal studies indicate that ego level increases across high school and college, with the Self Aware stage being the most common highest stage among a normative adult population (Loevinger, 1976). Tests of discriminant validity have demonstrated that WUSCT scores are moderately correlated with intelligence, language fluency, and socioeconomic variables suggesting ED is related to other variables but remains a separate construct (Noam et al., 2006). The WUSCT has also been used in studies with substance-using mothers (e.g., Fineman et al., 1997; Luthar et al., 2001; Suchman et al., 2008).

Hy and Loevinger (1996) indicate that the WUSCT scoring system can be mastered through the training program outlined in the manual and through established reliability with at least two raters. Together with a post-doctoral fellow, I completed the training program and then established inter-rater reliability for 23 (35%) of the 66 mothers who completed the SCT in the current study. The intra-class correlation for global ED ratings was .90. In addition, Cohen’s Kappa for global ED ratings was .66. Landis and Koch (1977) suggest that kappa values from .41 to .60 are moderate, and that values above .60 are substantial. Therefore, the inter-rater reliability for the ED ratings in this study was very strong.
Maternal Functioning Outcomes

Parenting Perceptions

As a part of the intake process at BTC, mothers’ parenting perceptions are measured using the Parenting Stress Index-Short Form (PSI-SF; Abidin, 1990). The PSI-SF is a measure of the mother’s perceptions of stress in different components of the parent-child system. It comprises three main subscales: Parental Distress (PD) (amount of stress the mother is experiencing with respect to her parenting role); Parent-Child Dysfunctional Interaction (PCDI) (mother’s perceptions of the quality of and satisfaction with her interactions with her child); and Difficult Child (DC) (behavioural characteristics of the child that may lead parents to perceive them as difficult to manage). The Total Stress scale is a measure of the overall stress experienced by the parent in the three subscale domains. Higher scores on the PSI-SF indicate more maladaptive parenting perceptions. The clinical cut-off values for the PD, PCDI, DC, and Total Stress scale raw scores are 33, 26, 33, and 86, respectively (Abidin, 1990).

The PSI has been validated on a population of substance-using mothers. Kelley (1992) found that mothers who used substances during their pregnancies reported higher levels of parenting stress compared to foster mothers of substance-exposed children and a control group of similar SES mothers of non substance-exposed children. In the sample in which the PSI was standardized, mothers of prenatally-exposed children scored significantly higher than the SES comparison mothers of non-exposed children on the following PSI long form subscales: Parent Domain, Demandingness, Competence, Isolation, and Attachment (Abidin, 1990).
For the three main subscales and Total Stress scale, the coefficient alpha ranged from .80 to .91 and the test-retest reliability ranged from .68 to .85 (Abidin, 1990). In the present study, the Cronbach alpha of the PD, PCDI, and DC subscales and the Total Stress scale were .73, .81, .88, and .91, respectively.

**Observed Mother-Child Interactions**

A subset of the sample (38 families) consented to participate in videotaped free-play mother-child interactions as a part of CIHR funded research at BTC. During the free-play sessions, dyads were provided with a standard set of developmentally appropriate toys and mothers were asked to play with their children as they normally would. The free play episode lasted for approximately 15 minutes and then they were asked to clean-up the toys.

The videotaped mother-child interactions were coded using the Infancy/Early Childhood Version of the Emotional Availability (EA) Scales, 4th Edition (Biringen, 2000; 2008). This measure is designed to assess the emotional quality of the mother-child relationship by considering both mothers’ and children’s contributions to the interaction. Maternal EA toward the child is coded based on seven-point global ratings in the following domains: sensitivity, structuring, non-intrusiveness, and non-hostility. A sum of the ratings for each of these four domains is used to obtain a composite maternal EA score. Child EA is similarly coded on a seven-point scale in the following domains: responsiveness to the parent and the child’s involvement of the parent in the interaction. The ratings for these two domains are summed to obtain a composite child EA score. In
addition, a global EA composite is created based on the sum of the ratings across all 6 caregiver and child EA domains. Each of the EA domains is described below.

Caregiver Sensitivity. This domain is intended to capture the mother’s capacity to be warm and emotionally connected with the child. Biringen’s (2000) conceptualization of EA sensitivity involves both affective (e.g., caregiver’s quality of emotional expression, quality of caregiver’s emotional connection with the child) as well as behavioural (e.g., how well caregiver picks up on and responds appropriately to child’s physical and emotional cues) components. Therefore, in order to obtain higher scores in this domain, mothers must not only demonstrate the capacity to be contingently responsive to their children’s cues, but also show a balanced, relaxed and genuine emotional connection with their children. Other features under consideration in this domain include: mothers’ awareness of timing during interaction with their children, mothers’ flexibility in attention and behaviour, mothers’ accepting/respectful stance to the child, the amount of interaction, and the capacity of the mother to effectively resolve conflicts (Biringen, 2008).

Caregiver Structuring. This domain assesses the ability of the mother to scaffold or guide the interaction by making subtle suggestions, setting limits and frameworks for the interaction in a way that is received by the child. Other characteristics considered in rating this domain include: the amount and type of structuring provided, the effectiveness of mothers’ attempts to set limits/boundaries, the mothers’ abilities to remain firm yet maintain a connection with the child in the face of pressure, and the capacity of the
mother to maintain an adult/authority figure role to guide the interaction as opposed to presenting as a peer to the child (Biringen, 2008).

**Caregiver Non-intrusiveness.** Non-intrusiveness refers to the ability of the caregiver to be emotionally available to the child and follow his/her lead without overpowering the child or interfering with the child’s autonomy during the interaction. Other features of caregiver no intrusiveness include: the frequency of directives, type of interference (i.e., verbal, physical), the mother’s ability to teach and talk to the child in a way that does not ignore relating with the child, and indications from the child that the caregiver’s behaviour is intrusive (Biringen, 2008).

**Caregiver Non-hostility.** Non-hostility refers to the capacity of the caregiver to talk or interact with the child in a manner that is not abrasive, impatient or antagonistic. To obtain higher ratings on this scale, caregivers must be able to effectively regulate negative affect. Poor caregiver emotion regulation is reflected in evidence of covert hostility (e.g., impatience, boredom, frustration, silence, indifference) and/or overt hostility (e.g., sarcasm, mocking, frightening behaviours, and physical punishment). Other markers of hostility include: using threats of separation, maintaining composure during stressful times, frightening behaviours or facial expressions, tension-filled silence, and unresolved hostile play themes (Biringen, 2008).

**Child Responsiveness.** The child responsiveness domain is intended to capture the quality of the child’s emotional connection with the caregiver. Like the caregiver sensitivity domain, Biringen’s (2000) conceptualization of child responsiveness emphasizes both affective (e.g., children’s quality of emotional expression and their
capacity to effectively regulate their emotions within the context of the relationship in adaptive ways) as well as behavioural (e.g., how children respond to their parents’ bids for exchange in the interaction) components. Other features of this domain include: capacity for age-appropriate exploration and secure base behaviour, seeking out age-appropriate physical contact with caregiver, evidence of role-reversal behaviours, and the extent to which the child includes the caregiver in their play or seems avoidant of the caregiver (Biringen, 2008).

Child Involvement. This domain assesses the ability of the child to engage the caregiver in the interaction in a positive, prosocial manner through nonverbal and verbal means. This includes how the child engages with the caregiver (i.e., for emotional versus instrumental needs) and the extent to which the child uses distress, anxiety, aggression, or other negative ways of involving the caregiver. Other features include evidence of eye contact, body positioning toward or away from caregiver, and verbal involvement (i.e., babbling, talking) (Biringen, 2008).

There is a large body of literature that supports the validity of the EA scales. Significant associations were found among EA ratings assessed across different observation contexts (i.e., laboratory vs. home), suggesting that the EA construct using the EA scales reflects a stable characteristic of the dyad’s interactive quality that can be generalized across settings (Bornstein, et al., 2006). Research has demonstrated meaningful associations between EA and a range of attachment-related constructs including: child attachment (Easterbrooks, Biesecker, & Lyons-Ruth, 2000; Swanson et al., 2000; Ziv, Aviezer, Gini, Sag, & Koren-Karie, 2000), mothers’ states of mind
regarding their own attachment experiences (Aviezer, Sagi, Joels, & Ziv, 1999; Biringen, Brown, Donaldson, Green, Krcmarik, & Lovas, 2000; Oyen, Landy, & Hilburn-Cobb, 2000), and maternal caregiving representations (Biringen, Matheny, Bretherton, Renouf, & Sherman, 2000). In evaluating the impact of maternal characteristics on observed EA, mothers with more depressive symptoms were found to be less sensitive in interactions with their children (Easterbrooks, et al., 2000; Trapolini, Ungerer, & McMahon, 2008). Other research revealed that mothers with trauma histories were significantly more intrusive in interactions with their infants compared to controls (Moehler, Biringen, & Poustka, 2007). In addition, more recent studies have begun to highlight the critical role of mothers’ awareness of their children’s mental states and perspectives in their ability to interact in a sensitive (Trapolini et al., 2008) and non-hostile (Lok & McMahon, 2006) manner. Associations between EA and child characteristics have also been investigated. For example, lower EA scale ratings were associated with recommendations for more intense treatment in an infant psychiatry program (Wiefel et al., 2005) as well as greater difficulty for infants to regulate negative affect (Little & Carter, 2005). Maternal EA in play interactions was also found to be a significant predictor of various teacher-rated child outcomes such as aggression with peers and internalizing and externalizing symptoms (Biringen et al., 2005).

In the current investigation, coding reliability using the EA scales was established in accordance with Biringen’s (2005) proposed procedures. I completed a comprehensive training program with the originator of the EA scales, Dr. Zeynep Biringen. Subsequently I coded a set of criterion cases to the approval of Dr. Biringen. Eighteen
(47%) of the 38 videotaped mother-child interactions were rated independently by myself and another graduate student trained by Dr. Biringen in the use of the EA Scales in order to assess inter-rater reliability for the current study. Dr. Biringen suggested that I use intra-class correlations to calculate inter-rater reliability for the current sample due to the continuous nature of the EA scales (personal communication May 15, 2010). Because I was interested in discussing each of the six domains of EA in my results, I conducted reliability analyses for each domain. The intra-class correlations for caregiver sensitivity, caregiver structuring, caregiver non-intrusiveness, caregiver non-hostility, child responsiveness, and child involvement were .91, .76, .80, .83, .79, and .80, respectively, indicating acceptable inter-rater reliability.

RESULTS

Descriptive Statistics

Parenting Risk Variables

Descriptive information for the parenting risk measures is presented in Table 6. Only a small proportion (22%) of the women in this sample had secure perceptions of attachment relationships. The mean score for mothers’ ratings of depressive symptoms was above the clinical cut-off score, indicating that as a group, mothers experienced moderate to high levels of depression. Fifty-nine percent of the mothers reported depressive symptoms in the clinical range. The group mean for maternal substance-use, indicates that on average on a scale from 0% to 100%, the mothers felt 75% confident in their ability to effectively cope and resist the urge to use substances in a range of relapse-provoking situations. Although as a group, mothers reported relatively high levels of
self-efficacy around avoiding substance use, there was a lot of variability in this measure with mothers’ reports ranging from 15% to 100% confidence about not using substances. The mean score for perceived social support from family surpassed the clinical cut-off value, whereas the mean score for perceived social support from friends was, on average, within normal limits. Over half of the sample (63.8%) reported family social support in the clinical range and approximately one third of the sample (35%) reported social support from friends in the clinical range.

Table 6

Means, Percentages, and Standard Deviations for Parenting Risk Measures

<table>
<thead>
<tr>
<th>Variable</th>
<th>N</th>
<th>M or %</th>
<th>SD</th>
</tr>
</thead>
<tbody>
<tr>
<td>Secure attachment</td>
<td>82</td>
<td>22.0</td>
<td></td>
</tr>
<tr>
<td>Depression</td>
<td>78</td>
<td>20.77</td>
<td>12.77</td>
</tr>
<tr>
<td>Substance use</td>
<td>75</td>
<td>75.29</td>
<td>21.73</td>
</tr>
<tr>
<td>Social support – family</td>
<td>80</td>
<td>9.27</td>
<td>6.65</td>
</tr>
<tr>
<td>Social support – friends</td>
<td>80</td>
<td>11.02</td>
<td>5.89</td>
</tr>
<tr>
<td>Mean social support</td>
<td>81</td>
<td>10.17</td>
<td>5.58</td>
</tr>
</tbody>
</table>

Maternal Ego Development

The distribution of maternal ED scores is displayed in Figure 2. For the current sample, the modal ED level was the Self-Aware Stage (E5) which is consistent with adult community samples (Loevinger, 1976; 1993) as well as other research with substance-using mothers (Fineman et al., 1997; Suchman et al., 2008). Approximately one quarter of the sample (28.8%) had lower ED levels (i.e., E3 or E4), whereas almost one third of
the sample (30.3%) were represented at higher ED levels (i.e., E6 or E7). It is important to note that there was a higher proportion of mothers with high ED functioning (i.e., E6 or higher) in the current sample compared to other research with high-risk substance-using samples of mothers (Fineman et al., 1997; Luthar et al., 2001; Suchman et al., 2008).

*Figure 2. Distribution of Maternal ED Scores (N = 66)*

![Figure 2](image)

*Parenting Perceptions*

Descriptive information for the PSI-SF domains is presented in Table 7. The average PSI-SF scores were within the normal range for all the domains. The mean PD score approached, but did not surpass the clinical cut-off, with 20.8% of the women with scores in the clinical range in this domain. For the PCDI, DC, and Total Stress scale domains 9.7%, 13.9%, and 16.7% of the sample, respectively, reported parenting
perceptions in the clinical range. Therefore, some mothers did report clinically significant levels of parenting stress, however, as a group, their reports were generally within normal limits.

Table 7

Means and Standard Deviations for Perceptions of Parenting Stress (N = 72)

<table>
<thead>
<tr>
<th>PSI-SF Domain</th>
<th>M</th>
<th>SD</th>
</tr>
</thead>
<tbody>
<tr>
<td>Parent Distress (PD)</td>
<td>28.06</td>
<td>6.32</td>
</tr>
<tr>
<td>Parent-Child Dysfunctional Interaction (PCDI)</td>
<td>19.87</td>
<td>5.38</td>
</tr>
<tr>
<td>Difficult Child (DC)</td>
<td>24.53</td>
<td>7.22</td>
</tr>
<tr>
<td>Total Stress Scale</td>
<td>72.46</td>
<td>16.01</td>
</tr>
</tbody>
</table>

Observed Mother-Child Interactions

A qualitative description of the observed emotional quality of the mother-child relationship is provided below for a subset \( n =38 \) of the total sample for each of the six domains of the EA Scales. It is important to note that across all EA dimensions, none of the dyads in this sample obtained scores in the optimal range (i.e., ratings of 6 or 7). This finding is consistent with other research using earlier versions of the Emotional Availability scales with substance-using mothers (Fraser, Harris-Britt, Thakkallapalli, Kurtz-Costes, & Martin, 2010; Swanson et al., 2000). It is important to note that the current study is the first to use the most recent fourth edition of the EA scales; therefore, it provides preliminary evidence supporting the validity of its use with this very high risk sample of mothers and young children.
Caregiver Sensitivity. Over one third of the mothers (n = 15; 39.4%) had low scores, with ratings of 2 or 3 on this domain. Ratings in this range indicate that the mother’s emotional connection to the child was lacking. For these dyads, there were serious concerns about the mother’s affective expression such that the mother showed evidence of depressed/withdrawn affect, actively harsh or aggressive affect, or some combination of both affective styles. Mothers with ratings in this range also demonstrated a limited ability to accurately perceive and appropriately respond to their children’s obvious cues, by either being overbearing and constantly ‘at’ the child or being non-interactive and passive.

The majority of mothers (n = 23; 60.6%) received ratings in the mid-range (i.e., ratings of 4 or 5) on this scale. For these dyads, there was evidence of an emotional connection between the mother and child; however, it was not necessarily a healthy or adaptive one. A key feature of ratings in this range was inconsistencies in behaviour and affect. For example mothers may have demonstrated inconsistent positive affect such that the observer noted some nice moments of emotional connection combined with other times when the same mother appeared distracted and withdrawn from the interaction. Another common inconsistency in this range was affect that did not appear fully genuine and relaxed (i.e., forced positive affect). In addition, these mothers were able to perceive and respond to their children’s cues in some instances but not others.

To obtain scores in the optimal range (i.e., ratings of 6 or 7), mothers must demonstrate the capacity to be contingently responsive to their children’s cues in addition
to showing a balanced, relaxed and genuine emotional connection with their children. None of the mothers in the current sample obtained scores in this range.

*Caregiver Structuring.* Approximately one third of the mothers ($n = 12; 31.5\%$) received ratings of 2 or 3, in the ‘non-optimal range’ in this domain. For these interactions, caregiver structuring was clearly lacking such that the mother was often unavailable for the child, leaving the child to take on more ‘control’ in the interaction than would be appropriate. These mothers may have made some minimal attempts to guide or set limits for the interaction; however, these attempts did not seem to have an influence on the child or take the child’s cues/reactions into account. A large proportion of the mothers ($n = 26; 68.4\%$) obtained scores in the mid-range with ratings of 4 or 5. These mothers were characteristically ‘inconsistent’ in their structuring attempts – overstructuring at some times, yet understructuring at others. Although these mothers were trying to guide the interaction, their attempts were often repetitive and not consistently successful and received by the child. None of the mothers in the sample obtained ‘optimal’ structuring scores (i.e., ratings of 6 or 7). To receive ratings in this range, mothers must demonstrate the ability to structure the interaction effectively, using subtle gestural cues and suggestions in a way that is proactive and firm, yet at the same time integrates and accounts for the child’s responses to their structuring attempts.

*Caregiver Non-intrusiveness.* Many mothers ($n = 16; 42\%$) received low scores (i.e., ratings of 1 to 3) in this domain demonstrating clear evidence of intrusive behaviour. For these dyads, the mother was constantly setting the pace of the interaction and did not account for the child’s reactions or protests to their intrusive behaviours. Most intrusive
behaviour in this range was verbal with some slight or infrequent physical intrusions (e.g., taking away toys the child was playing with, lifting the child from behind). There was one mother who received a rating of 1 in this domain. In this case, the mother was constantly giving the child directions to the point where there was no space in the interaction for the child to explore or even respond. This mother was also frequently physically intrusive evidenced by removing toys from the child and engaging in rough and tumble play (i.e., tickling child, physically restricting the child) despite clear signals from the child that this was not welcome.

Over half of the mothers ($n = 22; 57.9\%$) obtained scores of 4 or 5 in this domain. Mothers with ratings in this range showed evidence of overparenting and mild interferences that, although may have been well-intentioned, limited the child’s ability to explore autonomously in age appropriate ways. In general, these mothers appeared to have well-intentioned desires to interact with their children; however, they had difficulty allowing enough space in the interaction to follow the children’s lead.

Ratings in the adapted range (ratings of 6 or 7) are characterized by interactions where there is a spacious quality such that the caregiver is able to follow the child’s lead and be available to the child without interrupting the natural flow of the interaction. None of the mothers in this study received ratings in this ‘optimal’ range.

*Caregiver Non-hostility.* Approximately one third of the mothers ($n = 12; 31.5\%$) received ratings of 2 or 3 in this domain indicating evidence of overtly hostile behaviour. These mothers struggled to regulate their negative affect in appropriate ways resulting in overtly hostile behaviours such as sarcastic comments, mocking or teasing...
their children, and frightening behaviour. The remaining mothers \( n = 26; 68.4\% \) had scores in the mid-range (ratings of 4 or 5). They demonstrated relatively better emotion regulation capacity; however, it was not optimal. These mothers showed evidence of pervasive covert hostility such as impatience, boredom, frustration, silence, and indifference. None of the mothers received ratings of adaptive levels of hostility. To receive scores in the ‘optimal’ range, mothers must be able to regulate negative affect effectively, demonstrate genuine positive emotional tone in their voice and facial expressions, and show very minimal or no evidence of overt or covert hostility.

*Child Responsiveness.* Approximately half of the children \( n = 18; 47.4\% \) received ratings of 2 or 3 in this domain indicating serious concerns about the child’s affective expression and regulation. Among the children with low scores, most received ratings of 3. These children were generally emotionally shut down and lacked an emotional connection with their mothers. They appeared ‘over-regulated’ such that they were overly reliant on themselves to regulate their affect and behaviour. Some children with this rating instead demonstrated anxious, confused and aggressive affect and were overly responsive to their mothers’ cues in more dysfunctional ways than that seen in ratings in the mid-range in this domain. There were two children who received ratings of 2 in this domain. In addition to a pervasive detached affect, these children demonstrated evidence of confused and threatened affect as well as disorganized behaviour (e.g., fearfulness of mother, combinations of approach and avoidance behaviours).

The other half of the children \( n = 20; 52.6\% \) obtained scores in the mid-range with ratings of 4 or 5. For these children, although they demonstrated an emotional
connection with their mothers, it was not a healthy one. These children were characteristically ‘under-regulated’ such that they were overly reliant on their caregivers and overly responsive to their caregivers’ cues. For example, these children showed evidence of becoming distressed and/or demonstrated positive affect that was combined with anxiety or had a people-pleasing quality. In general, these children were overly concerned with maintaining a connection with their mothers at the expense of their own developing sense of autonomy. None of the children received optimal scores in this domain. To receive these higher ratings, children must demonstrate a relaxed, positive countenance towards their caregivers, healthy emotion regulation, and an appropriate balance of autonomy and responsiveness to their caregivers.

*Child Involvement.* The majority of children (*n* = 23; 60.5%) received low scores (ratings of 2 or 3) in this domain. These children were either characteristically negatively involving of their mothers (e.g., involving caregiver using distress, anxiety or aggression) or were emotionally shut down and made very few if any attempts to engage their mothers in interaction. The remaining children (*n* = 15; 39.5%) received ratings in the mid-range (ratings of 4 or 5). These children showed some involving behaviours that, either because of the child’s developmental level or relationship quality, were more limited and less frequent or less optimal. Optimal levels of child involvement are observed when the child is able to consistently engage the caregiver in interaction in a positive, prosocial manner through nonverbal and verbal means. None of the children in the current study received ratings in this range. It is important to note that this domain places a heavy emphasis on the child’s capacity for ongoing, elaborative initiative with
the mother. However, because the children in this sample were very young and as a result have fewer capacities to initiate and maintain more elaborative exchanges, they would not be expected to obtain very high ratings in this domain.

Objective 1: LPA of Parenting Risk Variables

A series of latent class/profile analysis (LPA) models were estimated using the following variables: adult attachment, maternal depression, substance use, and mean social support. The Bayesian information criteria (BIC) and Akaike information criteria (AIC) statistics and entropy values for the 1-4 profile models are presented in Table 7. There are a variety of statistical and conceptual criteria to consider when choosing the optimal number of latent profiles. BIC, AIC, and entropy values are statistical indicators of model fit. Smaller BIC and AIC values indicate better fitting models. According to Nylund, Asparouhov, and Muthén (2007), BIC is a better indicator for determining the optimal number of profiles in LPA compared to AIC information; therefore, in the current study I placed greater emphasis on the changing BIC values. When BIC values stop decreasing, this suggests that the model with the best fitting number of classes has been reached. Entropy is a measure of how well each profile or class can be distinguished from the others. Values closer to 1 indicate better fitting models; however, any value above .80 is considered strong (Ramaswamy, DeSarbo, Reibstein, & Robinson, 1993). Conceptual criteria to consider when choosing the optimal number of latent profiles focus mainly on the interpretability of each class or profile. McCrae, Chapman, and Christ (2006) suggest that two major conceptual indicators of fit need to be considered in combination with the statistical indicators: (1) whether the addition of
profiles adds new and/or meaningful information; and (2) the number of participants in added profiles. With regard to the latter suggestion, McCrae et al. (2006) indicate that profiles including small sample sizes (i.e., 5% or less of the total sample) may be unstable when conducting comparisons between the profiles.

As displayed in Table 8, the BIC values decreased from the four-profile to the two-profile model and then increased in the one-profile model. Entropy was acceptable for all of the models. Very small profile sample sizes (i.e., less than 10% of the total sample) emerged with the addition of profiles in the three- and four-profile models. Conceptually, the addition of the small sample profile groups in the three and four-profile models did not add any meaningful distinctions between the groups. Therefore, the two-profile solution was chosen for further analyses.
### Table 8

*Fit Statistics for the LPA Models*

<table>
<thead>
<tr>
<th>Number of Profiles</th>
<th>BIC(^a)</th>
<th>AIC(^a)</th>
<th>Entropy(^b)</th>
<th>Classes: n, %</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>1915.87</td>
<td>1899.02</td>
<td>N/A</td>
<td>1: n = 82, 100%</td>
</tr>
<tr>
<td>2</td>
<td>1860.92</td>
<td>1832.04</td>
<td>0.87</td>
<td>1: n = 46, 56.1%</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>2: n = 36, 43.9%</td>
</tr>
<tr>
<td>3</td>
<td>1861.30</td>
<td>1820.38</td>
<td>0.87</td>
<td>1: n = 36, 43.9%</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>2: n = 8, 9.8%</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>3: n = 38, 46.3%</td>
</tr>
<tr>
<td>4</td>
<td>1872.11</td>
<td>1819.16</td>
<td>0.91</td>
<td>1: n = 3, 3.7%</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>2: n = 33, 40.2%</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>3: n = 7, 8.5%</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>4: n = 39, 47.6%</td>
</tr>
</tbody>
</table>

\(^a\) Lower AIC and BIC values indicate better fit.

\(^b\) Entropy values closer to 1 are better.

Using LPA, an estimated probability for classification in each of the profiles was calculated for every participant. Based on these probabilities, individuals were then assigned to the profile or group to which they were most likely to belong. The average latent class probability for most likely latent class membership was .97 for each of the two profiles/groups, suggesting that profile determination was very good.

The descriptive information for the psychosocial parenting risk variables are presented by profile in Table 9. As demonstrated in the table, participants in class 1 had higher levels of risk across all observed variables compared to participants in class 2. Among the participants in class 1, none had secure attachments whereas 50% of those in class 2 did. In other words, all the participants with secure attachments (n = 18) were
found in class 2. In addition, participants in class 1 reported significantly more severe symptoms of depression, $t(76) = +6.29$, $p < .0001$, two-tailed, $r^2 = .34$, with the mean depression score for class 1 participants well above the clinical cut-off (i.e., scores of 16 or higher) whereas the mean depression scores for class 2 were lower than the clinical threshold. On average, participants in class 2 reported significantly higher substance use scores (indicating better capacity to effectively cope and resist the use of drugs), $t(73) = -4.16$, $p < .0001$, two-tailed, $r^2 = .19$, as well as significantly higher levels of social support, $t(79) = -13.65$, $p < .0001$, two-tailed, $r^2 = .70$, compared to participants in class 1. Given these profile patterns, class 1 ($n = 46$) was labeled “high parenting risk” and class 2 ($n = 36$) was labeled “moderate parenting risk”. It is important to note that there was no group considered low risk given the fact that, in general, substance-using mothers as a group represent a very high-risk clinical population of mothers.

Table 9

Descriptive information for 2 levels of parenting risk profiles

<table>
<thead>
<tr>
<th>Variable</th>
<th>Class 1 (high parenting risk)</th>
<th>Class 2 (moderate parenting risk)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>$n = 46$</td>
<td>$n = 36$</td>
</tr>
<tr>
<td>Secure Adult Attachment</td>
<td>0%</td>
<td>50%</td>
</tr>
<tr>
<td>Depression</td>
<td>27.36</td>
<td>12.74</td>
</tr>
<tr>
<td>Substance-Use</td>
<td>67.11</td>
<td>85.31</td>
</tr>
<tr>
<td>Social Support</td>
<td>6.04</td>
<td>15.28</td>
</tr>
</tbody>
</table>

$M$ or % | $SE$ | $M$ or % | $SE$

CHEO Final Outcomes Report
Grant #GA-1040 – Patricia (Freeman) Zimmerman
Objective 2: Risk Group Differences on Maternal Functioning

The second objective of the current investigation was to examine any group differences between women in the ‘high parenting risk’ and ‘moderate parenting risk’ groups on maternal functioning outcomes: perceptions of parenting stress and observations of mother-child relationship quality.

Parenting Perceptions

With regard to perceptions of parenting stress, there was a significant group difference on the Parent Distress domain such that mothers in the ‘high parenting risk’ group reported on average significantly higher levels of distress in the parenting role compared to mothers in the ‘moderate parenting risk’ group, $t(70) = +2.73$, $p = .008$, two-tailed, $r^2 = .096$. However, there were no significant differences between the high and moderate parenting risk groups on the other PSI subscales: Difficult Child, $t(70) = +0.51$, $p = .61$, two-tailed, Parent-Child Dysfunctional Interaction, $t(70) = -0.18$, $p = .86$, two-tailed, and Total Stress Scale, $t(70) = +1.21$, $p = .23$, two-tailed. Means, standard deviations and 95% confidence intervals for the PSI domains are summarized by parenting risk group in Table 10. Overall, mothers in the higher risk group report significantly higher levels of stress in the parenting role compared to those in the moderate risk group, but mothers in both risk groups reported comparable levels of parenting perceptions regarding their children and the parent-child relationship. It is important to highlight that none of the mean PSI scores for either group was in the range indicative of clinical concern.
Table 10

Means, Standard Deviations and Confidence Intervals for PSI domains

<table>
<thead>
<tr>
<th>PSI Domain</th>
<th>High Parenting Risk Group</th>
<th></th>
<th>Moderate Parenting Risk Group</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>n = 39</td>
<td></td>
<td>n = 33</td>
<td></td>
</tr>
<tr>
<td></td>
<td>M (SD)</td>
<td>95% CI</td>
<td>M (SD)</td>
<td>95% CI</td>
</tr>
<tr>
<td>Parent Distress</td>
<td>29.85 (6.62)</td>
<td>27.70 – 31.99</td>
<td>25.94 (5.30)</td>
<td>24.06 – 27.82</td>
</tr>
<tr>
<td>Difficult Child</td>
<td>24.93 (7.30)</td>
<td>22.57 – 27.30</td>
<td>24.06 (7.20)</td>
<td>21.51 – 26.61</td>
</tr>
<tr>
<td>P-C Dysfunctional Interaction</td>
<td>19.77 (5.25)</td>
<td>18.07 – 21.47</td>
<td>20.00 (5.60)</td>
<td>18.01 – 21.99</td>
</tr>
<tr>
<td>Total Stress Scale</td>
<td>74.55 (16.07)</td>
<td>69.34 – 79.76</td>
<td>70.00 (15.81)</td>
<td>64.39 – 75.61</td>
</tr>
</tbody>
</table>

**Observed Mother-Child Relationship Quality**

Analyses comparing high and moderate parenting risk groups on observation data were conducted for composite mother, child and total EA scores as well as for each of the six EA domains. I approached these analyses by first examining the composite EA scores as these scores provided had greater variability than the specific subscale domains. To obtain more detailed qualitative information about the observed mother-child relationship quality, I then examined the six subscale scores of the EA scales for the high and moderate parenting risk groups.

There were no significant mean differences between mothers in the high and moderate parenting risk groups on composite measures of maternal EA, \( t(36) = -0.41, p = 0.68 \), two-tailed, child EA, \( t(36) = +1.25, p = 0.22 \), two-tailed, and total EA, \( t(36) = +0.17, p \)
=.87, two-tailed. Means, standard deviations and 95% confidence intervals for the EA composite scores are summarized by parenting risk group in Table 11. Therefore, based on composite measures, the dyads from both risk groups generally demonstrated on average similar levels of EA.

Table 11

<table>
<thead>
<tr>
<th>EA Composite Domain</th>
<th>High Parenting Risk Group (n=23)</th>
<th>Moderate Parenting Risk Group (n=15)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>(M (SD)) 95% CI</td>
<td>(M (SD)) 95% CI</td>
</tr>
<tr>
<td>Maternal EA</td>
<td>15.26 (3.16) 13.89 – 16.63</td>
<td>15.66 (2.64) 14.21 – 17.13</td>
</tr>
<tr>
<td>Child EA</td>
<td>7.43 (1.53) 6.77 – 8.10</td>
<td>6.80 (1.52) 5.96 – 7.64</td>
</tr>
<tr>
<td>Total EA</td>
<td>22.70 (4.21) 20.87 – 24.52</td>
<td>22.47 (3.83) 20.34 – 24.59</td>
</tr>
</tbody>
</table>

To explore the data further, \(z\)-tests of proportions were conducted to compare high and moderate risk groups on each of the six EA domains. Global EA scores for each domain were divided into two groups: (1) non-optimal (scores of 1-3); and (2) mid-range/inconsistent (scores of 4 or 5). None of the dyads in the current study had scores in the optimal range (i.e., ratings of 6 or 7) on any of the EA domains. There were no significant differences in the proportions of high and moderate risk dyads on the following EA domains: maternal sensitivity, maternal structuring, maternal non-intrusiveness, and child involvement. In other words, the distribution of dyads with non-optimal and mid-range/inconsistent EA scores was similar for high and moderate
parenting risk groups for all EA domains, with the exception of maternal non-hostility and child responsiveness. There was a significantly higher proportion of high risk mothers that demonstrated greater hostility (i.e., non-optimal non-hostility levels) compared to mothers in the moderate risk group, \( z = 1.95, p = .05 \). The frequencies for the EA non-hostility ratings are summarized by parenting risk group in Table 12.

Table 12

<table>
<thead>
<tr>
<th>Maternal Non-hostility Rating</th>
<th>High Parenting Risk</th>
<th>Moderate Parenting Risk</th>
</tr>
</thead>
<tbody>
<tr>
<td>Non-optimal (scores 1-3)</td>
<td>10</td>
<td>2</td>
</tr>
<tr>
<td>Inconsistent/Moderate (scores 4 or 5)</td>
<td>13</td>
<td>13</td>
</tr>
</tbody>
</table>

In addition, a significantly higher proportion of children of mothers in the high parenting risk group showed midrange/inconsistent responsiveness compared to children of mothers in the moderate parenting risk group, \( z = 2.59, p < .01 \). Therefore, children of moderate risk mothers tended to show more detached affect and emotional disconnection in interactions with their mothers, whereas children of high risk mothers demonstrated emotional connections with their mothers but not in entirely healthy ways. The latter group of children tended to maintain emotional connections with their mothers by being overly attuned to their mothers’ cues and overly reliant on their mothers in anxious or people-pleasing ways. The frequencies for the EA child responsiveness ratings are summarized by parenting risk group in Table 13.
Table 13

*Frequencies of High and Moderate Risk groups on EA Child Responsiveness Ratings*

<table>
<thead>
<tr>
<th>Child Responsiveness Rating</th>
<th>High Parenting Risk $n = 23$</th>
<th>Moderate Parenting Risk $n = 15$</th>
</tr>
</thead>
<tbody>
<tr>
<td>Non-optimal (scores 1-3)</td>
<td>7</td>
<td>11</td>
</tr>
<tr>
<td>Inconsistent/Moderate (scores 4 or 5)</td>
<td>16</td>
<td>4</td>
</tr>
</tbody>
</table>

Exploratory analyses of descriptive information for the children of high risk mothers ($n = 23$) was conducted to examine any factors that may have differentiated the 16 children with mid-range responsiveness scores from the seven children with low responsiveness scores. The main goal for these exploratory analyses was to examine any other opportunities that these children may have had to form healthy relationships whether through accessing clinical services or child welfare involvement. It was found that all but one of the high risk dyads had accessed ongoing clinical service at BTC. The mean length of service engagement, average number of child-related clinical contacts at BTC, and average number of clinical contacts per month were comparable for both the 16 children with mid-range responsiveness scores from the seven children with low/non-optimal responsiveness scores. A tentative pattern did emerge, however, with respect to mother-child separations due to child welfare involvement. More than half of the 16 children with mid-range scores ($n = 9; 56.3\%$) compared to only two of the seven children ($28.6\%$) with low responsiveness scores had been separated from their mothers due to child welfare concerns. Although these numbers are too small to test for statistical significance, a tentative pattern emerged such that a higher proportion of children with
mid-range responsiveness scores experienced supportive relationships with foster caregivers. It is important to note that this pattern is only speculative at this point, and further research with larger samples is needed to explore the statistical significance of these findings.

Objective 3: Parenting Risk Group Differences on Maternal ED

The third objective of the current study was to examine any group differences between mothers in the ‘high parenting risk’ and ‘moderate parenting risk’ groups on maternal ED levels. The distribution of ED levels for each group is displayed in Figure 3. The distribution of maternal ED is different for mothers depending on their parenting risk status such that higher risk mothers generally have lower ED levels than mothers with relatively less risk. The modal ED level for the mothers in the moderate parenting risk group is the Conscientious stage (E6) whereas the modal ED level for higher risk mothers was the Self-Aware stage (E5).
To compare high and moderate risk mothers on ED functioning, women with ED levels of E3, E4, or E5 were classified as ‘low/moderate ED’ whereas those with ED levels of E6 or E7 were assigned to the ‘high ED’ group. Chi square analyses were conducted to determine whether the distribution of women with low/moderate and high ED levels differed as a function of parenting risk group status. The frequencies of the ED ratings are summarized by parenting risk group in Table 14. Results revealed that the distribution of low/moderate and high ED women was significantly different for the high and moderate parenting risk groups, $\chi^2(1, N = 66) = 6.97, p = .008$, such that a higher proportion of mothers in the moderate risk group had high ED functioning compared to those in the high risk group. In addition, a higher proportion of mothers in the high risk group had low/moderate ED functioning compared to mothers in the moderate risk group.
Table 14

*Frequencies of High and Moderate Risk groups on Maternal ED Ratings*

<table>
<thead>
<tr>
<th>ED Rating</th>
<th>High Parenting Risk</th>
<th>Moderate Parenting Risk</th>
</tr>
</thead>
<tbody>
<tr>
<td>Low/moderate ED (E3 – E5)</td>
<td>30</td>
<td>16</td>
</tr>
<tr>
<td>High ED (E6, E7)</td>
<td>6</td>
<td>14</td>
</tr>
</tbody>
</table>

Objective 4: Maternal ED Group Differences on Maternal Functioning

The fourth objective of the current investigation was to examine any group differences between women in the ‘high ED’ and ‘low/moderate ED’ groups on maternal functioning outcomes: perceptions of parenting stress and observations of mother-child relationship quality.

*Parenting Perceptions*

With regard to perceptions of parenting stress, there was a significant group difference on the Difficult Child domain such that mothers in the low/moderate ED group reported on average more maladaptive perceptions of their children compared to mothers in the high ED group, \( t(59) = +2.09, p = .04, \) two-tailed, \( r^2 = .069. \) In addition, there were significant mean differences between high and low/moderate ED groups on total stress scores such that low ED mothers reported significantly higher levels of overall stress compared to high ED mothers, \( t(59) = +2.35, p = .02, \) two-tailed, \( r^2 = .086. \) Results revealed trends for mean differences in expected directions between high and moderate/low ED groups on the Parent Distress subscale, \( t(59) = +1.95, p = .056, \) two-tailed, and the Parent-Child Dysfunctional Interaction subscale, \( t(59) = +1.69, p = .097, \) two-tailed. In other words, mothers with high ED levels reported on average more
adaptive perceptions (i.e., lower scores) with respect to stress in the parenting role, and perceptions of their interactions with their children compared to mothers with low or moderate ED levels. Means, standard deviations and 95% confidence intervals for the PSI domains are summarized by maternal ED level in Table 15. Overall, mothers in the high ED group reported more adaptive perceptions of parenting stress compared to those in the low/moderate ED group. It is important to highlight that none of the mean PSI scores for either group was in the range indicative of clinical concern.

Table 15

Means, Standard Deviations and Confidence Intervals for PSI Domains

<table>
<thead>
<tr>
<th>PSI Domain</th>
<th>Low/Moderate ED</th>
<th>High ED</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>n = 41</td>
<td>n = 20</td>
</tr>
<tr>
<td>Parent Distress</td>
<td>M (SD)</td>
<td>95% CI</td>
</tr>
<tr>
<td>------------------------------</td>
<td>-----------------</td>
<td>---------</td>
</tr>
<tr>
<td>29.10 (5.81)</td>
<td>27.26 – 30.93</td>
<td></td>
</tr>
<tr>
<td>Difficult Child</td>
<td>26.07 (7.42)</td>
<td>23.73 – 28.41</td>
</tr>
<tr>
<td>P-C Dysfunctional Interaction</td>
<td>20.27 (4.85)</td>
<td>18.74 – 21.80</td>
</tr>
<tr>
<td>Total Stress Scale</td>
<td>75.44 (15.28)</td>
<td>70.62 – 80.26</td>
</tr>
</tbody>
</table>

Observed Mother-Child Relationship Quality

A series of z-tests of proportions was conducted to compare high ED and low/moderate ED groups on each of the six EA domains. As described earlier, global EA scores for each domain were divided into two groups: (1) non-optimal (scores of 1-3); and (2) mid-range/inconsistent (scores of 4 or 5). There were no significant differences
in the proportion of dyads with non-optimal and mid-range/inconsistent EA scores across maternal ED level for any EA domain with the exception of the maternal non-hostility domain. There was a significantly higher proportion of low ED mothers with non-optimal non-hostility scores (i.e., greater observed hostility) compared to mothers with high ED levels, $z = 2.13, p = .03$. The frequencies for the EA non-hostility ratings are summarized by ED level in Table 16. In summary, the distribution of dyads with non-optimal and mid-range/inconsistent EA scores was similar for high ED and low/moderate ED groups for all EA domains with the exception of maternal non-hostility, such that mothers with lower ED levels were more likely to display higher levels of overt hostility in interactions with their children compared to mothers with high ED functioning.

Table 16

_Frequencies of Low and High ED groups on EA Maternal Non-hostility Ratings_

<table>
<thead>
<tr>
<th>Maternal Non-hostility Rating</th>
<th>Low/Moderate ED</th>
<th>High ED</th>
</tr>
</thead>
<tbody>
<tr>
<td>Non-optimal (scores 1-3)</td>
<td>10</td>
<td>1</td>
</tr>
<tr>
<td>Inconsistent/Moderate (scores 4 or 5)</td>
<td>13</td>
<td>11</td>
</tr>
</tbody>
</table>

Objective 5: High Maternal ED as Moderator for Parenting Risk

The final objective of this study was to examine if high maternal ED was protective with respect to maternal functioning outcomes in the face of high parenting risk. A series of two-by-two factorial ANOVA’s were conducted to examine any interactions between parenting risk (‘high parenting risk’ versus ‘moderate parenting risk’) and maternal ED (‘high ED’ versus ‘low/moderate ED’) on parenting perceptions of stress and observed relationship quality.
**Parenting Perceptions**

Factorial ANOVA’s were conducted for each of the three domains of the PSI: (1) Parent Distress; (2) Parent-Child Dysfunctional Interaction; and (3) Difficult Child.

Among the 33 women in the ‘high parenting risk’ group, only 6 were in the ‘high ED’ group whereas 27 were in the ‘low/moderate ED’ group. There were 28 women in the ‘moderate parenting risk’ group, of which 14 were in the ‘high ED’ group and 14 were in the ‘low/moderate ED’ group. Mean parenting outcomes for the PD, PCDI, and DC domains by ED group and parenting risk status are displayed in Figures 4, 5, and 6, respectively.

**Parent Distress.** For the PD domain, there were no significant main effects for parenting risk status, \( F(1,57) = 2.99, p = .09 \), and maternal ED, \( F(1,57) = 1.42, p = .24 \), and the interaction between parenting risk and maternal ED was also not significant, \( F(1,57) = 0.07, p = .79 \). Therefore, contrary to expectations, high maternal ED did not appear to provide any significant protective role against parent distress in the face of high parenting risk conditions.

Although not statistically significant, inspection of the mean PD scores displayed in Figure 4 revealed general patterns worthy of note. First, mothers in the high parenting risk group generally reported more stress in the parenting role than mothers in the moderate risk group. Second, mothers with lower ED functioning generally reported greater parenting distress than mothers with high ED functioning. Finally, the pattern of mean parent distress scores across high and moderate risk groups did not appear to differ as a function of maternal ED level.
Figure 4. Mean Parent Distress Scores

Parent-Child Dysfunctional Interaction. For the PCDI domain, there was a significant main effect for maternal ED, $F(1,57) = 5.24$, $p = .03$, eta squared $= .084$, such that women with lower ED functioning reported on average significantly more problematic perceptions of their relationships with their children ($M = 20.27$, $SD = 4.85$) compared to women with high ED functioning ($M = 18.05$, $SD = 4.76$). There was no significant main effect for parenting risk status, $F(1,57) = 3.68$, $p = .06$, and the interaction between parenting risk and maternal ED was also not significant, $F(1,57) = 0.12$, $p = .73$. Therefore, contrary to expectations, high maternal ED did not appear to provide any significant protective role against maladaptive perceptions of the parent-child relationship in the face of high parenting risk conditions.

Although not statistically significant, an exploratory review of the pattern of the mean PCDI scores displayed in Figure 5 was conducted. Mothers in the higher risk group appeared to report more adaptive perceptions of their relationship with their
children compared to lower risk mothers. Also, mothers with higher ED functioning generally reported more adaptive parenting perceptions in this domain compared to those with lower ED levels, however, this pattern did not appear to differ as a function of parenting risk status.

Figure 5. Mean PCDI Scores

Difficult Child. For the DC domain, there was a significant main effect for maternal ED, $F(1,57) = 4.51, p = .04$, eta squared = .073, such that women with lower ED functioning reported on average significantly more problematic perceptions of their children ($M = 26.07$, $SD = 7.42$) compared to women with high ED functioning ($M = 22.10$, $SD = 5.87$). There was no significant main effect for parenting risk status, $F(1,57) = 0.34, p = .56$, and the interaction between parenting risk and maternal ED was also not significant, $F(1,57) = 0.004, p = .95$. Therefore, contrary to expectations, high maternal ED did not appear to provide any significant protective role against problematic parenting perceptions of children in the face of high parenting risk conditions.
An exploratory inspection of the pattern of the mean DC scores displayed in Figure 6 was conducted. Mothers in both risk groups appeared to report relatively comparable levels of perceptions of their children. In addition, mothers with higher ED functioning generally reported more adaptive parenting perceptions in this domain compared to those with lower ED levels; however, this pattern did not appear to differ as a function of parenting risk status.

Figure 6. Mean Difficult Child Scores

Observed Mother-Child Relationship Quality

A two-way factorial ANOVA (parenting risk by ED level) was conducted for the global EA composite score. A total of 35 women with available data were included in this analysis. Among the 14 mothers in the ‘low parenting risk’ group, six were also in the ‘low/moderate ED’ group and eight were in the ‘high ED’ group. Among the 21 women who were in the ‘high parenting risk’ group, there were 17 who also were in the ‘low/moderate ED’ group, whereas only four women were in the ‘high ED’ group. Mean
composite EA scores are displayed in Figure 7. Results of the factorial ANOVA revealed that there were no significant main effects for parenting risk status, $F(1,31) = 0.20, p = .66$, and maternal ED, $F(1,31) = 0.33, p = .57$, and the interaction between parenting risk and maternal ED was also not significant, $F(1,31) = 0.61, p = .44$. Therefore, contrary to expectations, high maternal ED did not provide any statistically significant protective role for the observed mother-child relationship quality in the face of high parenting risk conditions. However, it is important to interpret this statistical analysis with caution due to the small sample size.

An exploratory inspection of the pattern of mean composite EA scores shown in Figure 7 indicates that women with moderate risk levels generally appear the same in interactions with their children regardless of level of ED functioning whereas in very high risk parenting conditions, mothers with high ED generally appear more adaptive in interactions with their children compared to those with lower ED functioning. Therefore, although not statistically significant, the pattern of mean EA composite scores is in the hypothesized direction such that high maternal ED is somewhat protective in higher risk parenting conditions.
DISCUSSION

The purpose of this investigation was to examine different profiles of psychosocial parenting risks for substance-using mothers and explore how these risk profiles relate to two aspects of maternal functioning: parenting perceptions and observations of mother-child interactions. More specifically, the study also explored the role of maternal ED as a moderator in this association. There were five main objectives. The first was to use LPA to identify naturally occurring subgroups of substance-using mothers based on psychosocial parenting risk variables. I expected that among this high-risk sample of mothers, there would be some mothers with extremely high levels of parenting risk and others with relatively lower levels of parenting risk. The second objective was to examine how different levels of psychosocial parenting risk relate to mothers’ perceptions of parenting stress and observations of mother-child interactions. I hypothesized that higher levels of parenting risk would be associated with more...
problematic parenting perceptions and lower quality mother-child interactions. The third objective was to explore the association between levels of parenting risk and maternal ED. I expected that higher levels of parenting risk would be related to lower levels of maternal ED. Fourth, I also examined how maternal ED relates to mothers’ perceptions of parenting stress and observed mother-child interactions. I hypothesized that higher levels of maternal ED would be associated with more adaptive maternal functioning. The final objective of the current study was to explore the potential moderating role of maternal ED in the association between levels of parenting risk and maternal functioning: mothers’ parenting perceptions and observed mother-child interactions. I hypothesized that high maternal ED would act as a protective factor for parenting in the presence of high risk conditions. The findings of the current investigation will be reviewed in light of previous research, and clinical implications and directions for future research will also be discussed.

Descriptive Data

Parenting Risk Context

As a group, the mothers in this sample experienced very high levels psychosocial risks across the internal and external parenting domains identified in Belsky’s ecological model of parenting. With regard to relationship history, the vast majority of mothers did not report secure perceptions of attachment relationships. Given the high rates of relational trauma for these women, it would be expected that they would have maladaptive perceptions about relationships. In addition, this finding is also consistent with the attachment literature linking different types of insecure attachment relationships.
with substance-use problems, regardless of the type of attachment measure used (Schindler, 2005). Attachment theory would also predict that the children of these women are, in turn, at high risk for developing unhealthy attachment representations (Bretherton & Munholland, 1999; Main et al., 1985).

The literature has documented very high rates of mood disorders among substance-using mothers (Harmer et al., 1999; Luthar et al., 1998). Maternal depression has also been consistently associated with negative parenting outcomes among substance-using mothers (Ball et al., 1997; Beckwith et al., 1999; Hans et al., 1999; Nair et al., 1997; Suchman et al., 2005). In the current study, mothers reported, on average, depressive symptoms in the clinical range with over half of the mothers with scores in the clinical range. This finding is consistent with the literature and highlights the fact that as a group, these mothers experienced moderate to high levels of depression thus placing them at risk for parenting problems.

With regard to substance use, mothers reported relatively high perceived competence about resisting the urge to use substances. Although as a group, mothers reported relatively high levels of self-efficacy around not using substances, there was a lot of variability among the sample. In addition, the majority of these women were accessing ongoing clinical services for their substance-use problems; therefore, it is likely that they viewed themselves as beginning to develop more effective coping strategies other than using substances.

Social support is a critical external resource that may help buffer other psychosocial risks for parenting (Cochran & Niego, 1995). Substance-using mothers
often report limited social support (Harmer et al., 1999; Pajulo et al., 2001). In previous research, Suchman and colleagues (2005) used the PSS scale with substance-using mothers and found that mean scores for the PSS-Fa and PSS-Fr approached but did not surpass the clinical cut-off. In contrast, I found that the mothers in the current study reported even poorer levels of social support with over half of the mothers reporting social support from family in the clinical range and over one-third of the sample reporting social support from friends in the clinical range. Since the capacity to access social support is important to effectively cope with distress (Procidano & Heller, 1983), its absence will make it even more difficult for these mothers to manage distress in their parenting role. Therefore, the results underscore the high level of social isolation and limited social resources of the substance-involved families in the current study.

**Maternal Ego Development**

Previous studies examining ED among substance-using mothers have reported the modal ED level to be the Self-Awareness (E5) Stage (Fineman et al., 1997; Suchman et al., 2008). Other research with opiate-using mothers reported lower modal ED levels at the Self-Protective (E3) and Conformist (E4) Stages (Luthar et al., 2001). In the current investigation, the Self-Awareness (E5) Stage was found to be the modal ED level. It is also important to note that previous research with substance-using mothers has shown that only very small proportions of their samples (i.e., 3.3% to 6.6%) received ratings at the Conscientious (E6) Stage or higher (Fineman et al., 1997; Luthar et al., 2001; Suchman et al., 2008). In the current study, 30.3% of the mothers were rated at the
Conscientious (E6) or Individualistic (E7) Stages. Therefore, as a group, the mothers in the current study had higher ED functioning than that in previous research.

This discrepancy is likely explained by a combination of the women’s own self development and the comprehensiveness of the treatment model in which they were engaged. Regarding the personal development of the women, a large proportion of the mothers in the current investigation were at the Self Awareness (E5) Stage or higher. At the E5 level, individuals develop an emerging capacity to describe emotions and inner states as well as demonstrate greater flexibility in recognizing alternatives. There is also an emerging awareness of themselves as active agents in the world (Hy & Loevinger, 1996). The mothers and children in the current study were engaged in ongoing clinical services at BTC. When substance-using mothers access clinical services for their substance-use problems at BTC they often report that their new role as mothers and concern for the well-being of their children were motivating factors for them to make positive change and seek support (Motz et al., 2006). It is possible that, for the mothers at the Self-Awareness (E5) Stage and higher, their capacities to recognize the competing roles of substance use and parenting as well as to experience the discomfort of feelings of guilt, inadequacy as a parent and worry about their children’s well-being may have enabled them to seek help in the first place; therefore, the fact that the mothers in the current investigation were involved in clinical services may have resulted in a selection bias in the sample. In turn, intervention efforts may help promote more advanced personal development. BTC is a comprehensive and integrated mother-child early intervention program for substance-using mothers which provides a range of clinical
services focusing the mother-child relationship, maternal addiction issues and child development. Interestingly, the sample of substance-using mothers in the other studies were either not actively involved in clinical treatment (Luthar et al., 2001) or were involved in more specific intervention programs such as parenting groups (Fineman et al., 1997; Suchman et al., 2008). Therefore, the mothers’ own personal development combined with a comprehensive intervention program supporting the mothers in multiple aspects of their lives may have enabled the women in the current study to develop relatively higher ED functioning compared to the other samples.

Maternal Functioning

On average mothers in the current study did not report perceptions of parenting stress in the clinical range. Previous research using the PSI with substance-using mothers reported very high rates of scores (i.e., 27% to 43%) in the clinical range (Kelley, 1998). In the current study, the percentage of mothers with scores in the clinical range was much lower (i.e., 10% to 21% of the sample). Although none of the mean PSI subscale scores were in the clinical range, the pattern of scores across the different domains suggests that mothers tended to report elevated problems regarding their own distress as parents but reported relatively fewer problems with respect to perceptions about their children and the mother-child relationship.

In contrast to the self-report data, the observation data indicate that none of the mother-child dyads received ratings in the optimal/adapted range. Instead, as a group, the dyads showed varying levels of maladaptive or less optimal relationship functioning. This finding is consistent with other research using earlier versions of the Emotional
Availability scales with substance-using mothers (Fraser et al., 2010; Swanson et al., 2000).

Overall, the descriptive data reveal a discrepancy between mothers’ self-reported perceptions of parenting and observations of their interactions with their children such that mothers reported relatively adaptive parenting perceptions despite observations indicating clinical concerns about the emotional quality of their relationships with their children. The latter finding was consistent with expectations whereas the former one was not. There are several possible explanations for this discrepancy. Many mothers in this study were involved with child welfare services, a partner agency to BTC. Although clinicians at BTC are open and supportive to mothers around their contact with child welfare, these mothers often remain concerned about the role of child welfare in their families’ lives. As a result, the women in this sample may have been less willing to report parenting difficulties related to their children or their parent-child relationships for fear of repercussions with child welfare authorities. From a clinical perspective, another explanation for this discrepancy may reflect the mothers’ readiness for therapeutic change. According to Prochaska’s Stages of Change model (Prochaska & DiClemente, 1986), the mothers may have been at more advanced stages of change with regard to their own feelings of distress as a parent, but less ready to admit problems and seek help for their child’s difficulties and problems in their relationships with their children. It is also possible that the mothers’ inaccurate perceptions served a protective role for them and their children. For many of these mothers, their children represent hope for positive changes in their lives. Their denial of parenting problems may be an unconscious
defense mechanism that protects them from losing this hope and admitting defeat or failure. Finally, the women in the current study had experienced very high rates of trauma and abuse, often in the context of relationships with their own caregivers. Therefore, when they consider themselves as parents (i.e., having custody of their children, parenting on their own, and accessing therapeutic supports) in light of their own traumatic past, they may view themselves as doing quite well relative to their own childhood experiences and report their perceptions accordingly. In other words, given their own experiences of being parented, these mothers may have developed skewed perspectives of what is and what is not challenging in parenting relationships.

The discrepancy between self-report and observation data has important clinical and research implications. From a research perspective, the results of this study highlight the limitations of relying on self-report data alone. Instead, observational methods complement questionnaire data and help provide more rich information about the functioning of parent-child relationships.

From a clinical perspective, this kind of discrepancy between self-report and clinical observation is common when working with such high-risk families. Therefore this finding highlights the importance of using dyadic, relational approaches such as parent-infant psychotherapy (Fraiberg, Shapiro, & Cherniss, 1983) and Watch, Wait and Wonder (Muir, Lojkasek, & Cohen, 1999), to help mothers reflect on their interactions with their children. These interventions take into account that mothers’ own parenting perceptions and behaviours are likely influenced by their own experiences growing up. Therefore, clinicians support mothers in making meaning of their current parenting
attitudes in light of their past. As mothers develop a greater reflective capacity with respect to their parenting perceptions, they develop more adaptive/healthy parenting behaviours. At BTC, this relational approach is reflected in all aspects of clinical services from dyadic parent-child therapy to therapeutic groups for the mothers emphasizing reflections of the parent-child relationship and making links with the mothers’ own histories.

**Parenting Risk Profiles**

The research on substance-using mothers consistently identifies the complex range of risks that they experience in the parenting role. Using Belsky’s parenting model as a framework, this study is the first to take a multi-dimensional, person-oriented approach to identify subgroups of substance-using women with unique profiles of psychosocial risk. LPA analyses revealed two meaningful profiles of parenting risk for substance-using mothers, even among an already high risk group of mothers. The high parenting risk group was characterized by very high levels of psychosocial risk across all risk indices whereas the moderate parenting risk group, while still at risk, demonstrated relatively lower levels of risk. Attachment security was an important variable that distinguished the groups: all the mothers reporting secure attachment perceptions were found in the moderate risk group whereas the high risk group did not include any mother with secure attachment perceptions. This suggests that a history of healthier relationships may help buffer other psychosocial parenting risks. Mothers in the high parenting risk group also reported very high levels of depression such that almost all mothers reported clinical levels of depression. In contrast, the moderate parenting risk group had average
depression scores below the clinical cut-off. Therefore, mothers in the high parenting risk group reported more severe levels of depression compared to those in the moderate parenting risk group. In addition, mothers in the high parenting risk group reported less confidence about their capacity to cope without using substances and very low levels of social support compared to the mothers in the moderate parenting risk group. Therefore, the LPA analyses identified two meaningful profiles of parenting risk that were consistent with expectations.

The fact that substance-using mothers who seek treatment for their substance-use problems are not a homogeneous group has important implications for clinical practice and program evaluation research. First and foremost, the findings highlight the importance of taking a person-oriented approach in order to develop a holistic understanding of the complexity of psychosocial risks experienced by these women and their families. From a clinical perspective, this involves conducting comprehensive assessments to help inform clinical formulations. Since women begin treatment with different levels of risk, they are more likely to respond favourably to intervention approaches that are flexible to meet each individual’s unique needs. From a broader systems perspective, this finding highlights that substance-use problems are only one aspect among a broader constellation of risks; therefore, substance-use problems cannot be treated in isolation of other underlying and inter-related issues. In fact, this approach to treatment is consistent with Belsky’s parenting model highlighting the importance of supporting families in reducing risks and building supports across internal and external parenting resources. Therefore, programs working with substance-using mothers and
their children need to establish integrated and cross-sectoral agency partnerships in order to provide comprehensive, coordinated services to successfully support the complex range of risks these families experience.

The finding that there are different profiles of women accessing service for substance-use problems also has important implications for program evaluation research with this population. It highlights that studying treatment progress or change over time may require a more person-oriented as opposed to variable or symptom-oriented approach. In other words, if meaningful subgroups of women exist at the outset of treatment, then positive change for some families may not be the same for others. Therefore, only evaluating change in a particular variable or symptom for an entire sample may obscure or may not capture meaningful clinical changes that may exist for subgroups within the sample. It will be helpful for future research to examine how substance-using mothers with different profiles of risk progress through treatment over time.

Parenting Risk Group Differences on Maternal Functioning Variables

The second main objective of the current study was to compare any group differences between women in the high versus moderate parenting risk groups on indices of maternal functioning: perceptions of parenting stress and observations of mother-child interactions. With regard to parenting perceptions, the mothers in the high risk group reported significantly higher levels of distress in the parenting role compared to mothers in the moderate parenting risk group; however, there were no group differences in their perceptions of their children and the parent-child relationship. These findings highlight
that, despite the mothers’ own high risk parenting conditions and high levels of parenting
distress, they were deeply committed to preserving adaptive perceptions of their children
and the parent-child relationship. As noted earlier, few mothers reported perceptions of
their children and the parent-child relationship in the clinical range; therefore, limited
variability may have made it difficult to identify group differences in these domains.
Previous research with substance-using mothers has found that higher levels of
cumulative psychosocial risk were related to more problematic perceptions of parenting
stress on the PSI (Kettinger et al., 2000; Nair et al., 2003). Consistent with this literature,
the current study demonstrated that higher parenting risk profiles among substance-using
mothers is associated with greater distress in the parenting role.

For the observation data, there were no significant differences between the high
and moderate parenting risk mothers on composite measures of observed emotional
availability. As noted earlier, none of the dyads in this sample had domain scores in the
adapted range, which limited the variability in the composite scores thus making it
difficult to find group differences. Exploratory analyses of the domain scores revealed
that high risk mothers were significantly more hostile in interactions with their children
compared to lower risk mothers. This finding is consistent with previous research with
substance-using mothers linking higher levels of mental health and psychosocial
problems with greater hostility and more harsh behaviour in interactions with their infants
(Beckwith et al., 1999; Hans et al., 1999; Jeremy & Bernstein, 1984). In other words,
mothers who experience more complex combinations of psychosocial risks are more
likely to have a more limited capacity to regulate and contain their negative affect
effectively, which was demonstrated through their more overtly hostile interactive behaviour. As discussed above, high risk mothers also reported greater distress in the parenting role. Thus, their parenting distress may be transferring to some extent into their interactions with their children through hostile behaviour. In general, this finding suggests that an important area for intervention with very high risk substance-using mothers is distress tolerance and more adaptive ways of coping with negative affect particularly in the context of the mother-child relationship.

The exploratory analyses of the observation data also revealed an unexpected finding: children of high risk mothers appeared to show more adapted levels (albeit not in the optimal range) of child responsiveness compared to children of moderate risk mothers. Given this unexpected finding, descriptive information was reviewed further to examine what factors differentiated the high risk children with mid-range scores (i.e., emotional connection with mother but these children were emotionally under-regulated) from those with lower scores (i.e., limited or detached emotional connection with mother and a tendency to be emotionally over-regulated). Although tentative, the descriptive data suggest that a higher proportion of high risk children with mid-range responsiveness scores had been separated from their mothers due to child welfare involvement compared to high risk children with low responsiveness scores. Therefore, more of the high risk children with mid-range scores had had opportunities to experience healthy relationships with alternative caregivers, which in turn, may have allowed them to appear more adapted in interactions with their biological mothers. According to theoretical descriptions of emotional availability, the quality of children’s relationships to their
caregivers is intended to be relationship-specific (Biringen, 2000). However, relational theories suggest that if a child receives alternative supportive relationships, then they may generalize some of the healthy representations from that relationship (i.e., expectations for safe, nurturing relationships, and the capacity for emotion regulation) into other relationships (Altman, Briggs, Frankel, Gensler, & Pantone, 2002). In fact, this finding is in line with previous research with substance-using mothers demonstrating that under high risk conditions, children have healthier developmental outcomes when they are placed in the custody of alternate caregivers (Motz, 2003). Overall, these exploratory results highlight the fact that substance-use programs for mothers cannot focus on the mother alone. It is also critical for programs to support their children and foster better fit and dyadic attunement in the mother-child relationship. For example, the children accessing service at BTC are supported in their social and emotional development and relationship capacity through the experience of therapeutic relationships with consistent child care staff, participating in dyadic parent-child therapy with their mothers, as well as completing regular developmental assessments. Throughout all aspects of these services, the focus is on supporting not only the healthy development of the child and the mother, but also the mother-child relationship.

Parenting Risk Group Differences on Maternal Ego Development

The third objective of the current study was to compare women in the high versus moderate parenting risk groups on maternal ED functioning. Previous research with substance-using mothers has linked greater socio-demographic risk (Luthar et al., 2001) and psychiatric risk (Zelazo, 2006) with lower levels of ego development. Consistent
with these studies, the findings in the current investigation suggested that mothers with more complex psychosocial parenting risks had lower ED functioning (i.e., pre-conformist and conformist ED levels) whereas mothers who reported lower levels of psychosocial risks tended to have higher ED functioning (i.e., post-conformist ED levels). In addition, the mothers in the high parenting risk group had a lower modal ED level (i.e., Self-Awareness (E5) Stage) compared to those in the moderate parenting risk group (i.e., Conscientious (E6) Stage). In other words, the ED functioning of mothers who experienced relatively less complex psychosocial risks was characterized by the capacity for greater self-reflection on emotional states, inter-personal awareness and perspective-taking as well as perceiving and integrating more complex alternatives, flexible coping and impulse control. The mothers in the high parenting risk group, while able to identify alternatives and feeling states (albeit to a less complex and integrated degree), still demonstrated strong concern for conformity to external standards.

Therefore, the distinct profiles of parenting risk have different distributions of ED levels such that the highest risk mothers tend to show lower ED functioning.

These different profiles of parenting risk and ED functioning have important implications for clinical practice with substance-using mothers. Given the propensity for more dichotomous perceptions and limited capacity for introspection at lower ED levels, very high-risk mothers with lower ED functioning would likely benefit from more structured, directive intervention approaches with more concrete goals and expectations. The greater internal and interpersonal awareness of feelings that emerges at higher levels of ego development suggests that mothers with relatively fewer psychosocial risks and
high ED may be better able to benefit from more reflective intervention approaches. In fact, the range of intervention groups at BTC is consistent with these findings. For example, mothers who are at the early stages of recovery and who are new to treatment tend to experience a greater range of psychosocial risks and benefit from intervention groups that focus on building specific knowledge and concrete skills such as relapse prevention and tangible parenting support. Once mothers’ coping skills are more practiced and there are less imminent psychosocial risks, mothers engage in more reflective intervention groups focusing on making links between mothers’ own histories and their current functioning.

Although the vast majority of high risk mothers had pre-conformist or conformist ED levels, it is noteworthy that there were six high risk mothers who demonstrated high ED functioning (i.e., post-conformist ED levels). A qualitative review of these six cases compared to other high risk mothers revealed no differences on demographic data or other variables studied in this investigation. It is important for future research on ED to examine more specifically what developmental or personality factors enable individuals to develop high ED functioning in the face of complex psychosocial risk.

ED Group Differences on Maternal Functioning Variables

The fourth objective of this study was to examine differences between mothers with high ED levels and those with low/moderate ED levels on indices of maternal functioning: perceptions of parenting stress and observed mother-child interactions. With regard to parenting perceptions, mothers with higher ED functioning had more adaptive perceptions of their children and the mother-child relationship, and reported less distress
in their roles as parents compared to mothers with low or moderate ED levels. This finding is consistent with prior research demonstrating that higher ED is adaptive among substance-using mothers with respect to parenting perceptions including parental satisfaction (Luthar et al., 2001) and self-reported parenting behaviours (Suchman et al., 2008). In line with the theory on ED, the mothers in this study with high ED functioning had a greater capacity for reflection and understanding themselves in relation to others. This more complex level of personal and interpersonal functioning likely enabled them to better understand their own feelings as a mother as well as reflect on the underlying motivations and emotional needs behind their children’s behaviour, thus allowing for more balanced and adaptive parenting perceptions.

For the observation data, there were no significant differences between mothers with high and low/moderate ED levels on any of the EA domains with the exception of the domain of mothers’ hostility. Mothers with lower ED functioning were more likely to display higher levels of overt hostility in interactions with their children compared to mothers with high ED functioning. Individuals with high ED functioning have a more complex understanding of their own internal states as well as a better understanding of how their emotional states and behaviour impact others. Therefore, individuals with high levels of ED would be expected to have better emotion control and emotion regulation compared to individuals with lower levels of ED. It is possible that the mothers with low or moderate ED levels in the current study had less effective means of regulating their own negative affect, which in turn transferred into more overt hostile behaviours in interactions with their children.
These results have important clinical implications. In particular, it would be helpful for clinicians working with substance-using mothers to assess their clients’ level of ED functioning. This information will assist clinicians in conceptualizing their clients’ capacities to reflect on their own internal states as well as interpersonal relationships so that they can develop intervention plans accordingly. For example, mothers with higher ED functioning may benefit from less directive, more exploratory approaches whereas mothers with lower ED functioning will likely need more concrete, directive approaches. Understanding mothers’ level of ED functioning may also help clinicians understand their clients’ capacities to regulate emotions, particularly in the context of interactions with their children. Mothers with lower ED functioning may benefit from greater support from clinicians in learning more adaptive ways of managing negative affect.

High Maternal ED as Moderator for Parenting Risk

The final main objective of the current investigation was to examine the potential moderating role of high ED in the association between parenting risk and maternal functioning. There were no significant interactions between parenting risk and ED level across all PSI domains as well as composite EA scores. Therefore, the results did not support the hypothesis that high maternal ED would serve as a statistically significant protective factor for adaptive maternal functioning in the face of higher risk conditions. It is important to note that there were very small cell sizes in these analyses which may have limited the power to detect an interaction effect. In addition, as noted earlier, most mothers reported a limited range in PSI scores with reports across all domains mostly within the normal range. There was also a restricted range on the observed EA scores as
none of the dyads received ratings in the adapted range. Therefore, the restricted range on the dependent variables may have also made it difficult to detect significant differences.

Although only exploratory at this point, it is important to note that the pattern of the mean composite EA scores was in the hypothesized direction. Mothers with lower levels of risk generally were rated similarly in interactions with their children regardless of level of ED functioning; however, in very high risk parenting conditions mothers with high ED generally appeared more adaptive in interactions with their children compared to those with lower ED functioning. Therefore, although not statistically significant, this pattern of composite EA scores provides some preliminary evidence that high maternal ED may serve as a protective factor for the observed mother-child relationship quality in very high risk parenting conditions. Further research with larger sample sizes is needed to accurately examine the interaction of maternal ED and parenting risk for maternal functioning outcomes.

Limitations

The current investigation has several limitations that need to be acknowledged. First, it is important to note that this study relied on cross-sectional data only. Therefore, conclusions about causation are not possible. When comments are made about directions of effect (e.g., impact of parenting risk on maternal functioning), they are based on underlying theoretical assumptions about direction of associations when in fact it is possible that alternative explanations for associations exist in the opposite direction of that discussed (e.g., maternal functioning influences level of parenting risk). Future
research with dependent variables occurring later in time than the independent variables is needed to clarify the direction of effects.

Second, this study focused on parenting in a sample of mothers who had been actively engaged in a comprehensive treatment program for their substance-use problems. Therefore, the results may not be generalizable to the general population of substance-using mothers. Another factor that may limit the generalizability of the findings is the fact that the current study was conducted in a Canadian cultural context where there is universally available health care free of charge as well as a range of other social services that may be less readily available in other developed countries. For example, a recent UNICEF report on child well-being in developed countries highlighted that across dimensions of health care, education and family and peer relationships, Canada consistently ranked above the United States (UNICEF, 2007). This suggests that cross-cultural differences may exist between Canadian and American samples of substance-involved families, making it difficult to generalize findings across North America.

Finally, as noted earlier, it is important to acknowledge the range restrictions in the PSI and the EA observational data. Although there was variability within these measures, the fact that the current sample of substance-using mothers represents a very small subgroup of the larger population of mothers, may have further contributed to the restricted range. Further research with larger sample sizes as well as comparison groups of mothers will likely permit greater variability in these measures.
Conclusions

Substance-using mothers represent a very high risk group of mothers. However, the current study is the first to demonstrate that substance-using mothers who access treatment for their substance-use problems are not a homogeneous group. Using Belsky’s parenting model as a framework, this study used a multi-dimensional, person-oriented approach with LPA analyses to identify two meaningful profiles of psychosocial parenting risk for substance-using mothers. These parenting risk profiles were related in predicted ways with aspects of maternal functioning, highlighting the critical importance of considering maternal substance-use problems as only one aspect among a broader constellation of risks and other underlying issues that impact parenting. Therefore, programs working with substance-using mothers need to support not only the mothers but also their children to foster healthy mother-child relationships. This approach requires integrated and cross-sectoral agency partnerships in order to provide comprehensive, coordinated services to successfully support the complex range of risks these families experience.

Another unique aspect of this study was incorporating maternal ED, an important internal psychological resource, into the study of parenting among substance-using mothers. Although high maternal ED was not found to be a statistically significant buffer for adaptive maternal functioning outcomes in the face of high parenting risk, ED is an important variable in understanding parenting among substance-using mothers as it was meaningfully related to parenting risk profiles as well as parenting perceptions and aspects of mother-child interactive quality. Maternal ED focuses on significant
psychological aspects of parenting including capacities to reflect on internal emotional states as well as interpersonal relationships. Therefore assessment of maternal ED functioning is critical for clinicians who are working to support and enhance the mother-child relationship quality among mothers with substance-use problems.

The challenge of future research will be to examine how substance-using mothers with different profiles and their children progress through treatment over time as well as the types of treatment approaches work best for these different subgroups. It will also be important to continue to explore the role of potential protective factors for positive maternal outcomes such as high maternal ego development. These research efforts are critical in order for us to continue to inform our clinical practice with substance-using mothers and their young children so that we may best support them in making positive changes in their lives.

Knowledge Exchange Plan

Conducting research in an innovative clinical setting such as BTC in collaboration with York University has allowed me the unique opportunity of integrating research and clinical practice. I have shared the preliminary findings of this project with the clinical and research staff at BTC where it will have a direct impact on clinical services for children and their families in addition to informing future research with this high risk population. I have also given two presentations at different research forums at York University: one where I discussed the importance of using observational methods to augment quantitative research data, and another where I discussed the preliminary findings of this research project. Finally, I presented the results of the observation
research from the current project in a poster presentation at the 12th World Congress of the World Association for Infant Mental Health in Leipzig, Germany in June 2010. I plan to continue to disseminate the results of this project through further presentations at academic conferences as well as through journal publications.
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Appendix A

*Tracking Families without Observation Data*

Table A1

*Frequencies of Reasons for Not Completing Video-Taped Mother-Child Interactions (n = 44)*

<table>
<thead>
<tr>
<th>Reason</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lost contact with family</td>
<td>38.6</td>
</tr>
<tr>
<td>Child no longer in mother’s custody</td>
<td>20.5</td>
</tr>
<tr>
<td>Refused to participate</td>
<td>13.6</td>
</tr>
<tr>
<td>Family not yet due to complete video-taped observation</td>
<td>11.4</td>
</tr>
<tr>
<td>Family did not show up for scheduled video-taped observation</td>
<td>9.1</td>
</tr>
<tr>
<td>Family moved out of city/province before they were due to complete</td>
<td>4.5</td>
</tr>
<tr>
<td>video-taped observation</td>
<td></td>
</tr>
<tr>
<td>Mother was working full time and unavailable to come to BTC to</td>
<td>2.3</td>
</tr>
<tr>
<td>complete the video-taped observation</td>
<td></td>
</tr>
</tbody>
</table>