

CROSS-CULTURAL DIFFERENCES IN MATERNAL SENSITIVITY  
AND CHILD BEHAVIOUR AMONG CHINESE CANADIAN  
AND EUROPEAN CANADIAN FAMILIES

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## Abstract

This study assessed differences in observational ratings of maternal sensitivity among European and Chinese Canadian mothers and their children between the ages of 0 and 3. Potential moderating variables (stress, attributions, socioeconomic factors, and acculturation) in the relationship between culture and sensitivity were examined, and the association between maternal sensitivity and child outcome variables (socio-emotional development, behaviour problems, and cognitive functioning) were identified. Both cultural groups were well-matched on several, potentially confounding, demographic variables, including income, employment status, and education. No significant differences in maternal sensitivity were identified across cultures. However, Chinese Canadian dyads displayed significantly lower infant total scores (responsiveness and cueing) than European Canadian mothers. Only culture was identified as a significant predictor of cultural differences in infant scores. In the overall sample, child age was a significant predictor of maternal sensitivity, while culture was not. With respect to child outcome, Chinese Canadian children exhibited lower maternally-rated socio-emotional development scores and lower researcher-rated language development scores. Only culture was identified as a significant predictor of these differences, and no significant interactions were identified. Qualitative analysis of participant descriptions of maternal sensitivity revealed that Chinese Canadian mothers were less likely than European Canadian mothers to emphasize attunement to children's socioemotional needs, particularly during early stages of infancy. Results suggest that cultural differences in maternal sensitivity may be lessened in immigrant populations where SES is high and well-matched across groups. Findings also highlight the importance of studying infant responsiveness and the dyadic nature of maternal sensitivity when studying cross-cultural differences in caregiving behaviour.

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## INTRODUCTION

A full understanding of parenting entails an evaluation of the contextual forces through which it is shaped. While these forces are varied and complex, cultural factors are of paramount importance in forming the parenting beliefs and behaviours of individuals within a given society. For the purposes of this study, culture refers to the knowledge, values, experiences, norms, and worldviews held by a particular ethnic group, and passed on through successive generations (Bornstein & Cheah, 2006). The literature on culture and parenting suggests that many customs of childcare are influenced by culture, including how parents respond to their infants, routines of sleeping and feeding, the amount and kind of stimulation given to infants, and the types of teaching skills that are valued (Bornstein & Cheah, 2006; Emde, 2006). Despite the known variability in child-rearing practices, the literature on parenting and caregiver–infant interaction has long been biased by a focus on Western culture (Taminen, 2006; Tomlinson & Swartz, 2003). More recently, efforts to better understand the effect of culture on parenting have resulted in several studies of the relationship between culture and predictors of parenting, including stress and socioeconomic status (SES) (Emmen, Rosanneke A. G., Malda, Maike & Mesman, 2013; Rosanneke, Emmen, Malda, Mesman, Marinus et al., 2013; Su & Hynie, 2010). However, cross-cultural research on specific facets of parenting and their relationship with child outcome remains relatively scant (Ekmeci, Yavuz Muren, Rosanneke, & Mesman et al. 2014; Keller, 2012). This is the case for parental sensitivity, which has been defined in western society as a mother’s ability to recognize and respond in a timely and effective manner to her infant’s needs, especially when distressed (Ainsworth, Blehar, Waters & Wall, 1978; Pederson, Gleason, Moran, & Bento, 1998). While maternal sensitivity is an aspect of parenting that has been shown by mainstream research to have an important impact on child development, and that is a central focus of most parenting education and intervention programs offered in North America

(Ainsworth, Blehar, Waters, & Wall, 1978; Bakermans-Kranenburg, Van IJzendoorn, & Juffer, 2005; Marvin, Cooper, Hoffman, Powell, & Bert, 2002), few studies have examined the cross-cultural validity of this concept or its relationship to child outcomes in diverse contexts.

A resulting research–practice gap continues to challenge mental health workers, who provide assessments and interventions for culturally diverse parents of young children. Clinicians may often have to rely on inadequate theories and empirical knowledge to inform their practice. The dearth of clinically meaningful information that is relevant for diverse populations is concerning, especially since minority groups generally under-utilize mental health services, exhibit higher drop-out rates and attend fewer counseling sessions than Caucasian North Americans, and may not fully benefit from resources available to families from the mainstream culture (Chang, Morrissey, Koplewicz, & Harold, 1997). To improve accessibility and deliver effective services to diverse populations, cultural competence and an increased understanding of what is valued and expected in a given culture among health care professionals is essential (Antinori & Moore, 1997; Ecklund & Johnson, 2007; Emde, 2006; Horm, 2003; Whaley & Davis, 2007).

In Western societies, maternal sensitivity has been consistently and strongly associated with optimal child development (Bodle, Zhou, Shore, & Dixon, 1996; Bowlby, 1969; Donovan, Taylor, & Leavitt, 2007; Jaekel, Pluess, Belsky & Wolke, 2014; Niever & Becker, 2007; Pederson et al., 1998); however, few large-scale studies have explored the validity of the concept of sensitivity or its relationship with child outcomes across cultures. This is problematic because recent studies indeed suggest that the expression of sensitivity varies across cultural contexts (Ba, Ma, & Johnston, 2010; Bornstein, 2011; Chan, 2009; Kelly & Tseng, 1992). For example, recent interest in parenting within the Asian culture has led to the emergence of studies

comparing the caregiving styles of Chinese and North American parents. Several of these studies have demonstrated that Caucasian mothers show higher sensitivity, non-restrictiveness, nurturance, warmth, praise, and affection than immigrant Chinese mothers, and that Chinese caregivers display less warmth and more control and harsh discipline during interactions with their children (e.g., Ba et al., 2010; Huang, 2012; Kelly & Tseng, 1992; Keng-Ling & Li-Jeung, 2010; Lin & Fu, 1990; Lieber et al., 2006; Wu, Robinson, Yang, and Hart, 2002). However, the majority of these studies utilize self-report measures of parenting style, as opposed to observational measures of sensitivity. Furthermore, studies have yet to conclusively determine why these cultural differences in sensitivity and parenting style exist, and whether sensitivity is related to positive child development in other cultures in the same way that it is in European American samples. As outlined by Hill (2006), cross-cultural research on parenting has been limited by an over-emphasis on comparative designs and mean differences, at the expense of understanding the implications of these differences for children's developmental outcomes across groups. Such gaps in the research literature present challenges for clinical practice with families from diverse cultures.

To address some of these gaps, this study examined cultural variations in maternal sensitivity in a sample of CC and EC mothers. The study focused on potential moderator variables that relate to immigration and cultural values, for example parenting stress, caregiver attributional style, socioeconomic status, and acculturation. This work adds to previous research (e.g., Su & Hynie, 2010) by identifying factors that may contribute to cultural differences in parenting style, and by using an observational method, rather than self-report, to assess maternal sensitivity. In addition to identifying potential moderator variables, this research aimed to deepen our phenomenological understanding of sensitivity and how it varies across cultures, through



interviews with caregivers and inquiries about their lived experience of sensitivity, their conceptualizations of this construct, and their understanding of their own personal interactions with their children.

Given that the value in studying maternal sensitivity is its widely accepted relationship to child outcome (Bodle, Zhou, Shore, & Dixon, 1996; Bowlby, 1969; Donovan, Taylor, & Leavitt, 2007; Niever & Becker, 2007; Pederson et al., 1998), another question that this study sought to answer was: “If true differences in sensitivity exist across cultures, then what does this mean for children?” If differences in sensitivity across cultures (in this case Chinese vs. European Canadian culture) were identified but unrelated to differences in child outcome variables, then the recorded differences in sensitivity would question its practical relevance. Therefore, this study sought to determine the relationship between caregiver sensitivity and outcome variables such as social and emotional well-being, behavior, and cognitive functioning in children of Chinese Canadian background as compared to those of European Canadian background. Information yielded from the semi-structured interviews with participants was used to help interpret any differences found in the relationship between sensitivity and child developmental outcomes across the two cultures.

### **Culture and Parenting**

Researchers and theorists have postulated that a central aspect of culture, one that influences early socialization, child-rearing strategies, and caregiver-child attachment, is the degree to which a society tends towards autonomy and independence or relatedness and interdependence (i.e., individualism vs. collectivism (Arnett, 2007; Cole & Tan, 2007; Hofstede, 1980; Markus & Kitayama, 1991; Rosenthal & Roer-Strier, 2001; Rothbaum, Weisz, Pott,

Miyake & Morelli, 2000). These ideologies or worldviews are shaped in part by socioeconomic factors, such as living conditions, climate, economic policy, social norms, and family structure (Rosenthal & Roer-Strier, 2001).

Ideologies and worldviews that are valued by a given culture are usually reflected in the socialization goals of individuals within that given culture, resulting in cross-cultural differences in parenting (Rosenthal & Roer-Strier, 2001). For example, some cultures may promote the development of self-control in early child development, while others may emphasize autonomous behaviour, or self-maximization. These socialization goals, in turn, influence the parental “ethnotheories” that caregivers subscribe to in caring for their children (Harkness & Super, 2006). These parental ethnotheories translate broad cultural ideas into notions about what parenting entails. They are cultural models that parents hold about their children, families, and themselves as parents (Harkness & Super, 2006; Kagitcibasi & Berry, 1989). Often, these consist of implicit ideas about the ‘right’ or ‘natural’ way to think or act, and include beliefs about how children develop their social roles, what qualities are most important to manifest in children, and what kinds of activities and experiences are most important in the formative years of early development (Rosenthal & Roer-Strier, 2001). These child-rearing strategies are geared towards the development of competencies that are required in order to function successfully in a given culture, and are passed on to subsequent generations (Borstein & Cheah, 2006; Ogbu, 1981; Rosenthal & Roer-Strier, 2001).

### **Socialization Goals and Parental Ethnotheories of European vs. Chinese Caregivers**

The main philosophy underlying North American caregiving is the promotion of individualistic and independent behaviour in children through the use of reasoned control, open

expression of warmth and intimacy, and frequent use of praise (Xu et al., 2005). Important socialization goals in Western culture include assertiveness and independence, self-reliance, autonomy and social skills (Chen, Hastings, Ruben, & Chen, 1998). In comparison, Chinese parents foster the development of interdependent behaviour in their children by emphasizing obedience to rules, being sensitive to other people's evaluation and criticism, and acknowledging adult authority (Shijun, 1993; Xu et al., 2005). The main philosophy underlying child socialization in Chinese families is Confucianism, which is concerned with fulfilling social obligations, establishing relationships with others, maintaining interpersonal harmony, conforming to norms, respecting parents and elders, avoiding conflict, and achieving reputation within the family through individual accomplishment and achievement (Kelley & Tseng, 1992; Lieber, Fung, & Leung, 2006; Lin & Fu, 1990; Xu et al., 2005). One of the main concepts of Confucianism is filial piety, which is the belief that children should satisfy, respect, and show reverence for their parents and elders in all situations. In return, parents are expected to be responsible and experienced instructors who pass along cultural norms, values and life experiences to succeeding generations (Kelley & Tseng, 1992; Xu et al., 2005). Some studies suggest that these traditional values may be changing with increased "westernization" in China, particularly among urban youth and families (Wenxin, Meiping, & Fuligni, 2006). However, more research on these changes and their effects on parenting is needed.

Some writers have made claims that Chinese parents are initially very indulgent, lenient, warm and affectionate towards their infants, until they reach 'the age of understanding' during early elementary school years when strict discipline is enforced (Rao, McHale, & Pearson, 2003). However, research on this topic has been inconclusive. For example, Kelley and Tseng (1992) compared child-rearing practices among two groups of Chinese-American immigrant

mothers with children between the ages of 3-5 and 6-8, and found no significant changes in parenting behavior from one age group to the next.

### **Maternal Sensitivity**

In the context of daily interaction with children, responsive maternal behaviour entails synchronous, appropriate responses and accurate perception of cues (Ainsworth et al., 1978; Donovan et al., 2007; Nievar & Becker, 2007). Maternal sensitivity has consistently been associated with positive developmental outcomes in children, including more mature play behavior, more skillful object exploration, greater infant positivity, lower infant negativity, and fewer child behavior problems (Bodle, Zhou, Shore, & Dixon, 1996; Donovan, Taylor, & Leavitt, 2007; Pederson et al., 1998). Furthermore, caregiver responsiveness has long been linked to attachment security and the development of children's sense of safety (Bowlby, 1969; Nievar & Becker, 2007).

Contemporary models of parenting highlight that maternal behaviours do not occur in isolation, but are part of a complex system. As such, maternal sensitivity is influenced by a variety of factors, including the challenges of caring for a particular infant, family stress, and the mother's social context (Pederson, Moran, Sitko, Campbell, Ghesquire, & Acton, 1990). In particular, meta-analyses have highlighted the importance of the child's role in maternal sensitivity (e.g., Barnard, 2000; De Wolff & van IJzendoorn, 1997). Such studies have challenged the idea that maternal sensitivity is a stable personality trait by demonstrating that the relationship between sensitivity and infant responsiveness is, in fact bidirectional. For example, Barnard (1994) describes maternal sensitivity as the mutual accommodation present in the interaction between parents and infants. She describes the critical element in the interaction as

the degree to which each member is responding to the other in a contingent, sensitive, and empathic manner, as opposed to a discrete “level” of maternal sensitivity. As such, she stipulated that, as the developing child matures, parents should be able to recognize changing cues and adjust their behaviours accordingly. However, research exploring the exact nature of the contingent relationship between infant behaviour and maternal sensitivity has produced mixed findings. For example, several studies have identified that highly irritable infants elicit less sensitive responding from their mothers, placing them at greater risk for attachment insecurity (i.e., Atkinson et al., 1999; Cox, Owen, Henderson, & Margand, 1992; Kochanska, 2001; Van den Boom, 1994). These findings suggest that sensitive caregiving is enhanced when the child responds positively to the mother’s bids for attention. On the other hand, equally abundant research has found that poor infant responsiveness actually elicits higher levels of maternal responsiveness and a reduced likelihood of continued infant difficulty (Bates, Olson, Pettit, & Bayles, 1982; Crockenberg & Acredolo, 1983; Crockenberg & Smith, 1982; Davis, Votruba-Drzal, & Silk, 2014). Researchers generally agree that both outcomes are plausible, rendering the two models of dyadic interaction valid (Bates, 1980; Thomas, Chess, & Birch, 1968).

There are several possible explanations for these divergent findings. For example, the exact nature of the dyadic relationship and resulting outcome may depend on methodological differences between studies. Several studies identified a significant positive relationship between infant temperament and maternal responsiveness, but only when infant behaviour was measured observationally and not by maternal self-report (Coffman, Levitt, Guacci, & Silver, 1992; Seifer, Schiller, Sameroff, Resnick, & Riordan, 1996). Furthermore, outcomes were frequently influenced by the contextual/moderating variables characterizing the sample, such as social support, child age, child gender, and SES. For example, negative relationships between infant

temperament and maternal responding have been demonstrated in samples of low income dyads, while studies of middle-to-high income families have produced mixed findings (Linn & Horowitz, 1983; Milliones, 1978; Schuler, Black, & Starr, 1995; van den Boom & Hoeksma, 1994; Davis, Votruba-Drzal, & Silk, 2014). With respect to child age, studies examining younger infants (under age 1) have shown positive relationships between infant temperament and sensitivity (Bates et al., 1982; Crockenberg & Acredolo, 1983; Crockenberg & Smith, 1982), while those examining older children have reported negative relationships (Coffman et al., 1992; Lee & Bates, 1985; Maccoby, Snow, & Jacklin, 1984; Spangler, 1990).

### **Culture and Maternal Sensitivity**

In their systematic review of the literature, Judi Mesman and colleagues found that, while maternal sensitivity is generally found to be lower among ethnic minority families than in majority families, the main explanation for this difference is family stress due to socioeconomic disadvantage, as opposed to cultural factors (Mesman, Marinus, Van IJzendoorn & Bakermans-Kranenburg, 2011). It should be noted that the vast majority of studies included in this review examined sensitivity in African American and Hispanic populations in the United States. However, similar findings were yielded in a Canadian study by Su and Hynie (2010) with respect to self-reported cultural differences in authoritative VS authoritarian parenting styles. With the exception of this research, few large-scale studies have explored the validity of the relationship between sensitivity and optimal development across cultures. This is problematic because recent studies indeed suggest that cultural factors play a role in the expression of sensitivity (Bornstein, 2011; Chan, 2009; Jin, Jacobvitz, Hazen, & Jung, 2012; Kelly & Tseng, 1992). For example, one study examining maternal sensitivity in the Netherlands found that Turkish mothers were

more intrusive, less authoritative, and less supportive than Dutch mothers. However, these differences reflected variations in the collectivistic vs. individualistic worldviews held by the two groups of mothers, highlighting the need to consider differences in cultural beliefs and values when assessing maternal sensitivity across cultures (Yaman, Mesman, van IJzendoorn, Bakermans-Kranenburg, & Linting, 2010).

The interest in studying maternal sensitivity originated in its predictive value for, and association with, secure attachment between mothers and their infants (Hill, 2006). However, these links are problematic as the cross-cultural validity of attachment theory itself has been called into question. For example, during the 1980s, it was found that attachment patterns occurred in different proportions in countries other than the United States, where 65% of children in the general population are classified as having a secure pattern of attachment, and the remaining 35% of children are divided between the insecure and disorganized classifications (Prior & Glaser, 2006). A meta-analysis conducted by Van IJzendoorn and Kroonenberg (1988) revealed that, although the secure attachment pattern was modal in most countries, the avoidant classification was more prevalent in Western Europe, and the anxious attachment pattern was more prevalent in Israel and Japan. Studies have also found that Japanese infants show more distress and are more resistant than American babies in strange situations (Miyake, Chen & Campos, 1985; Takahashi, 1986). In another study conducted in North Germany, higher rates of avoidant classifications were identified (Parke, Grossman & Tinsley, 1981). Moreover, several researchers have noted that, while Ainsworth's (1981) seminal study in Baltimore suggested a strong relationship between maternal sensitivity and attachment, subsequent studies have yielded effect sizes that are much smaller in this context (Rogoff, 2003). Additionally, many studies cited as providing cross-cultural support for the sensitivity hypothesis were based on indirect

measures of maternal responsiveness, such as maternal age, availability of the mother, and size of households (Pederson et al., 1990; Rothbaum et al., 2000).

Despite the dyadic nature of maternal sensitivity, the infants' role in the mother-child relationships has yet to be explored from a cross-cultural perspective. This is problematic given that previous research has outlined the importance of taking infant behaviour, temperament and responsivity into account when studying maternal sensitivity and attachment (De Wolff & van IJzendoorn, 1997; Goldsmith & Alansky, 1987). Consequently, many questions still remain about the manifestation of sensitivity, as well as the nature of this dyadic relationship across cultures.

### **Sensitivity and Parent–Child Interaction in Chinese families**

Much of the research on child rearing in Chinese cultures has focused on authoritarian parenting styles (Lieber et al., 2006; Lin & Fu, 1990; Wu et al., 2002). These studies suggest that Chinese and immigrant Chinese caregivers tend to control their children more often, show less affection towards their children, use physical discipline more often, and place more emphasis on academic achievement than European American caregivers (Kelly & Tseng, 1992; Lin & Fu, 1990; Ng, Pomerantz, & Deng, 2014). For example, Wu, Robinson, Yang, and Hart (2002) compared the parenting practices of mothers in living in China and the United States, and found that American mothers scored higher on warmth and acceptance than Chinese mothers. In contrast, Chinese mothers scored higher on encouragement of modesty, protection, directiveness, and shaming/love withdrawal than American caregivers (Wu et al., 2002). Similar findings are reported by Lieber et al. (2006) who identified training and shame as central aspects of child-rearing in Chinese culture. These dimensions involve close monitoring of the child, modeling,



correcting the child's misbehaviour, using discipline strategies, and shaming children for misdeeds in order to teach them sensitivity towards others, self-discipline, and social responsibility (Lieber et al., 2006; Wu et al., 2002).

However, Lieber et al. (2006) also found that authoritative parenting (i.e., praising children, respecting children's feelings, giving children's ideas attention and respect, treating children as equals, and encouraging open expression of opinions and feelings) was an additional dimension of caregiving in the Chinese culture, suggesting that, while Chinese caregivers emphasize obedience and authority to a greater extent than Caucasian caregivers, they can also care for their children in a sensitive and responsive manner (Xu et al., 2005). Furthermore, a study by Chao (1994) suggests that the concepts of "authoritarian," "restrictive," and "controlling" are ethnocentric terms that have very different meanings and implications in Chinese culture. Whereas authoritarian styles of parenting are often equated with parental hostility, aggression, mistrust, and dominance among European Americans, obedience and strictness carry positive connotations in the Chinese culture. According to Chao (1994), the Chinese concepts of *chiao shun* (training, teaching and educating) and *guan* (caring, loving, and governing) are more appropriate terms to describe the parenting style of Chinese individuals. These notions of training and governance are regarded as the responsibilities and requirements of parents, and imply a very involved care and concern for children.

### **Contextual Variables Related to Parent-Child Interaction**

The ecological-contextual perspective on development provides a comprehensive framework for studying the relationship between contextual variables and parent-child interaction (Bornstein & Cheah, 2006). According to this model, adults do not parent in isolation,

but in multiple contexts. Although parent-child relationships are at the heart of this view, the theory also acknowledges that these relationships are part of multiple, broader systems. These systems consist of the microsystem (child and parents) mesosystem (extended family, peers, school and neighbourhood), exosystem (workplace, mass media), and macrosystem (values, laws, social class and culture) (Bronfenbrenner, 2001). Because all of these variables work together to influence development, it is important to take them into account when studying cultural differences in sensitivity. A review of the literature suggests that key contextual factors to consider, especially when studying immigrant populations, include microsystem variables such as maternal parenting stress and attributional style, and macrosystem variables including SES and acculturation (Bornstein, Hendricks, Haynes, & Painter, 2007; Degroat, 2003; Emmen, et al., 2013; Gudmundsun, 2013; Rosanneke et al., 2013; Su & Hynie, 2010).

***Stress.*** Caregiver stress can have a negative impact on a parent's ability to respond sensitively and appropriately to his or her child's needs, which can in turn adversely affect the parent-child relationship, and child development (Crnic & Greenberg, 1987; Hadadian & Merbler, 2008; Su & Hynie, 2010). It has also been proposed that parental experience of stress can limit the amount and quality of learning experiences that are made available to the child or infant through interaction with the caregiver (Magill-Evans & Harrison, 2001). Further, high caregiver stress has been found to be positively associated with maternal expression of worry, anxiety, frustration, and potential for maltreatment, and negatively associated with feelings of control and displays of affection during parent-child interaction (Bugental et al., 1990; Dix, 1991; Milner, 1998). Crnic and Greenberg (1987) discovered that maternal perceived stress influenced infant interactive behaviour with the mother, and that mothers who reported high levels of stress were less satisfied, and interacted with their children in a less positive manner

than mothers with low levels of stress. Several studies have also indicated a relationship between stress and the caregiver-infant attachment relationship (Hadadian & Merbler, 1996; Jarvis & Creasey, 1991; Teti, Nakagawa, Das, & Wirth, 1991).

Parenting stress is an important variable to consider with immigrant caregivers, as research has shown that immigrant populations are at high risk for psychological maladjustment due to their exposure to acculturative stressors that involve living in a new psychosocial environment, experiencing conflict between cultures, and losing social resources and social support (Berry, 2005; Farver & Lee-Shin, 2000). Studies of Asian American graduate students indicate that Chinese immigrants who do not strongly identify with mainstream culture are at higher risk for experiencing psychological maladjustment due to heightened levels of stress, distress and depression, than those who identify more strongly with mainstream culture (Hwang & Ting, 2008; Ryder et al., 2000). While these studies may or may not generalize to Chinese immigrant parents, there is some existing research to suggest that parenting distress is associated with dysfunctional interaction in caregivers from Mainland China (Xu et al., 2005). In fact, a recent study conducted by Su and Hynie (2010) suggests that, while European Canadian mothers report less authoritarian parenting than Mainland Chinese and Chinese Canadian families, this difference is mediated by parenting stress. These results suggest that stress may be a central variable to consider when explaining and accounting for cultural differences in parenting and sensitivity.

**Attributions.** The attributions that caregivers make about their children's behaviour, and about the parent-child relationship have important implications for the parent's immediate emotional and behavioural responses, and for the long-term quality of family relationships (Bugental, Blue, & Lewis, 1990; Bugental, Johnston, New, & Silvester, 1998). Attributions focus

on interpretive questions, such as “When your child misbehaves, why do you think that is?” (Bugental & Happaney, 2004; Bugental, Johnston et al., 1998). They can also consist of parents’ stable ways of interpreting child behaviour and the caregiver-infant relationship (i.e., attributional style). Attributions are often described in terms of their locus, and whether the explanation for the child’s behaviour resides in the self, or other (Slep & O’Leary, 1998). Certain attributional styles are linked to the quality of parent-child interaction. For example, it has been found that caregivers who physically abuse their children are more likely to make negative internal, stable attributions for their child’s misbehaviour, and to believe that their children are intentionally acting to annoy and challenge them (Bugental & Happaney, 2004).

Like all other caregiving and attachment beliefs and behaviours, attributions are also influenced by culture and worldview (i.e., individualism vs. collectivism). As such, cognitions which are normative in one culture may be considered deviant in other cultures (Bornstein et al., 1998). For example, several studies of cross-cultural differences in cognitive processes have found that Chinese individuals are situation-focused, and highly sensitive to their environment, resulting in passive attitudes toward changing the environment and a greater ability to perceive the “gestalt” (i.e., the whole picture, and relationships between parts). In comparison, Americans are individual-centered, and expect their environment to be sensitive to them, resulting in active attitude towards conquering the environment and a focus on the individuals’ sense of agency and control (Chiu, 1972; Markus & Kitayama, 1991; Triandis, 1995). Consistent with these cultural differences in cognition, East Asians are inclined to attribute causality to context and situations, whereas Westerners tend to attribute causality to the object or person (Nisbett, Peng, Choi, & Norenzayan, 2001).

With respect to maternal attributions for child behaviour, few studies have investigated cultural differences in these attributions in the context of behaviour problems. However, research on maternal attributions for children's academic achievement in school indicate that Western parents are more likely to attribute their child's success to ability, whereas Chinese parents are more likely to attribute their child's success to effort (Crystal, Chen, Fuligni, & Stevenson; 1994; Phillipson, 2006). In accordance with these findings, Chiang, Barrett, and Nunez (2000) compared attributions of mothers living in Taiwan and America with infants between 21 and 36 months of age, and found that American mothers typically attributed positive behaviours (helping others, and achieving goals) to internal dispositions, and negative behaviours (breaking objects, and failing at goals) to external factors. In contrast, Taiwanese mothers tended to attribute positive behaviours to external factors, and negative behaviours to both internal and external factors. It is, therefore, possible that Chinese immigrant mothers may also differ from North American mothers in attributions about their children's behaviour.

**Socioeconomic Status.** The literature on socioeconomic status, parenting and child development consistently shows that, across cultures, families in poverty exhibit lower quality parent-child interaction, more parental conflict, harsher discipline practices, greater caregiver hostility and rigidity, higher levels of physical discipline and authoritarian parenting styles, greater emphasis on obedience and conformity, and lower levels of maternal sensitivity and responsiveness, when compared to middle-to-high income families (Bornstein, Hendricks, Haynes and Painter, 2007; Evans, Boxhill, & Pinkava, 2008; Hill, 2006; Hoffman, 2002; Luthar, 1999). It has also been found that maternal sensitivity moderates the relationship between SES and child outcome, with high quality caregiving being associated with enhanced social and emotional competence and greater verbal abilities (verbal comprehensive, expressive, and

expressive language skills) in low-income and middle-income children (Luthar, 1999; Raviv, Kessenich, & Morrison, 2004).

Various stressors linked with poverty have been presumed to escalate the risk for poor parenting, low sensitivity, and maltreatment. For example, frustration and powerlessness as a result of unemployment, limited funds for child care, isolation from support systems, reduced knowledge about parenting, and chronic exposure to violence in communities all contribute to sub-optimal parenting (Duncan & Brooks-Gunn, 2000; Hill, 2006). Poor parents have also consistently been found to exhibit higher rates of depression and irritability, which are strongly associated with impaired parent-child interaction and increased conflict, and account for some of the effect of economic status on children's health and well-being (Albright, Tamis-LeMonda, & Catherine, 2001; Dumas & Wekerle, 1995; Hobfoll et al., 1995; Luthar, 1999).

Research on the relationship between SES, ethnicity, parenting and child development is limited by the fact that ethnicity and SES are often confounded. Given that there tends to be a disproportionate representation of minority individuals in poverty (Luthar, 1999), problems arise when comparing low-income minority families with middle-to-high income European North American families. These types of comparisons make it difficult to determine whether differences in parenting and sensitivity are a result of true cultural differences, or merely a reflection of socioeconomic disparities between groups. On the other hand, recent literature has examined social class as another form of culture. These theorists posit that culture is a reflection of the individual's objective social class (i.e., wealth, education, and occupation), which, in turn, influences their subjective social class rank and their resulting perceptions of self, relationships with others, cognitions (contextual vs. dispositional), emotions (other vs. self-oriented) and behaviour (pro-social vs. self-focused) (Kraus, Piff, & Keltner, 2011, Kraus, Piff, Mendoza-

Denton, Rheinshmidt, & Keltner, 2012). For example, Kraus et al., (2011) found that individuals reporting lower subjective SES experienced reduced personal control and greater reliance on others, resulting in higher levels of contextual as opposed to dispositional attributions for behaviour, greater empathy for others, and higher levels of prosocial involvement than individuals with higher levels of subjective SES. In support of this theory, several studies conducted with African American families in the United States indicate that cultural differences in maternal sensitivity either disappear, or minimize when SES is well-matched across groups (Hill & Bush, 2001; Mesman et. al., 2012).

Several studies have identified an interactive relationship between SES, parenting, and child outcome. These studies suggest that, while minority parents living in poverty tend to be more controlling and critical with their children than European-American parents, this style of parenting may at times be adaptive and associated with positive mental health outcomes for minority children, particularly when they live in dangerous neighbourhoods and environments where families are exposed to high rates of violence, crime, and deviancy (Baldwin, et al., 1993; Dearing, 2001; Eamon, 2001; Lee, Zhou, Ly, Tao & Chen, 2015).

**Acculturation.** Among Chinese immigrant families, acculturation plays a significant role in caregiving practices as studies that focus on this population have found that many variables, including personality profiles and psychological adjustment, are influenced by immigration and acculturation (Ryder, Alden, & Paulhus, 2000). There is some controversy over the exact nature of acculturation, and whether it is a unidimensional, bidimensional, or multidimensional process. While acculturation has traditionally been conceptualized as a unidimensional construct that ranges from highly traditional to highly assimilated, Berry (2005) contends that assimilation is only one possible way of acculturating, and that individuals can adopt other acculturative styles

referred to as separation (maintaining cultural identity and avoiding interacting with people from other cultures), integration (maintaining cultural identity while at the same time interacting with individuals from other cultural groups), and marginalization (little interest in maintaining cultural identity or in interacting with others). Recent research supports a bidimensional perspective in which two cultural identities (mainstream and heritage) are free to vary independently in strength (Chia & Costigan, 2006; Ryder et al., 2000). For example, Ryder et al. (2000) compared unidimensional and bidimensional models among three samples of Chinese Canadian immigrants, and found that heritage and mainstream dimensions displayed non-inverse correlations with variables such as personality and psychosocial adjustment. The mainstream component, for instance, was negatively associated with depression, distress, social maladjustment, and academic maladjustment. However, the heritage dimension did not display an inverse, positive relationship with these variables as a unidimensional model would predict. Instead, it showed no relationship with measures of adjustment. These results suggest that the process of acculturation is complex and may not necessarily involve a transition away from the traditional culture and towards the host culture, and that the loss of traditional practices and beliefs is not consistently accompanied by the replacement of mainstream practices and beliefs (Ryder et al., 2000).

Few studies have compared differences in immigrant parents' child-rearing strategies depending on style of acculturation. Several researchers have posited that first-generation Chinese Americans may retain their cultural heritage as a way of maintaining a sense of belonging, and that beliefs and practices may become less traditional with increased exposure to Western child-rearing (Kelly & Tseng, 1992; Rao, McHale, & Pearson, 2003). Among Chinese immigrant families with older children and adolescents, studies suggest that large acculturation



gaps between parents and children are associated with poor adjustment, and higher levels of parent-child conflict and distress (Birman, 2006; Dinh & Nguyen, 2006; Farver & Geva, 2006; Lim, Yeh, Liang, Lao, & McCabe, 2009). However, few studies have explored the relationship between acculturation and parenting among families with young children and infants. A study conducted by Lee (2008), found that neither acculturation nor SES was associated with parenting attitudes or behaviours relating to authoritarian parenting in a sample of Chinese American families with children aged 4-12. More research is needed to further investigate these findings and to examine the specific relationship between acculturation, maternal sensitivity, and child outcome.

### **Caregiver Sensitivity and Child Outcome: Cross-Cultural Differences**

Few studies have examined the associations between caregiver sensitivity and child outcomes in the Chinese context. Chen, Hastings, Rubin and Chen (1998) found that child inhibition is positively related to maternal warmth and acceptance in Chinese dyads, but negatively related to maternal acceptance in Western cultures. In a study conducted by Ba, Ba, Ma, and Johnston (2010), East-Asian Canadian mothers were less responsive in their interactions with their children than European Canadian mothers. In the European Canadian group, parenting responsiveness was associated with less permissive and inconsistent parenting and fewer reported child behavior problems among European Canadian mothers. In comparison, greater observed responsiveness was unrelated to reports of permissive, inconsistent parenting, and was associated with greater child behavior problems among East Asian Canadian immigrant mothers. These differences suggest that lower levels of maternal responsiveness may have a different meaning for East Asian when compared to European Canadian mothers. However, it is important

to note that child behaviour in this study was measured based on maternal self-report as opposed to objectively rated observations of child outcome. In addition, this study included a heterogeneous group of both Chinese-Canadian and Korean-Canadian mothers. As indicated by Schwalb, Nakzawa, Yamamoto, and Hyun (2004), East Asian countries (i.e., Japan, Korea, and China) have been subject to a unique combination of influences from modernization, economic growth, and globalization that have contributed to a range of differences in parenting values and beliefs. Furthermore, the observational measure used to assess responsivity in this study focused exclusively on maternal behaviour. Given that maternal sensitivity is dyadic in nature, further research examining the cultural validity of alternative assessment tools that capture both maternal and infant behaviour are needed.

In sum, the research on child rearing in Chinese immigrant culture is limited by several factors. Firstly, the majority of studies have involved school-aged children, and findings may not generalize to infants and preschoolers or older youth. Given that children's social, emotional, and behavioural needs change and develop over time, there may be cultural differences in maternal responsiveness and sensitivity to these needs at different stages of development. In addition, though some studies have explored the relationship between stress, attributions, SES, acculturation and parenting in the Chinese and immigrant Chinese culture, these studies have used parental self-report as the primary method of evaluating parenting style. Research has yet to examine the relationship between these variables using an observational assessment of maternal sensitivity. Finally, few studies have examined the impact of Chinese parenting practices and beliefs on child behaviour and child outcomes. In particular, there are no existing studies that have explored cultural differences in the relationship between maternal sensitivity and cognitive

functioning among European and Chinese Canadians. Overall, current research examining maternal sensitivity in the Chinese culture is limited.

### **Objectives of this study**

The overarching objective of the current study was to examine, in a Canadian context, the cross-cultural validity of the concept of maternal sensitivity as it has been defined within the developmental literature and scientific community. Specifically, this research explored:

- 1) Whether there were any differences in observational ratings of sensitivity among European and Chinese Canadian mothers and their children.
- 2) Whether differences in sensitivity across the two cultures, if existent, could be understood based on: a) potential moderating variables that may affect cultural differences in sensitivity, including those variables that relate to immigration (stress, attributions, socioeconomic factors, and acculturation), and b) culture-specific conceptualizations, understandings, and behavioural manifestations of sensitivity as assessed using a phenomenological approach through an interview with participants.
- 3) Whether cultural differences in caregiver sensitivity, if present, have implications for children's development, including their cognitive functioning, social and emotional health and well-being, and behavior.

## METHODOLOGY

### Participants

Fifty-two (27 Chinese Canadian and 25 European Canadian) mothers and their children between the ages of 0 and 42 months were recruited for this study. The first group consisted of first-generation Chinese immigrants to Canada, and the second group consisted of Canadian-born mothers of European descent who spoke English as their first language. All participants were compensated with a \$40 gift card. Participants were recruited from community agencies, child care centres, mental health centres, and Ontario Early Year Centres (OEYCs) located in Toronto and the Greater Toronto Area (GTA). In the Chinese Canadian group, 15 of the children were male and 11 were female. In the European Canadian group, 10 of the children were male and 15 were female. The number of years that Chinese Canadian mothers had been living in Canada ranged from 1 to 26 years, with a mean of 12 ( $SD = 8.18$ ). The generational status of European Canadian mothers ranged from 1 to 10 (1, indicating children of first generation immigrants to Canada, and 10, indicating children of tenth generation immigrants to Canada), with a mean of 3 ( $SD = 2.57$ ).

Of the Chinese Canadian mothers, all had post-secondary education, and 9 had a graduate-level education. Fourteen were employed full-time, 4 were employed part-time, and 9 were unemployed. The average household income for this group was \$98 990.90 ( $SD = 83646.31$ ). Twenty-six of the Chinese Canadian mothers reported being married/common-law and one reported being single.

Of the European Canadian mothers, 3 had high school education, 21 had post-secondary education, and 1 had graduate-level education. Thirteen were employed full-time, 3 were employed part-time, and 9 were unemployed. The average household income for this group was \$80 862.61 ( $SD = 56381.15$ ). Six of the European Canadian mothers were single, 14 were

married/common-law, and 1 was separated/divorced (refer to Table 1 for participant characteristics).

## **Procedure**

After obtaining their informed consent, participants were asked to complete a battery of self-report questionnaires to assess acculturation, language abilities, socioeconomic status, parenting stress, and caregiver attributions. These measures were translated into simplified Chinese and back-translated into English by research assistant fluent in Cantonese, Mandarin, and English. These translated measures were used by Chinese Canadian participants who indicated a preference to complete the questionnaires in this language. Fifteen out of 27 (55%) of CC mothers chose to complete the questionnaires in simplified Chinese. The rest of the mothers completed the questionnaires in English. While the caregivers completed these questionnaires, their child participated in a standardized assessment of cognitive development with a trained researcher (Bayley Scales of Infant Development – Third Edition; BSID-III; Bayley, 1993). These cognitive scores were obtained from observations by graduate students trained in the administration of the Bayley Scales of Infant Development. Caregiver-child dyads then participated in four interactive play-based tasks: (a) free-play without toys scenario; (b) free-play with toys scenario; (c) teaching task; and (d) novel toy task. These interactions were videotaped and coded using the Nursing Child Assessment Teaching Scale-Parent Child Interaction (NCATS-PCI; Barnard, 1994). Videotapes were coded by trained graduate and undergraduate students certified as reliable coders for the NCATS-PCI. Last, caregivers participated in a brief semi-structured interview (see Appendix A) that was audio-recorded and transcribed for analysis. Interviews were coded using Thematic Analysis, which is a qualitative research method that

focuses on coding and examining themes within participant responses. After debriefing, caregiver participants received a gift certificate valued at \$40.00 as compensation for their time/participation in the research study. In addition, a parenting newsletter (available in both languages) was given to participants with parenting tips, information about developmental stages, community-specific resources, parenting book reviews, and information about new research findings in the area of parenting. Finally, all child participants received a grab bag gift valued at \$1.00 and a certificate of participation.

## **Measures**

### ***Variables relating to immigration:***

**Acculturation.** Acculturation was measured using the Vancouver Index of Acculturation VIA (Ryder et al., 2000). The VIA is a 20-item instrument designed to measure the heritage and mainstream dimensions of acculturation (Ryder et al., 2000). Items are paired according to content area, with one item in each pair referring to the heritage culture, and the other item referring to mainstream culture (Ryder et al., 2000). Each item is rated on a scale from 1 (*Strongly Disagree*) to 9 (*Strongly Agree*). Examples of items include “I enjoy the jokes and humour of my heritage culture” and “I enjoy typical North American jokes and humour.” Each participant is given two sub-scores indicating their degree of affiliation with mainstream and heritage cultures. Cronbach’s alpha reliability estimates range between .79 and .92 for the heritage dimension and between .75 and .80 for the mainstream dimension (Hwang & Ting, 2008; Ryder et al., 2000). Separate internal consistency reliability estimates for Chinese and European Canadian participants can be found in Table 2. The VIA has demonstrated strong concurrent validity with other indicators of acculturation, including generational status, English

as a first language, and percentage of time educated in the West (Hwang & Ting, 2008). High scores on the mainstream dimension indicate a high degree of identification with North American culture, and high scores on the heritage dimension indicate a high degree of association with a second culture (i.e., the culture of birth, the culture in which the participant was raised, or another culture that forms part of the participant's background or identity).

**Socioeconomic Status.** Socioeconomic status was assessed by asking participants to estimate their total annual household income. To assess subjective perceptions of SES, participants were also asked to rate (on a scale of 1 to 4) how easy or comfortable it is to live on their current family income (1 = not at all, 2 = somewhat, 3 = moderately, 4 = Very). Information about participants' educational level (high school/college or university/post-graduate), and job status (part-time/full-time/unemployed) was also collected.

*Variables relating to cultural values and expectations:*

**Caregiver Stress.** Parenting stress was measured using the Parenting Stress Index/Short Form (PSI/SF; Abidin, 1995). The PSI/SF is a clinical and research self-report instrument that is designed as an assessment technique to identify parent and child systems which are under stress, and where dysfunctional parenting is likely to occur (Abidin, 1995). It is one of the most widely used instruments to measure parenting stress (Cain & Combs-Orme, 2005). Examples of items include "I often have the feeling that I cannot handle things very well," and "My child rarely does things for me that make me feel good." Each item is rated on a scale from 1-strongly agree, to 5-strongly disagree. The PSI-SF is a 36-item derivative of the full-length version that yields a total score and four subscale scores. The Parental Distress (PD) subscale reflects the amount of distress a parent is experiencing as a function of personal factors directly related to parenting,

such as lack of social support, depression, and conflict with the child's other parent. The Parent-Child Dysfunctional Interaction (P-CDI) subscale focuses on the caregiver's perception that his or her child does not meet his or her expectations, and that interactions with the child are not reinforcing for him or her as a parent. The Difficult Child (DC) subscale reflects the basic behavioural characteristics of children that make them either difficult or easy to manage. These characteristics involve temperament as well as patterns of defiant, noncompliant, and demanding behaviour. Test-retest reliability estimates for the PSI/SF total and subscale scores range from .68 to .85, and internal consistency reliability estimates range from .80 - .91 (Abidin, 1995). Although the PSI/SF has not generated a body of independent research supporting its validity, it is assumed that it shares the validity of the full length version, as the two measure are highly correlated (total stress on the PSI correlated .95 with PSI/SF total stress; Abidin, 1995). The full length version has been empirically validated to predict observed parenting behavior, and children's current and future behavioral and emotional adjustment, not only in a wide variety of U.S. populations and culturally diverse groups, but in international populations (Abidin, 1995). The PSI/SF has been translated into multiple languages and has been found to be reliable and valid for use with Chinese participants (Yeh, Chen, Li, & Chuang, 2001).

**Caregiver Attributions.** Attributions were assessed using the Parent Cognition Scale (PCS; Snarr, Smith Slep, & Grande, 2009). The PCS is a 30-item self-report measure that requires caregivers to rate a series of attributions for child misbehavior on a 6-point Likert-type scale (1=always true, 6= never true). The items are divided into Child-Responsible Attributions (i.e., "my child purposely tried to get me angry"), and Parent-Causal Attributions (i.e., "it is hard for me to set limits"). The items on the PCS were derived from actual parent attributions in another study (Slep & O'Leary, 1998) in which the parents were probed about their child's



misbehaviours while watching a videotaped interaction between parent and child. The PCS has been validated in a community representative sample ( $N = 453$  couples) in which both mothers and fathers completed measures. Confirmatory factor analyses have supported the two dimensions and there is strong construct validity for the measure (Snarr, Smith Slep, & Grande, 2009). Internal consistency reliability estimates range from .81 to .90 for mothers and from .85 to .91 for fathers (Smith Slep & O'Leary, 2009; Snarr, Smith Slep, & Grande, 2009). It is important to note that the sample used to test this measure was primarily Caucasian (Snarr et al., 2009).

### *Sensitivity Rating*

**The PCI-NCATS.** The Parent Child Interaction-Nursing Child Assessment Teaching Scale (PCI-NCATS, Barnard, 1994) was used to code a teaching task scenario. This measure has been found to be one of the most widely used, valid and user-friendly measures of mother-infant interactions (Byrne & Keefe, 2003). It correlates with measures of children's cognitive abilities as well as later problem behaviour and quality of attachment (Sumner & Spietz 1994). Interactions are coded by completing a 73-item "yes" or "no" checklist to indicate whether or not certain behaviours are observed during the teaching activity. Coding of this measure yields a total caregiver score, a total child score, a combined caregiver/child contingency score, and six subscale scores. Four of the subscales assess the caregiver's behaviour, and include sensitivity to cues, response to the child's distress, socio-emotional growth fostering behaviour, and cognitive growth fostering behaviour. The remaining two assess the child's behaviour, and include clarity of the child's cues, and responsiveness to the caregiver. High scores on the caregiver dimensions of the PCI-NCATS indicate a high degree of maternal sensitivity. High scores on the child dimensions indicate that the child is responsive to his/her caregiver, and shows clear cues.

Previous research has assessed the applicability of the NCATS among various ethnic groups, including Aboriginal, Hispanic/Latino, and African-American populations, suggesting that the NCATS is a culturally sensitive measure (Gaffney et al., 2001; MacDonald-Clark & Harney-Boffman, 1994; Sumner & Spietz, 1994).

### ***Caregiver Beliefs about Parenting and Sensitivity***

Caregiver beliefs about parenting and sensitivity were explored using a semi-structured interview with participants (see Appendix A). Mothers from both groups were asked about the experience of caregiving and the importance of being a sensitive parent. They were also asked to describe what it looks like to be sensitive caregiver, and to provide examples of what sensitivity means to them. Whenever possible, the term “sensitive parent” was phrased in English for both CC and EC participants. This was done to limit any possible differences in the interpretation of this term based on language. A semi-structured interview method was chosen based on research indicating that this method provides a conversational atmosphere for the interviewee, resulting in responses that resemble the type of communication that would typically occur outside of the research context (Madill, 2011). In comparison to open-ended and structured interviews, the semi-structured interview method balances the need for consistency across participants, with the added benefit of additional probing to yield rich data for interpretation and analysis (Galletta, 2013).

### *Child Outcome Variables*

**Caregiver report.** Maternal perception of child behaviour problems was assessed using the CBCL for ages 1.5-5 (Achenbach & Rescorla, 2000). The CBCL consists of 100 items that are rated by caregivers concerning their children's competencies and behavioural or emotional problems. Examples of these items include "getting upset when separated from parents," "physically attacking people," "refusing to eat," and "showing little affection towards people." Each item is rated on a scale from 0- not true of the child, to 2-very true, or often true of the child. Subscales for this questionnaire include emotional reactivity, anxiety/depression, somatic complaints, withdrawal, attention problems, and aggressive behaviour. The measure also yields scores for internal problems, external problems, other problems, and total problems. In addition, five other scales correspond to DSM categories and include affective problems, pervasive developmental problems, anxiety problems, oppositional defiant problems, and attention deficit/hyperactivity problems. According to the Manual for the CBCL Preschool forms and Profiles, test-retest reliability ranges from .80 and .90 for most scales (Achenbach & Rescorla, 2000). Criterion validity of the measure was also established in that clinical samples obtained significantly higher scores than normative samples on all problem scales of the CBCL (Achenbach & Rescorla, 2000). High scores on the CBCL indicate greater caregiver perceived behavior problems in children.

The CBCL has been validated in multiple languages and cultural contexts (Heubeck, 2000; Koot, Van Den Oord, Verhulst, & Boomsma, 1997). Test-retest reliability estimates for the Chinese version of the CBCL range from .76 to .84 for most scales (Leung, Kwong, Tang, & Ho, 2006). Total problem scores have been found to discriminate between clinical and control populations, providing criterion validity for this measure. Internalizing and externalizing scores

have also been found to predict overall clinical status, as well as specific anxiety and mood disorders such as conduct disorder and ADHD (Leung, Kwong, Tang & Ho, 2006).

**Child Cognitive Functioning.** Child cognitive functioning was assessed using the Bayley Scales of Infant Development – Second Edition (BSID-II; Bayley, 1993). The Bayley Scales are used to assess cognitive development in children ages 0-42 months. The assessment yields a Mental Development Index (MDI) that provides an overall measure of the child's cognitive development, and a Psychomotor Development Index (PDI) that provides a measure of the child's motor development. The MDI and PDI indices provide 4 facet scores that include Cognitive, Language, Motor, and Socio-emotional development. The Bayley Scales were standardized on a sample of 1700 children and reliability estimates are .88 for the Mental Development Index, and .84 for the Psychomotor Development Index (Bayley, 1993). The Bayley Scales have been correlated with many cognitive tests and other developmental factors (Bayley, 1993).

## RESULTS

### **Preliminary Analyses**

Prior to conducting the analysis, data were screened for violations of normality. For total annual income, there was a large range in income for both CC and EC mothers that was normally distributed in both groups. However, two outliers were identified in CC and EC sample (\$400 000 and \$250 000, respectively). Given that these values were legitimate parts of the sample, and that removing the data points would result in further reduction in sample size, a log transformation was conducted on the overall sample to improve the shape of the distribution (Hamilton 1992; Osborne, 2002; Orr, Sackett, & DuBois, 1991). No other violations of normality were identified.

Independent samples *t*-tests were conducted to examine differences in participant characteristics among the two groups (refer to Table 1). For variables in which the assumption of homogeneity of variance is violated, Welch's *F*-ratio is reported. No significant differences in maternal age, child age, household income, number of children in household, or age at pregnancy were found. However, CC mothers reported having a significantly higher number of adults living in the household. Internal consistency estimates (Cronbach's Alpha) for each measure can be found in Table 2.

Table 1.

*Participant Characteristics*

| Demo.               | Range      |            |            |            | Mean     |          | SD       |          | N  |    |    |                   | <i>df</i> | <i>t/F</i> | <i>p</i> |
|---------------------|------------|------------|------------|------------|----------|----------|----------|----------|----|----|----|-------------------|-----------|------------|----------|
|                     | Min.<br>CC | Max.<br>CC | Min.<br>EC | Max.<br>EC | CC       | EC       | CC       | EC       | CC | EC |    |                   |           |            |          |
| Mother Age          | 28         | 46         | 23         | 44         | 34.85    | 32.60    | 4.30     | 5.47     | 27 | 25 | 50 | 1.66              | .10       |            |          |
| Child Age<br>(mos)  | 5          | 39         | 2          | 35         | 21.50    | 15.54    | 11.72    | 11.98    | 27 | 25 | 50 | 1.81              | .10       |            |          |
| Household<br>Income | 15<br>K    | 400<br>K   | 10<br>K    | 200<br>K   | 98990.90 | 80862.61 | 83646.31 | 56381.15 | 26 | 25 | 49 | .86               | .40       |            |          |
| # Children          | 1          | 4          | 1          | 3          | 1.58     | 1.40     | .75      | .64      | 26 | 25 | 49 | .90               | .38       |            |          |
| #Adults             | 2          | 6          | 1          | 4          | 3.07     | 1.88     | 1.38     | .60      | 27 | 25 | 50 | 3.98 <sup>a</sup> | .00*      |            |          |
| Age at<br>pregnancy | 23         | 35         | 21         | 37         | 30.22    | 29.32    | 2.78     | 5.12     | 27 | 25 | 50 | .80               | .43       |            |          |

<sup>a</sup>Welch's F-ratio is reported

### Objective 1: Differences in observational ratings of sensitivity

Independent samples *t*-tests were conducted to explore cross-cultural differences in maternal sensitivity. An alpha level of .05 was used for all statistical tests. Given the relatively small sample size of this study, differences between variables with  $p < .10$  will be reported as trends (Schumm, Pratt, Hartenstein, Jenkins, & Johnson, 2013).

CC maternal-child dyads were observed to have significantly lower infant total scores (i.e., responsiveness to caregiver and infant cues) on the NCATS than EC dyads,  $t(47) = -2.18$ ,  $p < .05$ . Trends toward lower clarity of child cues,  $t(47) = -1.80$ ,  $p = .08$ , and responsiveness to caregiver scores,  $t(47) = -1.80$ ,  $p = .08$ , in the CC group were also found. No significant differences in maternal sensitivity were identified  $t(47) = .12$ ,  $p = .73$ .

Among CC dyads, no significant relationship between infant total scores and total caregiver sensitivity was identified  $r(26) = .081$ ,  $p = .70$ . However, among EC dyads, infant total

scores were significantly and positively correlated with caregiver total sensitivity scores,  $r(23) = .50, p = .02$ .

### **Objective 2: Variables that may predict cultural differences in sensitivity**

**Overall differences in SES, acculturation, stress, and attributions.** No significant differences in household income were identified between groups,  $t(48) = .733, p = .40$ . A chi-square test was conducted to explore cultural differences in comfort level with income and no significant differences were identified,  $\chi^2(1, N = 48) = 3.02, p = .40$ . With respect to acculturation, CC mothers reported significantly lower identification to the mainstream culture than EC mothers,  $t(47) = -3.56, p = .03$ . CC mothers reported significantly higher levels of parenting stress than EC mothers in all domains of the PSI, including total stress,  $t(48) = 5.79, p < .05$ . EC mothers were significantly more likely to make child responsible attributions about behaviour than CC mothers,  $t(43) = -2.93, p = .00$ . There was also trend towards higher parent responsible attributions in the EC group than the CC group,  $t(43) = 3.11, p = .08$ .

Table 2

*Mean comparison of variables*

|                       | N  |    | Mean     |          | Standard Deviation |          |    | <i>df</i>         | <i>t/F</i> | <i>p</i> | Alpha <sup>a</sup> |  |
|-----------------------|----|----|----------|----------|--------------------|----------|----|-------------------|------------|----------|--------------------|--|
|                       | CC | EC | CC       | EC       | CC                 | EC       | CC |                   |            |          | EC                 |  |
| SES                   | 22 | 23 | 98990.91 | 80862.61 | 83646.32           | 56381.15 | 43 | .86               | .40        |          |                    |  |
| VIA                   |    |    |          |          |                    |          |    |                   |            |          |                    |  |
| Mainstream            | 27 | 26 | 59.59    | 73.00    | 11.77              | 14.62    | 47 | -3.56             | .00*       | .73      | .89                |  |
| Heritage              | 27 | 22 | 73.38    | 69.68    | 8.45               | 20.44    | 46 | .844 <sup>b</sup> | .00*       | .82      | .81                |  |
| PCS                   |    |    |          |          |                    |          |    |                   |            | .87      | .79                |  |
| Parent Resp.          | 26 | 22 | 33.73    | 36.23    | 5.80               | 3.49     | 46 | -1.77             | .08        | .68      | .76                |  |
| Child Resp.           | 27 | 18 | 36.48    | 42.22    | 6.90               | 5.62     | 43 | -2.93             | .01*       | .91      | .81                |  |
| PSI/SF                |    |    |          |          |                    |          |    |                   |            |          |                    |  |
| DR                    | 27 | 25 | 19.44    | 14.88    | 4.88               | 4.17     | 50 | 3.61              | .00*       | .85      | .89                |  |
| PD                    | 27 | 25 | 32.56    | 25.92    | 6.81               | 7.70     | 50 | 3.30              | .00*       | .84      | .95                |  |
| P-CDI                 | 27 | 25 | 25.19    | 15.41    | 8.37               | 4.64     | 48 | 5.45 <sup>b</sup> | .00*       | .83      | .83                |  |
| DC                    | 27 | 25 | 27.72    | 20.04    | 6.60               | 4.86     | 50 | 4.76              | .00*       | .81      | .79                |  |
| Total Stress          | 26 | 24 | 87.23    | 61.63    | 17.98              | 12.58    | 48 | 5.78              | .00*       | .92      | .95                |  |
| PCI-NCATS             |    |    |          |          |                    |          |    |                   |            |          |                    |  |
| Sens. cues            | 26 | 23 | 8.69     | 9.04     | .88                | 1.07     | 47 | -1.26             | .21        | .75      | .81                |  |
| Resp. Distress        | 26 | 23 | 10.50    | 10.08    | .86                | .94      | 47 | 1.60              | .117       | .73      | .73                |  |
| Soc-emo. Growth       | 26 | 23 | 8.15     | 8.65     | 1.22               | 1.91     | 47 | -1.44             | .16        | .67      | .62                |  |
| Cog.Growth            | 26 | 23 | 11.92    | 11.82    | 1.85               | 2.87     | 47 | .14               | .89        | .73      | .77                |  |
| Clarity of Cues       | 26 | 23 | 8.54     | 9.04     | 1.03               | .93      | 47 | -1.80             | .08        | .86      | .71                |  |
| Response to Caregiver | 26 | 23 | 6.65     | 7.65     | 1.79               | 2.10     | 47 | -1.80             | .08        | .81      | .82                |  |
| Caregiver Tot.        | 26 | 23 | 39.27    | 39.61    | 3.46               | 3.49     | 47 | -.34              | .73        | .74      | .81                |  |
| Infant Tot.           | 26 | 23 | 15.19    | 16.70    | 2.23               | 2.58     | 47 | -2.19             | .03*       | .81      | .70                |  |
| Caregiver/Infant Tot. | 26 | 23 | 54.85    | 56.26    | 5.37               | 5.31     | 47 | -.93              | .36        | .75      | .71                |  |
| CBCL                  |    |    |          |          |                    |          |    |                   |            |          |                    |  |
| Internalizing         | 20 | 17 | 7.20     | 4.60     | 7.83               | 3.67     | 29 | 1.02              | .32        | .82      | .79                |  |
| Externalizing         | 20 | 17 | 10.10    | 6.91     | 6.62               | 4.85     | 29 | 1.40              | .17        | .86      | .69                |  |
| Total                 | 20 | 17 | 11.55    | 9.45     | 9.64               | 4.50     | 29 | .68               | .50        | .95      | .88                |  |
| Bayley's              |    |    |          |          |                    |          |    |                   |            |          |                    |  |
| Cognitive             | 27 | 24 | 58.00    | 44.84    | 3.01               | 3.02     | 49 | 1.74              | .09        | .81      | .71                |  |
| Language              | 17 | 23 | 32.36    | 54.17    | 6.03               | 6.14     | 38 | -2.30             | .03*       | .91      | .86                |  |
| Socio-emo.            | 26 | 22 | 47.02    | 67.69    | 3.00               | 4.30     | 46 | -2.84             | .01*       | .73      | .78                |  |

<sup>a</sup>Cronbach's alpha<sup>b</sup>Welch's F-ratio



**Associations between attributions, stress, SES, acculturation and sensitivity.** To assess possible predictors of the identified differences in infant total scores on the NCATS, Pearson correlations were first calculated between demographic variables, acculturation, stress, mothers' attributional styles, and infant total scores. Examining CC and EC mothers separately, and conjointly, no significant correlations between infant total scores and maternal attributional style, stress, SES and acculturation, were identified (refer to Table 3 for detailed correlations). A trend toward a negative correlation between child responsible attributions and total infant scores was identified in the EC group  $r(24) = -.46, p = .75$ . Regression analyses were conducted separately in the CC and EC group to assess the predictive values of maternal attributional style, stress, acculturation and SES, for infant total scores and no significant relationships were identified. In the overall sample, a regression analysis was conducted to assess the predictive values of stress, maternal attributional style, acculturation, SES, and culture for infant total scores. Culture was the only significant predictor of the identified variability in infant scores,  $t(47) = 2.85, p = .01$ . No significant interactions between culture and any of the potential moderating variables were observed.

Table 3

*Correlations between infant scores and caregiver variables*

|                    | CC Infant Scores | EC Infant Scores | Total Infant Scores |
|--------------------|------------------|------------------|---------------------|
| Attributions       |                  |                  |                     |
| Parent Responsible | -.12             | .03              | .01                 |
| Child Responsible  | -.31             | -.46             | -.17                |
| Stress             |                  |                  |                     |
| DR                 | .33              | .03              | .02                 |
| PD                 | .44              | -.01             | -.09                |
| P-CDI              | .03              | .19              | .10                 |
| DC                 | .09              | .35              | .10                 |
| Total Stress       | .24              | .23              | .01                 |
| Acculturation      |                  |                  |                     |
| Mainstream         | -.24             | .02              | .04                 |
| Heritage           | .25              | .06              | .06                 |
| SES                | .21              | -.07             | .04                 |

Note: All values denote Pearson's  $r$ ; all tests are two-tailed

\* $p < .05$

Regression analyses were conducted separately and conjointly in the CC and EC group to assess the predictive values of maternal attributional style, stress, acculturation, and SES for caregiver total scores and no significant relationships were identified. An examination of demographic variables and their relationship with maternal sensitivity revealed that, for CC mothers, child age was significantly and positively correlated with caregiver total and caregiver-infant total scores on the NCATS,  $r(27) = .61, p = .00$  and  $r(27) = .49, p = .01$ , respectively. For these mothers, sensitivity tended to increase with child age. No significant correlation between child age and sensitivity scores was identified in the EC group  $r(24) = -.05, p = .83$ . Regression analyses revealed that child age significantly predicted caregiver sensitivity in Chinese group,  $F(25) = 13.89, p = .00$ , but not in the EC group,  $F(23) = .05, p = .83$ .

A regression analysis was conducted on the overall sample to determine the relationship between child age and each of the aforementioned subscales of the NCATS. This analysis

revealed that child age was a significant predictor of caregiver cognitive growth fostering scores  $F(1.49) = 4.33, p = .04$ . Culture (i.e., CC vs. EC) was not a significant predictor of cognitive growth fostering scores. No significant interaction was identified between child age and culture. In the total sample, child age was also found to be a significant predictor of caregiver total sensitivity scores  $F(1.49) = 4.57, p = .05$ . Again, culture was not a significant predictor and no significant interaction between child age and culture was identified. In terms of infant total scores, findings were reversed as the main effect of culture approached significance  $F(1.49) = 3.83, p = .056$ , while no significant main effect of child age was observed. No significant interaction was identified. In terms of the remaining, smaller, subscales of the NCATS, neither child age nor culture was predictive of sensitivity to cues or socio-emotional growth fostering.

### **Objective 3: Sensitivity and Child Developmental Outcomes**

Independent Samples t-tests were conducted to explore cross-cultural differences in child cognitive development scores. CC mothers rated their children significantly lower than EC mothers on socio-emotional development,  $t(46) = -2.84, p = .01$ . CC children were also rated lower than EC children by research assistants on objective ratings of language development,  $t(38) = -2.30, p = .03$ . It is important to note that the language scale of the Bailey could not be completed with 8 of the CC children (32% of the sample) as they spoke certain dialects with which neither the graduate nor undergraduate researchers/research assistants were familiar. Language measures were obtained for a total of 17 children in the CC group. In contrast, a trend towards higher observer rated cognitive scores among CC children was identified,  $t(49) = 1.74, p = .09$ .

Independent Samples t-tests were conducted to explore cross-cultural differences in child behaviour scores on the CBCL. Given that the CBCL is standardized for use with children aged 1.5 years and older, participants with children under this age were not included in this analysis. In total, 20 CC mothers (80%) and 17 EC (62%) mothers completed the CBCL. Overall, no significant differences in internalizing, externalizing, or total problem behaviours were identified across groups.

Pearson correlations were conducted to explore the relationship between maternal sensitivity and child outcome. In the combined sample, no significant associations between maternal sensitivity and cognitive, language, or socio-emotional scores on the Bailey's scale were identified  $r(48) = .10, p = .49, r(37) = .22, p = .19,$  and  $r(48) = -.13, p = .42.$  With respect to child behavioural development as gleaned from the CBCL, higher socio-emotional growth fostering and caregiver total sensitivity scores in the combined sample were associated with fewer total problem behaviours on the parent rated CBCL,  $r(35) = -.47, p = .02,$  and  $r(35) = -.39, p = .04,$  respectively.

A regression analysis was run on the overall sample to assess the predictive values of culture and sensitivity (both maternal and infant total scores) for children's cognitive, language, and socio-emotional development as assessed by the Bailey. Neither culture nor sensitivity were found to be significant predictors of children's cognitive development,  $F(1,47) = .87, p = .49.$  With respect to children's language development only culture significantly predicted language scores,  $t(36) = 3.10, p = .004.$  No significant interactions were identified. With respect to children's socio-emotional development, only culture was identified as a significant predictor of this outcome variable,  $t(44) = 2.80, p = .008.$  No significant interactions were identified.

A regression analysis was run on the overall sample to assess the predictive values of culture and sensitivity (both maternal and infant scores) for children's social-emotional development as assessed by the CBCL. Neither culture nor sensitivity were identified as significant predictors of children's internalizing behaviour,  $F(35) = .59, p = .68$ , externalizing behaviour,  $F(28) = .65, p = .63$ , or total problems,  $F(35) = 1.15, p = .36$ . No significant interaction effects were identified.

When CC and EC mothers were analyzed separately, several relationships were identified between the smaller subscales of sensitivity (i.e., cognitive and socio-emotional growth fostering) and child outcome variables. For example, among CC mothers, higher cognitive growth fostering scores were associated with higher researcher rated language scores,  $r(18) = .54, p = .02$ , and higher socio-emotional growth fostering scores were associated with fewer total problem behaviours on the CBCL  $r(18) = -.464, p = .03$ . Among EC mothers, caregiver total sensitivity scores were significantly associated with fewer total child problem behaviours,  $r(15) = -.73, p < .01$ .

### **Qualitative Analysis of Interviews**

To further explore similarities and differences in cultural conceptualizations of maternal sensitivity, participants were presented with an interview that queried their ideas about parental responsiveness in a step-wise fashion. Mothers were first asked to describe what it means to be a "good parent." This question was selected in order to: a) determine participants' perceptions of the most important aspects of parenting within their respective cultures and b) to determine whether or not elements of maternal sensitivity would be identified and described spontaneously by parents without any cues from the researcher. Following this first question, parents were asked to describe what it meant to be a "sensitive" parent. This second question was asked to investigate mothers' understanding of the concept of sensitivity, their personal perceptions of

what it means to be a sensitive caregiver, and whether a prompt about parental sensitivity specifically would incite responses that were distinct from the definition of a “good parent.” Third, after the participants provided their definitions of sensitivity, the researchers supplemented with additional information about maternal sensitivity as it has been defined within the scientific community (i.e., reflectivity, understanding, and timely/appropriate responses to children physiological, social and emotional cues). Participants were then asked to identify whether or not sensitivity was an important part of parenting in their own families and in their heritage vs. mainstream culture. This final question was asked to explore participants’ perceptions of the differences in the conceptualization and manifestation of sensitivity across cultures, and to identify how participants manage or integrate these differences in their own families.

All interviews were recorded and transcribed verbatim, and thematic analysis (Braun & Clarke, 2006) was used to identify salient themes. The data were analyzed in four stages: 1) becoming familiar with data, 2) generating initial codes, 3) searching for themes and concepts among codes, and 4) defining and naming themes and sorting them into categories. Themes were chosen based on frequency of appearance in the participants’ transcripts, and reflect either the most common experiences described by mothers in both groups or represent ideas that are unique to each cultural group. The themes that were identified included: 1) Being a “good” parent involves responding to children’s needs, 2) Differentiation between physiological and emotional needs, 3) The need to balance sensitivity with boundaries and limit-setting, and 4) Shift from older to newer generation.

### 1) Being a “Good” Parent Involves Responding to Children’s Needs

In general, mothers in both groups tended to describe “good” parenting as an ability to respond appropriately to children’s needs. This description of *response to needs* was provided spontaneously by mothers in both groups prior to any cueing about maternal sensitivity provided by the examiner. When asked more specifically about maternal sensitivity, the majority of mothers in both groups defined this concept as the ability to understand and respond to children’s cues, needs, desires, and thoughts. In particular, it was common for mothers in both groups to describe the importance of identifying and responding appropriately to basic physiological needs such as hunger, tiredness, and need for comfort when distressed. Given Ainsworth’s original definition of sensitive caregiving as a mother’s ability to recognize and respond in a timely and effective manner to her infant’s needs, particularly when distressed (Ainsworth, Blehar, Waters & Wall, 1978), this would suggest that both CC and EC mothers conceptualize sensitivity in a manner that resembles its original definition within the scientific literature.

To illustrate, several mothers in both groups reported that their children were not yet able to communicate verbally, and that sensitivity involved picking up alternative cues that would indicate what the child was thinking and feeling:

“To be a sensitive caregiver I would assume is... to know his needs and to be sensitive to them and understanding of his developmental ability. Am I getting frustrated at something I shouldn’t be frustrated at because he’s not capable of understanding or knowing? Um, and just to know his needs and when something happens to be able to be also sensitive to him; if he’s scared to nurture him” - P20 (EC)

“Being sensitive, looking at him, watching out for signs, like if he is tired he rubs his eyes or if he is crying inconsolably, thinking of reasons or things that might have happened that would

have triggered that reaction, so being sensitive on that. It is kinda really watching out to see what he wants because he cannot really communicate right now. So it is really paying close attention and observing him to see what he needs at this moment of time.” – P69 (CC)

Such responses suggest that the general understanding of maternal sensitivity as the ability to *perceive and respond to children’s basic physiological needs* and to *provide comfort in times of distress* may be a shared concept among Chinese Canadian and European Canadian mothers.

## 2) Differentiation between physiological and emotional needs:

Although mothers in both groups emphasized the importance of responding to children’s physiological needs for safety, shelter, warmth, and physical nurturance, EC mothers tended to speak more frequently about *reflecting on and understanding children’s socio-emotional needs* than CC mothers. When asked about the aspects of good parenting, they were also more likely than CC mothers to describe their children’s *socio-emotional needs spontaneously*, without any prompts from the examiner about maternal sensitivity. Beyond providing physical comfort in response to their children’s distress, many EC mothers discussed the importance of *using verbal strategies to talk through difficult emotions* with their children in order to *identify the reason for their bad mood, irritability, or sadness*. For example, EC mothers described sensitivity as the mother’s ability to *identify the specific emotion that their child was feeling*, to *explore the possible events that may have triggered this feeling*, and to *respond appropriately*, depending on the nature of the situation. In addition, when describing their infant’s cues (i.e., crying or distress signals), they were more likely than CC mothers to *describe changes in affect and mood* as possible contributors:



“Just respecting their feelings. ..Asking why they’re crying ... I’m a sensitive person as well so just really understanding why he’s crying, is there a reason behind it or are you crying for no reason? ... What they’re thinking, what they’re feeling. There’s usually a reason for why they’re crying...just explaining and speaking with them, talking it out.” -53 (EC)

In comparison, without any cues from the researcher to describe maternal sensitivity, Chinese Canadian mothers were more likely to focus on children’s *physiological, as opposed to socio-emotional, needs and desires*. When asked questions about the importance of sensitivity, reflectivity, and understanding in their family and culture, they tended to describe *attunement to physiological needs*, such as hunger or tiredness as opposed to emotional states or changes in affect. In comparison to EC mothers, they were less likely to talk about the importance of processing feelings with their children or to describe verbal strategies that they had used to help their children identify/distinguish affective states:

“Sensitive caregiver?...she’s happy and I have to figure out why because sometimes if she’s crying I have to figure out why, maybe she’s hungry maybe she just doesn’t like the types of the food or maybe she’s just being naughty” – 80 (CC)

An examination of CC mothers’ transcripts revealed a possible explanation for this potential cultural difference in the emphasis placed on identifying, understanding, and responding appropriately to children’s socio-emotional needs. For example, several mothers mentioned that their responses to children varied depending on the age of their child and their changing developmental needs. When further queried about this, CC mothers indicated that, *when children are very young, their needs are mostly physiological, as opposed to psychological or socio-emotional in nature*. They shared that, as children grow older and develop, *the nature of their needs evolve to reflect social and emotional desires and motivations*. Further to this, CC

mothers reported that, as their children's *physiological needs lessen over time*, they change their approach to parenting by investing more energy in displaying sensitivity towards their *growing psychological needs*.

“I think, the level of importance is dependent on their development stage. For example, when she was still young, like before age of 1, before she is able to talk, being able to meet her physiological needs is extremely important... When she is a little grown up, you then need to emphasize on her psychological aspect more. At that time you don't really need to focus on her food, she is able to adjust herself. I think it all depends on their stage of development.” - 72(CC).

Such results suggest that CC mothers' definition and conceptualization of maternal sensitivity may develop over time and involve a greater emphasis on socio-emotional sensitivity as children grow older. It is also possible that the available information/education about children's developmental needs may vary in diverse cultural communities.

### **3) The need to balance sensitivity with boundaries and limit-setting:**

Chinese Canadian mothers frequently described the importance of *balancing sensitivity and understanding with the ability to demonstrate authority* as a parent (i.e., through enforcing limits and setting boundaries). For example, mothers often indicated that they felt Canadian parents were “*too friendly*” with their children, and that parents' role should also involve the *provision of structure and routine* in order maintain a sense of authority:

“We praise him all the time for what he has achieved because in Canadian culture parents should praise their kids by using 101 words. On the other hand, there is also discipline. If he does something wrong, I will tell him to behave.” -66(CC)

In comparison, EC mothers were less likely to emphasize the importance of balancing sensitivity with limit setting and boundaries for children. In fact, several EC mothers also shared that they believe North American parents are overly indulgent and “too sensitive” to their children’s needs:

“I think in our culture, it’s sometimes ... there’s a lot of pressure to respond to your kid’s every need and be sympathetic and you can go overboard and our kids are a bit addicted to attention and they’re not really spoiled, they’re just, they think they’re the center of the universe so I find that’s interesting in our culture.” – 56 (EC).

These results suggest that the EC mothers in this sample may perceive an “over-emphasis” on maternal sensitivity in the North American culture that may lead to a sense of permissiveness and a difficulty enforcing parenting authority and limit setting with children. In contrast, CC participants in this study appear to have adopted an integrative style when interacting with their children that involves the incorporation of traditional elements of Chinese parenting practice (i.e., discipline, authority, boundaries, and hierarchy), with the North American concept of maternal sensitivity, reflectivity, and understanding. CC mothers’ responses suggest that they may be attempting to draw from both cultures to achieve a balanced approach to caregiving.

#### **4) Shift from Older to Newer Generation**

When provided with the definition of maternal sensitivity and asked about the importance of this concept in their heritage and mainstream cultures, both CC and EC mothers tended to describe their efforts to place a *greater emphasis on sensitivity than previous generations had*. Many EC mothers shared that there were certain *aspects of parenting that they would adopt from*

*their own parents and other aspects that they would either discard or modify.* For example, many indicated that their own parents were quite harsh and punitive, and that they did not agree with this approach to caregiving. In their own families, they made *consistent efforts to place greater emphasis on sensitivity, particularly in the form of physical and verbal affection:*

“Even when I was a child, like the whole role of punishment was different. That’s really changed. Like I am an older mother, so I’ll be 36 in May, but I think in my growing up, it was very much “children don’t do this, children don’t, shouldn’t do this” and spanking and that kind of thing. Whereas I think now, it’s definitely less of that, at least in this culture. Um, that’s where I agree with that, to be more sensitive, to be less, kind of, punishing.” – 67 (EC)

Chinese mothers also indicated that there were *certain aspects of parenting that they would adopt from their parents and others that they would change.* Similar to EC mothers, many indicated that older generations of Chinese parents did not typically display outward signs of affection and that they were making *efforts to change this by demonstrating their feelings of love within the family* (both towards children and between spouses). In addition to physical signs of affection, several mothers indicated that *newer generations of CC parents are more likely to place an emphasis on emotional intelligence and sensitivity* than in previous generations, and that they are making *greater efforts to socialize children to be aware of their feelings and communicate these feelings* to others:

“I think actually, most importantly, I think it’s important to show you are warm and affectionate to your spouse, we grow up in a culture, you know, our parents don’t really show that they love each other as much, I think it’s important that your kids feel like they are growing up in a loving environment.” -70 (CC)

“When it comes to my generation, ideas changed. Not just me, all the people in my generation do not hold that kind of ideas anymore. Because after we’ve come to the society, we found that things are so different from what we’ve been told. So when I’m educating her, I focus on emotional intelligence more, how do you socialize with people, how do you communicate with people.” -72(CC).

Overall, qualitative results suggest that certain aspects of maternal sensitivity may be a newer concept for CC immigrants than EC participants. In particular, aspects of maternal sensitivity that extend beyond attending to physiological needs for safety and responding to distress were less likely to be described by CC mothers when providing their own definitions of good parenting and maternal sensitivity. These aspects of sensitivity involve a response to children’s social and emotional needs (i.e., going a step further than responding to general distress by identifying and responding appropriately to children’s various emotional states, including sadness, anger, frustration, boredom, anxiety, or loneliness). However, when offered the definition of maternal sensitivity as it has been conceptualized in North America and asked about its importance in the Chinese culture, the majority of CC mothers acknowledged that there has been a recent shift in the importance of emotion socialization in children, as well as the caregiver’s role in responding to children’s emotional needs through the display of warmth, and physical affection. It would appear that the CC mothers in this study acknowledge the importance of focusing on socio-emotional development, and displays of sensitivity, and have made persistent efforts to incorporate this “Western” style of parenting into their interactions with their children, while also recognizing the need to counter-balance this parenting style with structuring and discipline.

## DISCUSSION

### Objective 1

The first objective of this study was to identify differences in maternal sensitivity among CC and EC dyads. Maternal sensitivity scores were not significantly different across groups. This finding is consistent with Mesman's (2011) recent findings suggesting that differences in maternal sensitivity are largely explained by stress due to socioeconomic disadvantage as opposed to cultural factors. However, current findings are inconsistent with previous studies suggesting that Chinese Canadian mothers display higher levels of control and intrusivity and lower levels of warmth and affection than North American mothers (Chan, 2009; Lieber et al., 2006; Lin & Fu, 1990; Wu, Robinson, Yang & Hart, 2002). There are several possible explanations for this finding. First, the majority of previous studies have been conducted in the United States of America, while the current study examined Canadian participants. This is a salient factor given that research has consistently identified cross-national differences in immigration policies, self-selection patterns of immigrant families, urban patterns of settlement, social welfare policies, and educational and labour markets across Canada and the United States (Reitz, 1998). In particular, these differences have been found to affect immigrants' economic success, with first-generation American-Asian immigrants having less favourable economic success and lower educational attainment than Asian immigrants in Canada and Australia (Borjas, 1998, 1990; Reitz, 1998, 2001; Reitz, Zhang & Hawkins, 2011). In addition, research has identified differences in patterns of acculturation that may affect parenting styles and beliefs. For example, Canadians have generally been found to display a greater sense of acceptance and celebration of multi-culturalism than Americans, who have been found to adopt an assimilation model of acculturation. (Boyd, 2002; Noh, 2009; Safdar, 2002). There is some research to

suggest that, as a result of this assimilation model, children of immigrant families are at risk of “downward” assimilation, or further separation from the mainstream culture and increased identification with a lower-class minority group (Vermeulen, 2010; Waldinger & Feliciano, 2004). These are all significant contextual considerations that may explain differences in immigrant parenting beliefs and practices across Canada and the United States.

Secondly, the CC and EC participants in this study were similar with respect to several key demographic variables, including SES, maternal age, child age, and age at pregnancy. In particular, a wide range of income levels was represented in both groups. Overall, indicators of SES in this sample were quite high: the majority of CC and EC participants had post-secondary education and mothers in both groups exhibited similar patterns of employment/unemployment. Together, these demographic characteristics rendered a uniquely well-matched sample across cultural groups. Given that previous studies have identified that lower levels of warmth and sensitivity among minority groups are typically accounted for by low SES and its impact on stress levels (Emmen et. al., 2013; Mesman et al., 2011), it is possible that cultural differences are lessened in immigrant populations where SES was high/well-matched across groups, and, therefore, not a confounding variable. Previous studies examining differences in parenting across cultures have simply controlled for such variables, which can be problematic as several researchers have noted that this methodological approach does not accurately separate the effects of culture and other contextual variables, including SES, education, and employment status on family functioning (i.e., Chao, & Hill et al., 2008; Le, Ceballo & Hoffman, 2003). As noted by Le, Ceballo, Chao, Hill, & Murray (2008), disentangling culture and ethnicity from context is necessary to determine how cultural processes (i.e., social norms, roles, beliefs, and values) affect family dynamics and parenting. Given that the two groups in the current study were well-

matched with respect to contextual variables, it is possible that this study came closer to addressing a “true effect” of culture on maternal sensitivity. As stated by Hill (2006), variations in parenting across culture are best understood when the different ethnic groups are derived from the same neighbourhoods and when samples are roughly equivalent on indicators of SES and include a range of socioeconomic backgrounds, as was the case in this study. As such, it is possible that socioeconomic factors are more influential contributors to differences in maternal sensitivity across CC and EC groups than race/ethnicity, or culture per se. This would be consistent with previous research identifying that lower sensitivity and authoritarian parenting styles in ethnic minority families is due primarily to family stress related to socioeconomic disadvantage, as opposed to cultural factors (Chan, 2009; Mesman et al., 2011; Su & Hynie, 2010). Given that immigrant families typically display lower SES than non-immigrant families (Bornstein & Bradley, 2014), it may be more difficult to parse out the intertwined effects of culture, race/ethnicity, and SES among populations of immigrants with low SES than those with high SES, if not matched properly with non-immigrant control groups.

It is also possible that the lack of identified differences in maternal responsiveness may be explained by the objective, observational methods used to assess sensitivity in this study. Many previous studies examining Chinese immigrant populations have used questionnaire data to assess differences in maternal sensitivity and parenting style (e.g., Chan, 2009; Lieber et al., 2006; Lin & Fu, 1990; Wu, Robinson, Yang & Hart, 2002; Rosanneke et al., 2013; Su & Hynie, 2010). Therefore, it is possible that CC mothers may rate themselves as being more controlling, restrictive, and authoritarian with their children, when, in fact, their behaviour is not reflective of this perception. It is also possible that North American mothers may perceive themselves as being more sensitive, warm, and affectionate than objective ratings of their actual interactions



with their children. Consistent with this hypothesis, research has identified that East Asians evaluate themselves less positively, show less evidence of self-enhancing bias, and are more affected by failure when conducting self-evaluations when compared to North Americans (Cross, Liao & Josephs, 1992; Heine, 2001; Kitayama, Markus, & Kurokawa, 2000; Yik, Bond, & Paulhus, 1998). These views are reflective of cultural differences in the value of self and other, such that North Americans place greater emphasis on self-esteem, while East Asians are more concerned about esteem from others, or “maintaining face” (Heine, 2001). Given that research has yet to determine the relationship between cultural differences in self-perception and objective behaviour or well-being, it would be useful for future studies to incorporate both self-report and observational methods of assessing sensitivity and to compare these findings across cultural groups. An alternative explanation for the lack of identified differences in maternal sensitivity among CC and EC participants is that Chinese mothers in this study were more acculturated than mothers in previous studies. Of note, many of these studies were conducted with older generations of Chinese mothers, who may be characteristically different from the current generation of CC mothers. This is consistent with a study by Chen and Chen (2012) that examined similarities and differences in child-rearing attitudes among Chinese parents of elementary school children in two different cohorts (1998 and 2002). In the younger cohort, mothers and fathers placed more emphasis on warmth and encouragement of autonomy, and less emphasis on power assertion than parents in the older cohort. More recent qualitative research comparing the narratives of current generations of Chinese parents with traditional conceptions of Chinese parenting (i.e., harsh, controlling, and discipline oriented) suggests that this trend is continuing. For example, Way, Okazaki, Zhao, Kim, & Chen (2013) found that the primary goal of Chinese mothers in their study was to raise socially and emotionally well-adjusted children by

providing them with the freedom to make their own decisions and by fostering the development of their autonomy and independence. In a similar study conducted by Cheah, Leung, & Zhou (2013), American Chinese immigrant mothers shared their attempt to achieve balance between supporting children's autonomy and relatedness in order to accommodate the cultural values of the larger social context and to promote their children's development in the United States. Such findings are markedly consistent with the interview transcripts of CC mothers in this study, who indicated that they were making an effort to place greater emphasis on maternal sensitivity than their own parents had, and that previous generations were much more controlling and restrictive than the current generation of Chinese parents. It is possible that increased availability and access to parenting education groups and/or internet information has contributed to CC parent's awareness of maternal sensitivity. However, it is also possible that the small sample size of this study may have masked differences in sensitivity across groups.

The qualitative findings of this study also suggest that CC and EC mothers endorse relatively similar descriptions of maternal sensitivity and that their conceptualizations resembled its definition within the scientific literature. Specifically, most CC and EC mothers described several key aspects of maternal sensitivity, such as recognizing and responding appropriately to children's cues and needs and providing comfort in times of distress. While there were aspects of maternal sensitivity that were unique to each culture, for example, CC mothers' emphasis on limit-setting and boundaries, and EC mothers' emphasis on socio-emotional awareness and sensitivity, the results suggest that there are aspects of maternal sensitivity which may be universally understood by mothers in both these cultures. It is possible that these aspects are the core of maternal sensitivity that predict positive outcomes across cultures. Consistent with hypothesis, several researchers have proposed that maternal sensitivity to infant distress (but not

non-distress) is a particularly relevant aspect of caregiver behaviour that predicts attachment security (Goldberg, Grusec & Jenkins, 1999; Leerkes, Blankson, & O'Brien, 2009; McElwain & Booth-LaForce, 2006).

## **Objective 2**

The second goal of this study was to explore potential moderating variables that may be predictive of cultural differences in maternal sensitivity. While no overall differences in maternal sensitivity or responsiveness were identified across groups, child age was significantly and positively associated with several dimensions of caregiver sensitivity among CC mothers, including maternal sensitivity to cues, socio-emotional growth fostering, cognitive growth fostering, infant total scores and caregiver total scores. This relationship was not identified among EC participants. Such results suggest that, among CC mothers, maternal sensitivity tends to increase as children grow older. Child age was a significant predictor of cognitive growth fostering scores and total caregiver sensitivity, while culture was not. The absence of an interaction effect suggests that child age does not play a moderating role in the relationship between culture and maternal sensitivity and that child age may be a more important contributor to maternal differences in sensitivity than culture itself. Alternatively, it is possible that cultural differences in beliefs about child development influence sensitivity, such that age is significant for CC mothers and not for EC mothers. The qualitative results of this study provide support for this hypothesis. For example, the analysis of participant transcripts suggest that CC mothers are less inclined to acknowledge the importance of recognizing and responding to social, emotional, and psychological needs than physiological needs in early development. It is possible that maternal behaviour in the Chinese culture falls in line with this understanding of child

development, in that the ability to demonstrate sensitivity (in the way that it has been defined and conceptualized through North American research) strengthens over time, as awareness of children's psychological needs increase. In comparison, EC mothers did not tend to articulate differences in sensitivity or socio-emotional awareness depending on their children's age. Such results suggest that the influence of culture on parenting may vary at different stages of development. While there is little existing research examining cultural differences in maternal sensitivity across different stages of development, a study of an ethnically diverse sample school-aged children (primarily African American) conducted by Pinderhughes & Hurley (2008) found that cultural differences in parental warmth, communication, and behavioural control remained after controlling for SES, but only during specific stages of children's development (third grade, kindergarten, and eighth grade, respectively). In the remaining years, cultural differences in parenting behaviour were explained by contextual factors (i.e., occupation, education, and income). Such findings highlight the need for longitudinal studies of changes in maternal sensitivity and its relationship to child development over time.

While no differences in maternal sensitivity or responsiveness to children's cues or distress were identified, the CC group in this study displayed significantly lower *infant responsivity* scores than EC mothers. No significant interactions between culture, maternal attributions, stress, acculturation, or SES were identified, suggesting that these variables did not have a moderating effect on the relationship between culture and infant responsiveness. Given that previous research has shown that lower infant responsivity can elicit higher levels of maternal responsiveness, particularly in high SES samples (Bates, Olson, Pettit, & Bayles, 1982; Crockenberg & Acredolo, 1983; Crockenberg & Smith, 1982), it is possible that the CC mothers in this study were responding to their infants in a contingent manner by showing higher levels of

sensitivity to their children's poor responsiveness. This would explain the absence of a positive relationship between maternal sensitivity and infant responsivity among CC mothers, as well as the lack of significant differences in maternal sensitivity across cultures. Consistent with this hypothesis, a significant, positive relationship between infant total scores and maternal sensitivity was identified in the EC group, but not in the CC group.

Similar to the above outlined findings regarding child age and *maternal sensitivity*, results suggest that child age may also be a contributing factor to cultural differences in *infant responsiveness*, as a positive correlation between infant total scores and child age was identified. However, while culture was found to be a significant predictor of infant total scores, child age was not. Taken together, these results suggest that child age may be a more important factor than culture in predicting maternal responsiveness, and that culture may be a more important factor than child age in predicting infant responsiveness.

Taken together, these results suggest that cultural factors may be related to child behaviour and temperament, resulting in greater infant difficulty responding to maternal cues. Indeed, previous research has identified that Chinese infants and toddlers display higher levels of emotional restraint and lower levels of social initiative and communication and expressivity than Western children (Camras, 1998; Chen, DeSouza, Chen & Wang, 2006; Kagan, Kearsley & Zalazo, 1978). These early-appearing characteristics may be suggestive of a temperamental basis for the development of social emotional functioning in Chinese children (Chen, 2010). As previous literature suggests, it is possible that this greater infant difficulty elicits higher levels of maternal responsive behaviour among CC mothers. Based on past studies, this positive relationship is typically exhibited in younger infants and reverses for older infants and children, with low infant responsivity becoming associated with decreased maternal sensitivity (Coffman

et al., 1992; Lee & Bates, 1985; Maccoby, Snow, & Jacklin, 1984; Spangler, 1990). However, it is possible that this pattern differs for Chinese mothers, given that their sensitivity scores were found to increase significantly with child age. As previously outlined, CC mothers exhibit a developing awareness of their children's social and emotional needs as they grow older. As such, this ideology may serve a protective function for the dyad, resulting in continued maternal responsiveness over time. Again, further longitudinal research is needed to compare the exact nature of differences in the dyadic relationship (i.e., the relationship between infant and maternal responsiveness) across cultures and at different stages of child development.

Consistent with previous research identifying higher levels of stress among immigrant populations (Berry, 2005; Farver & Lee-Shin, 2000), the current study identified significant differences in parenting stress across groups, with CC mothers reporting significantly higher levels of parent-child dysfunctional interaction, parenting distress, and total stress than EC mothers. Interestingly, these higher levels of stress were not found to contribute to differences in infant responsiveness or to predict maternal sensitivity in either the CC or EC group. Based on their high SES levels, it is possible that the mothers in this study did not struggle with the confounded impact of financial and socioeconomic stress, which may have reduced the impact of such stressors on parenting sensitivity and caregiving behaviour. It would be useful for future studies to incorporate measures of alternative forms of stress that are not related to parenting (i.e., overall perceived stress and financial stress) in order to explore any possible differential effects on maternal sensitivity and child behaviour.

Acculturation was not found to be a significant predictor of sensitivity within the CC sample, or to predict differences in infant total scores across groups. These findings are consistent with Lee's (2008) finding that acculturation was unrelated to parenting attitudes and

behaviour related to authoritarian parenting. An analysis of participant interview transcripts revealed that many of the CC mothers in this sample described themselves as highly acculturated and indicated that they were making a concerted effort to adopt Western parenting practices that included a greater emphasis on sensitivity, warmth, understanding, and affection. Future research might explore cultural differences in caregiver sensitivity using a sample of immigrant participants with a wider range of acculturative levels, generational statuses and SES in order to further explore the impact of acculturation on maternal sensitivity. It is possible that, with globalization and increasing access to internet and education resources, the “westernization” of countries and cultures is resulting in the increased universality, commonality, and applicability of the concept of maternal sensitivity among newer generations of CC parents (Yi-Ping, 2014). Though the effect of globalization on Chinese parenting has yet to be explored directly, researchers have noted an increasingly prevalent phenomenon of the globalization of parenting repertoire in the East Asian culture, as parents urge their children to master the English language, to study abroad, and/or to pursue an internationally recognized diploma (Yi-Ping, 2014). In addition, there have been observed shifts in the balance of self vs. other among East Asian societies. In China, these changes have coincided with several transitions in the socio-political climate of this nation (Liu & Fang, 2009; Naughton, 2000; Shi & Liu, 2005). For example, from an economic perspective, China has experienced rapid economic growth characterized by increased industrialization, greater support for capitalism and the rise of a new rich class (Naughton, 2000). From an educational perspective, globalization in China has led to reform that has resulted in a shift in the emphasis away from teacher-centered instruction and toward student autonomy, and from knowledge transmission to knowledge construction (Halstead & Zhu, 2009; Shi and Liu, 2005). Such changes have led to an increased focus on autonomy and independence

that has likely influenced, and will continue to influence Chinese parenting values, beliefs, and behaviours through time.

### **Objective 3**

The third goal of this study was to determine whether culturally based differences in caregiver sensitivity have implications for children's development and outcome, including their cognitive functioning, social and emotional health and well-being, and behavior. While no group differences in maternally-rated child behaviour (on the CBCL) were identified, results indicated that CC mothers tended to rate their children lower on a measure of socio-emotional development (on the Bayley's scale) than EC mothers. It is important to note that both of these measures are based on self-report, and that the Bayley's scale is used with a younger age group (0 to 42 months) than the CBCL (1.5 to 6 years). These results are consistent with the qualitative findings of this study, which suggest that CC mothers may be less aware of children's socio-emotional needs than EC mothers.

Given the identified relationship between child age and maternal sensitivity, as well as the qualitative findings with regard to maternal perceptions of socio-emotional/psychological development in the Chinese culture, it is possible that CC mothers are less aware of their children's affective states than EC mothers when children are very young. This lack of awareness may then result in lower infant responsiveness (as previously outlined) as well as socio-emotional development among CC infants as compared to EC infants. However, it is also possible that CC mothers are less familiar with/attuned to children's socio-emotional needs at a very young age than EC mothers, and that this, in turn, influences their ability to rate their children's socio-emotional development. Cultural differences in individualism vs. collectivism



provide insight into this possible limitation in CC mother's awareness of their children's socio-emotional needs. As indicated by Chen (2010), in collectivistic societies, social initiative is less valued than in individualistic societies, while self-control is emphasized in order to maintain interpersonal harmony and relatedness. These beliefs and values have direct implications for social-emotional functioning as they have been associated with higher levels of shyness and behavioural inhibition, and lower levels of emotional expressivity among Chinese individuals, in comparison to North American individuals (Tamis-LeMonda, 2008; Triandis, 1995).

Maternal sensitivity was not predictive of maternal ratings of child socio-emotional development in the overall sample of this study. However, it would be useful for future studies to explore this relationship longitudinally, or in a population of CC and EC mothers with very young children, exclusively, given that maternal sensitivity was lower for CC mothers of younger children in this study.

CC children in this study were also found to display lower language scores as objectively rated by the researchers. However, only culture was identified as a significant predictor of this difference. It is important to note that children's language abilities were assessed using their first language (i.e., English, Mandarin, or Cantonese). Given that many of the CC children in this study were in the process of learning two languages (English and Chinese) simultaneously, it is possible that this may have influenced their language development as studies suggest that some children raised in bilingual households may experience a temporary delay in language development (Baker, 2000; Rosenkoetter, & Knapp-Philo, 2006). Alternatively, given the qualitative finding that CC mothers are inclined to focus on physiological as opposed to psychological needs when children are young, it is possible they are consequently less likely to use, demonstrate, or model the use of language in their interactions with their infants than EC

mothers, and that this results in slower language development among CC children. A comparison group of Chinese dyads living in China would be necessary to determine this.

## **Conclusions**

This study makes three contributions to the research literature focused on maternal sensitivity and culture: 1) It is the first study to contrast observational ratings of maternal sensitivity across two, well-matched cultural groups (specifically pertaining to SES, education, and employment status), 2) It is the first study to identify the significance of child effects in the comparison of maternal sensitivity across cultural contexts, and 3) It is the first to identify these effects within a Chinese Canadian immigrant sample. Overall, the results of this study suggest that maternal sensitivity levels and conceptualizations of what it means to be a sensitive parent may be similar across the two studied cultures, particularly among immigrant mothers who identify with the mainstream culture (i.e., are well acculturated), and demonstrate high SES. CC infants in this study were less responsive than EC infants in their interactions with their mothers, and it is possible that this behaviour elicited higher levels of maternal responsiveness among CC mothers. These findings highlight the contingent nature of maternal sensitivity and the need to examine dyadic and bidirectional effects, particularly when comparing sensitivity across cultures. The current research further suggests that CC mothers may be less aware of children's psychological and emotional when they are young, and that this may influence CC children's socio-emotional development (or, at least affect maternal ratings of children's socio-emotional development). Despite CC children's lower socio-emotional and infant responsiveness scores, few cultural differences in children's behavioural outcomes, particularly as assessed by mothers of children over the age 1.5, were identified. Finally, this research suggests that CC mothers are

more likely to attribute child behaviour to their own parenting than EC mothers, and that this may be an important contributing factor to high parenting stress among CC immigrant families.

### **Limitations and Future Directions**

This exploratory study has several limitations. First, the small sample size likely limited the ability to uncover significant differences in sensitivity and child outcomes, as well as interaction effects across cultures. Consequently, the power to detect smaller effects, as well as differences in effect-size, was significantly reduced. In particular, the participant numbers were low for the analysis of child behaviour outcomes (due to age restrictions), and for language scores (due to the variance in dialects spoken by the children in the study). In addition, while regression analyses were conducted, these results do not provide information about the direction of the relationship between variables. As such, it would be useful for future studies to use a longitudinal design, and to utilize a larger sample size to conduct more complex analyses, such as SEM modeling and path analyses in order to further examine potential causality, prediction and other complex relationships between variables. Specifically, it will be important to further explore the nature of the relationships between maternal attributions, child age, maternal sensitivity, infant responsiveness, and child outcomes that were identified in this study. In addition, future research that determines the individual vs. combined effects of culture and SES on maternal sensitivity and child outcome, and compares these effects among low vs. high income immigrant groups will be desirable. As indicated by Hill (2006), SES and culture have been confounded in such a way as to obscure their unique and interactive effects on parenting and child outcomes. Understanding each of their roles entails the examination of both between and within-group variations in SES, as well as interactions between SES and culture.

Another limitation of this study is that approximately half of the CC participants in this sample used measures that had been translated into the Chinese language (with the exception of the CBCL). As a result, there was no established reliability or validity information for these translations, which may have affected the results. Future studies might benefit from careful selection of variables and measures based on their established reliability and validity for use with Chinese Canadian participants. Furthermore, though videotapes and interviews were coded by research assistants who were unaware of the study's hypothesis, they were not blind to the culture of the participants, which may have resulted in a biased interpretation of the transcripts. While the intention behind utilizing an observational measure of sensitivity was to attain an "objective" assessment of parenting behaviour, observational ratings subject to the rater's own cultural lens. To address this limitation, future research should ensure that videos are coded by multiple research assistants from a variety of cultural backgrounds to reduce bias.

A further limitation is that the CC and EC mothers who agreed to participate in the study may be characteristically different from mothers who did not agree to participate, resulting in a self-selection bias. Of note, the CC mothers in this study displayed high SES levels, which may not be typical of the general population of Chinese Canadian immigrant families.

Another limitation of this study is that the majority of the outcome variables examined involved maternally rated perceptions of child behaviour and development, as is typical in developmental research with very young children. It would be helpful for future research to incorporate observational measures of these outcome variables, and to compare them with rating scales completed by multiple observers in different contexts (i.e., caregivers vs. child care providers, home vs. daycare etc.). In addition, results of this study suggest that, among CC families, maternal sensitivity may increase as children grow older. As such, it would be useful

for future research to compare maternal sensitivity and its relationship to outcomes across a larger age span, from early to late stages of infant/child development.

Given that the Chinese participants in this study were comprised of a heterogeneous group of families from different provinces and countries within China, it would also be useful for future research to either focus exclusively on one region/population within China, or to compare maternal sensitivity and child outcomes among different populations of Chinese immigrant families. Though Chinese societies such as mainland China, Taiwan, and Hong Kong share the long-standing tradition of Chinese culture, they vary greatly in their current, political, social, and economic conditions and research comparing these groups has identified several differences in the caregiving styles of parents in each society. For example, a study conducted by Bendt, Cheung, Sing Lau, & Lew (1993) found that Hong Kong adults perceived their parents as less warm and more controlling than adults from Taiwan or mainland China. Comparing groups based on time spent in Canada would also be useful in order to determine whether acculturative influences on maternal sensitivity vary according to age at immigration or the number of years spent in the host culture. For example, recent research on Chinese immigrants in Vancouver, Canada, suggests that a longer duration of exposure is associated with greater identification with mainstream culture, but only at younger ages of immigration, and not at later ages of immigration (i.e., there is evidence for a sensitive period for acculturation) (Cheung, Chudek, & Heine, 2011). Furthermore, reasons for immigrating may also have an effect of parent and child variables, and future research should take this possible influence into account. As argued by Dow (2011), researcher and mental health practitioners would benefit from an in-depth assessment of the reasons immigrants leave their homelands, their pre-migration histories, and their post-migration losses and traumas as not all immigrants experience the same migration experience or

the same types of challenges upon their arrival to the host country. In particular, several researchers have emphasized the importance of distinguishing refugees, who are typically forced to leave their home countries out of fear for their lives at short notice, from immigrants, who have usually made a gradual, practical, and positive decision to change their life circumstances or country of residence (Kunz, 1973; Morrow, 1994; Tribe, 2002).

The recent and expanding interest in Chinese parenting practices warrants careful consideration of the potentially confounding impact of socio-political factors on immigrant populations. Beyond culture, such variables likely play a significant role in the parenting beliefs, behaviours, and practices of Chinese parents. In particular, the mothers in this study may well have been affected by the political climate during the Chinese cultural revolution of the 1970's. As such, future studies should take the possible effects of this event (i.e., stress, depression, intergenerational trauma) into account.

### **Clinical Implications**

This study has several implications for clinical practice, and for the delivery of culturally sensitive mental health services. Although maternal sensitivity levels were similar across the two cultural groups included in this study, it is still imperative that clinicians and practitioners take cultural differences into account when providing assessment and interventions to families from diverse backgrounds, particularly with new immigrant families who may be less acculturated and/or who struggle with low SES. In particular, this study suggests that child age is an important factor for clinicians to consider in their work with Chinese Canadian immigrant families. For example, CC mothers may require additional support and education about the psychological needs of very young infants, and about ways to respond to these needs in an

appropriate and effective manner in order to facilitate their child's socio-emotional and language development. Additional resources and support to encourage an openness to the blending of old and new cultural beliefs and parenting practices might also prove beneficial for this populations.

In general, it would be desirable for mental health clinicians and practitioners to display an awareness of the similarities and differences in cultural perceptions of maternal sensitivity that have been uncovered by this study. Displaying an openness towards this diversity, and an awareness that best practices also exist in other cultures will be helpful in increasing cultural competence in the delivery of mental health services, and ensuring that ethnic minority populations benefit from the resources that are available to them.

Given that this study suggests that there may be core aspects of maternal sensitivity that were common to mothers in both cultural groups relating to response to physiological needs and distress, and that these findings are consistent with previous literature, it would be useful to disseminate such findings to parents, families, and educators. For example, teaching new parents how to respond to their children's basic physiological needs and distress in sensitive and a responsive manner (i.e., through the provision of workshops or information sessions delivered by community mental health centres or Ontario Early Years Centres) would be extremely beneficial. In addition, this research suggests that immigrant families may benefit from education about children's psychological and emotional, particularly during infancy, and ways to identify and respond to such needs in an effective manner.

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### Appendix A: Semi-structured Interview Questions

- 1) What does it mean to you to be a good parent?
- 2) What characteristics do you think you possess that make you a good parent?
- 3) What does it mean to you to be a sensitive caregiver?
- 4) Is it important for you to be sensitive, reflective, understanding and warm towards your child? Is this emphasized in your family? Is this emphasized in your culture?