Economic Disadvantage, Caregiver Mental Health, Family Functioning, and Children's Social, Emotional, and Behavioral Well-Being in Low-Income Families

by

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Abstract

Economic disadvantage continues to be of significant concern to many Canadian families and is at the forefront of many municipal, provincial, and federal government initiatives. The health consequences of living in low-income have been well-documented; however, the relationships between economic disadvantage, caregiver mental health, family functioning, and children's social, emotional, and behavioral outcomes are less clear, particularly in vulnerable families, such as Foreign-Born Immigrants, Foreign-Born Refugees, Canadian-Born Indigenous, and those families with a lone caregiver.

Previous theories of the relationships between income, parental mental health, and children's outcomes have demonstrated that economic difficulties have a negative effect on parents' emotions, behaviors, and relationships, which then have a negative influence on the caregivers' ability to parent appropriately and family dynamics, which can, in turn, affect children's outcomes. This study used data collected through the Family First Edmonton Project (FFE) to investigate: 1) the impact of economic disadvantage on caregiver mental health and family functioning and children's social, emotional, and behavioral outcomes (internalizing, externalizing, behavioral symptoms, and adaptive skills); 2) the mediational effect of caregiver mental health and family functioning in the relationships between economic disadvantage and children's outcomes; and 3) whether the relationships vary across groups that were included in the sample.

The results reflected that economic disadvantage did not have the expected predictive impact on caregiver mental health, family functioning nor on children's outcomes. The strongest predictor of children's social, emotional, and behavioral outcomes was caregiver's mental health, which was found consistently across groups and children's outcomes. An exception was that

caregiver's mental health was not predictive of children's adaptive skills in Canadian-Born Indigenous families.

In the overall sample, there were small effects found between family functioning with children's externalizing and internalizing problems but stronger relationships were found with behavioral symptoms and adaptive skills. Within represented groups, family functioning was a stronger predictor of children's outcomes in Canadian-Born Indigenous and Canadian-Born Non-Indigenous Families, than for the Foreign-Born Immigrant and Refugee Families. For the Foreign-Born Immigrant families, family functioning had only predictive effects on children's adaptive skills, whereas for Foreign-Born Refugees, family functioning was only predictive of children's internalizing problems. This demonstrates that, for the two Canadian-Born groups, family functioning may have a wider range of influence on children's outcomes than for Foreign-Born groups. These results demonstrate that regardless of economic situations, it is often factors within families that may exert the greatest effect on some children's outcomes. Implications for research, intervention and policy are discussed.

Preface

This thesis is an original work by Lindsey Howard. The research project, of which this thesis is a part, received research ethics approval from the University of Alberta Research Ethics Board, Project Name "Economic disadvantage, caregiver mental health, family functioning, and children's social, emotional, and behavioral well-being in low-income families", No. 00093016, August 7, 2019.

Dedication

To Elliana and Joshua.

I want you to know you can persevere, overcome any challenge and achieve your dreams.

I will always believe in you and support you along the way.

Acknowledgement

I would like to respectfully acknowledge that this dissertation was completed on Treaty 6 territory, a traditional meeting ground, gathering place, and travelling route for the Nêhiyawak (Cree), Ojibway/Anishinaabe/Saulteaux, Niitsitapi (Blackfoot), Métis, Dene, Iroquois, Inuit, and Ĩyãħé Nakoda (Nakoda Sioux). I acknowledge the diverse Indigenous peoples who have marked these lands for centuries and whose histories, languages, and cultures continue to enrich our vibrant community.

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Introduction

Municipal, provincial, and federal governments continue to vow to find solutions that bring an end to poverty. Raphael (2011) noted that on "November 24, 1989, an all-party resolution on child poverty was passed in the Canadian House of Commons which stated *This house seek(s) to achieve the goal of eliminating poverty among Canadian children by the year 2000*" (pp: xvi). However, poverty is still far from being eliminated, even though progress has been made and poverty reduction strategies are being implemented (e.g., Opportunity for All: Canada's First Poverty Reduction Strategy; Employment and Social Development Canada, 2018). Even with these efforts, there is still a substantial proportion of Canadians living in poverty. It was reported that a total of 3.4 million Canadians, or about 9.5% of the population, lived in poverty (Statistics Canada, 2019a). Many people live well below the poverty line, and it is estimated that 5.4% (1.9 million) were considered to be in deep income poverty in 2016 (Employment and Social Development Canada, 2018). Additionally, there is still a sizeable proportion of children living in poverty. In 2017, approximately, 9.0% lived below the poverty line, which was a decrease from 11% in 2016 and 15% in 2012 (Statistics Canada, 2019a). Moreover, children who grow up in situations of economic disadvantage are more likely to remain in poverty as they grow into adulthood (Employment and Social Development Canada, 2018).

Certain segments of the population are more affected by poverty, such as Indigenous people, the elderly, single parents, recent immigrants, people with disabilities, and unattached individuals aged 45-65 (Employment and Social Development Canada, 2018; Raphael, 2011; Sharma, 2012). Immigrant families are more likely to live in poverty than their host country counterparts (Beiser, Hou, Hyman, & Tousignant, 2002; Raphael, 2011; Sharma, 2012), and

visible minorities are twice as likely to be living in poverty as other Canadians (Raphael, 2011). The overall prevalence of poverty is significantly greater among Indigenous people in Canada than non-Indigenous Canadians. In 2017, the poverty rate was 19% for Indigenous people living-off reserve (Employment and Social Development Canada, 2018). Some estimates indicate that as many as 50% of status First Nation children live below the poverty line (MacDonald & Wilson, 2013). Furthermore, 23% of single parents raise their children in poverty (Employment and Social Development Canada, 2018).

Impacts of poverty are far reaching, and health disparities related to income have been widely researched with results generally suggesting that those who experience a greater degree of economic disadvantage are at increased risk of physical, social, emotional, and behavioral problems (Bradley & Corwyn, 2002; Conger & Donnellan, 2007). Living in conditions of low-income not only creates a situation where it is difficult for families to obtain material necessities, but poverty can have significant negative effects on the mental health and well-being of families. Moreover, there are numerous studies that link poverty to negative outcomes for children such as physical health outcomes (e.g., low birth weight, reduced growth, injuries, exposure to toxins, illnesses, obesity, or asthma), cognitive outcomes (e.g., IQ, developmental delays), academic achievement (e.g., school readiness, attendance, high school completions, academic performance, or grade repetition), emotional or behavioral outcomes (e.g., internalizing and externalizing problems, aggression, conduct disorder; see Bradley & Corwyn, 2002; Brooks-Gunn & Duncan, 1997; Evans, 2004; Maholmes & King, 2012 for reviews).

It is these negative outcomes that have ignited the Canadian federal and provincial governments' attempts to tackle poverty and to focus efforts on educating, preventing, and remediating issues surrounding mental health, with an increasing focus on the social, emotional,

and behavioral well-being of children. The rates of mental health problems among young people in Canada continue to rise with some estimates suggesting that 10% to 20% of youth are affected by a mental health issue (Canadian Mental Health Association, 2013) and children who live in lower-income families are more likely to demonstrate behavioral and emotional problems (Bradley & Corwyn, 2002). The complexity of investigating the social, emotional, and behavioral well-being among children living in low-income situations is that these issues often do not develop in isolation in an individual child, but rather are part of interrelated connection of poverty impacts on the entire family unit. In addition, children may be particularly vulnerable to the disruptive nature of both poverty and its mental-health effects because they may have a more limited repertoire of coping strategies and they do not, by themselves, have the means to change their economic situation nor the capability to seek mental health intervention.

There is a compelling need to explore the relationships among economic disadvantage, mental health, and family functioning in vulnerable groups, such as Indigenous families as well as immigrant and refugee populations. First, there are alarming rates of poverty among Indigenous families in Canada. Second, the growing immigrant and refugee populations face barriers adjusting to life in Canada because their educational attainments and employment skills are not always immediately transferable to the Canadian workforce. To date, there are a limited number of studies that investigate these relationships in various populations including Canadian-Born Indigenous families, Canadian-Born Non-Indigenous families, and Foreign-Born Immigrants and Refugee families. There is also a greater number of studies involving dual parent families and fewer that include low-income lone parents. In addition, while there has been research on the mediating mechanisms between income and children's outcomes (e.g., Beiser, Hou, Hyman, & Tousignant, 2002; Kiernan & Huerta, 2008; Rijlaarsdam et al., 2013; Yeung,

Linver, & Brooks-Gunn, 2002), there has been limited inquiry into the mediating relationships of caregiver mental health and family functioning in families living in situations of economic disadvantage within these at-risk groups. Furthermore, much of the research on children's emotional and behavioral outcomes focuses on externalizing and internalizing problems and maternal depressive symptoms. Less research has focused on positive aspects of children's well-being, such as children's adaptive skills.

The current study investigates the relationship of economic disadvantage on the social, emotional, and behavioral well-being of children through the mediating mechanisms of family functioning and of the mental health of the caregivers (see Figure 1 on pg. 64. for the conceptual model). This study uses baseline data from a community-based randomized controlled trial, entitled *Family First Edmonton* (FFE). The FFF was a longitudinal, community-based research project that explored how four service delivery levels impacted the social, health, and economic situation of low-income families, the cost-effectiveness of the service delivery, and the collaboration among the systems involved in service delivery (Drummond et al., 2014, 2016).

The current study uses the FFE data as a secondary data source to investigate several pathways of interest in an overall sample as well as each of four population groups represented in the FFE sample (Foreign-Born Immigrants, Foreign-Born Refugees, Canadian-Born Indigenous peoples, and Canadian-Born Non-Indigenous peoples). Several steps will be taken to conduct this investigation. First, the impact of economic disadvantage on both the caregiver's mental health and family functioning will be elucidated. Second, the relationship that the caregiver's mental health and family functioning has on children's social, emotional, and behavioral well-being will be explored. Third, the family functioning and caregiver mental health mediational relationships between economic disadvantage and children's social, emotional, and behavioral

well-being are examined. Fourth, the nature of the possible differences of these relationships across the four groups will be investigated.

In order for governments and service providers to appropriately direct funds and develop effective intervention strategies, further investigation into the mediating mechanisms through which economic disadvantage and the negative effects on children's social, emotional, and behavioral well-being are linked in vulnerable groups is required (Rijlaarsdam et al., 2013). Rijlaarsdam et al. (2013) noted that interventions that solely focus on trying to increase income levels and those that do not consider or contend with problems with caregiver mental health and family process, will not adequately address all the issues related to the negative impact of economic factors on children's emotional and behavioral problems. Understanding how economic factors influence children's social, emotional, and behavioral well-being through their influences on caregiver mental health and family functioning in Foreign-Born Immigrant, Foreign-Born Refugee, Canadian-Born Indigenous, and Canadian-Born Non-Indigenous families will help inform the development of education, prevention strategies, and targeted interventions that help circumvent the detrimental effects for families living in low-income households.

The following research questions are the focus of the study. First, what is the effect of the economic disadvantage (family depth of poverty, caregiver education and employment status) on primary caregiver mental health, and family functioning? Second, what is the effect of economic disadvantage on the social, emotional, and behavioral well-being of children? Third, what role does the mental health of the primary caregiver and family functioning play in the relationship between economic disadvantage and children's social, emotional, and behavioral well-being? That is, does the mental health of the primary caregiver and family functioning mediate the relationship between economic disadvantage and children's social, emotional, and behavioral

outcomes? Within the context of the third question, what impact does lone-parenting have on mental health of the primary caregiver, family functioning and the relationship between economic disadvantage and children's social, emotional, and behavioral well-being? Fourth, are the relationships between economic disadvantage, mental health, and family functioning different for those from vulnerable groups, i.e., Foreign-Born Immigrants, Foreign-Born Refugees or Canadian-Born Indigenous people in Canada?

Included is a review of literature that explores income, economic disadvantage, caregiver mental health, and family functioning as it relates to children's social, emotional, and behavioral well-being in these vulnerable groups. Theoretical frameworks that explore models of the relationships, including mediating mechanisms, among economic disadvantage, caregiver mental health, and children's social, emotional, and behavioral well-being will be discussed with an additional focus on immigrants, refugee, Indigenous peoples in Canada, and lone-parents.

I. Literature Review

Social Determinants of Health

When thinking about health and mental health, many people tend to believe that genetics and lifestyle are the most important factors in determining how healthy individuals will be throughout their lifetime (Mikkonen & Raphael, 2010). These assertions are accurate, to some degree, in that they are important contributors to health but what is becoming more apparent through an abundance of research, is that the conditions under which one lives and the distribution of wealth in a society are powerful contributors in determining health outcomes (Mikkonen & Raphael, 2010). The social conditions related to health outcomes are known as the social determinants of health and are of great interest to researchers and policy makers because many of these factors are amenable to interventions which, in turn, would have the impact of improving the health of Canadians. It has been suggested that diverting some of the dollars invested in the health system to programs targeting the social determinants of health may have a greater impact on health outcomes (Mikkonen & Raphael, 2010).

There have been various ways in which social determinants of health have been categorized in Canada and have changed over time. For instance, Mikkonen and Raphael (2010) listed 14 social determinants of health which include: income and income distribution, education, unemployment and job security, employment and working conditions, early childhood development, food insecurity, housing, social exclusion, social safety net, health services, Indigenous status, gender, race, and disability. Concomitantly, the Government of Canada (2019) listed 12 key determinants of health: income and social status, employment/working conditions, education and literacy, childhood experiences, physical environments, social supports and coping skills, health behaviors, access to health services, biology and genetic endowment, gender,

culture, and race/racism. While these social determinants of health are generally accepted, it is important to note that the National Collaborating Centre for Indigenous Health (NCCIH; 2012) indicate that the common conceptualizations of the social determinants are insufficient for understanding the health inequalities experienced by Indigenous people, due to the impact colonialism has had on Indigenous languages, culture, and identity. The NCCIH (2012) suggest that the following Indigenous-specific social determinants should also be considered: "colonialism, globalization, migration, cultural continuity, territory, access, poverty, racism, social exclusion, self-determination, land/environment and environmental stewardship" (p. 41). Furthermore, it is recommended that an Indigenous social determinant framework take into consideration Indigenous perspectives on health which include the four interconnected areas of individual health, community health, environmental health, and social and cultural health (NCCIH, 2012). Even with these varied conceptualizations, arguably, one of the most important social determinants of health is income and is apparent that many of the other social determinants of health are influenced by income and distribution of wealth.

Raphael (2002) noted that in order for individuals to experience the same health advantages as those who are more affluent, that it is not sufficient to simply live above the poverty line, but individuals need to have enough resources to participate in society in a meaningful way. Those living in poverty would likely be at a disadvantage in a number of the social determinant areas (e.g., housing, food insecurity, social exclusion, etc.) and improvements to inequality of income would be expected to have far-reaching effects on many areas, including health outcomes (Mikkonen & Raphael, 2010). Therefore, a first step to improving health using a social determinant of health framework involves shaping policy and practices to help limit the impacts that come from income inequality. However, establishing who is living in poverty or

low-income is not straightforward and deciding who is "poor" can have profound impacts on research, policies, and programs intended to alleviate the negative health outcomes associated with poverty.

Definitions and Measures of Poverty/Low-Income

There is no internationally-accepted definition of poverty nor is there consensus on how it should be measured (Fellegi, 1997; Sharma, 2012). Additionally, conceptualizations on how to measure poverty and low-income changes over time. For many years, the Federal Government of Canada had not endorsed an official measurement of poverty (Library of Parliament, 2008; Statistics Canada, 2016), whereas more recently, the Government of Canada has endorsed the Market Basket Measure (MBM) as an official poverty line measure (*Opportunity for All, Canada's first poverty reduction strategy*, Employment and Social Development Canada, 2018). To understand poverty and best allocate funds towards programs, researchers and policy makers create estimates of who is poor and to what degree they experience economic hardship. Generally, poverty is defined in two ways: (a) *absolute poverty* (sometimes referred to as objective poverty), which is the inability to obtain the necessities of life and (b) *relative poverty* (sometimes referred to as subjective poverty), which is being worse off than "average" and those who must allocate more of their resources to obtaining the essentials (Library of Parliament, 2008; Raphael, 2010; Sharma, 2012). Most conceptualizations and indicators of poverty used across the world measure some facet of these two general definitions (Raphael, 2011; Sharma, 2012). Sharma (2012) explained that in developed countries such as Canada, there are individuals who do not have enough income to obtain the basic necessities of food, clothing, and shelter (absolute poverty), but the majority of low-income individuals experience more subjective poverty because their resources fall short of the average family (relative poverty).

Despite the difficulty in defining what is considered "average", it is often this average that is used as the measure that divides those who are poor from the non-poor or the "poverty line" (Sharma, 2012).

Previously, the most common methodology used in the literature to identify who is worse off than the average was the low-income cut-offs (often abbreviated as LICO; Statistics Canada, 2014). The LICO is set as a family spending 20 percent or more than the average Canadian family on food, clothing, and shelter. If a family is living with an income that is lower than this cut-off, then they are deemed to be living in conditions of economic hardship (Sharma, 2012; Statistics Canada, 2014). LICOs are often calculated in both pre-tax cut-offs and after-tax cut-offs. An advantage of the LICO measure is that it is calculated based on family size (1-7 people) and adjusted based on 5 community sizes to reflect the variation in the cost of living between communities of different sizes and rural versus urban areas (Sharma, 2012). The two main criticisms of LICO estimates are that the 20 percent is somewhat arbitrarily selected and the cut-offs are not revised on an annual basis (Sharma, 2012).

Other measures that are starting to become more commonly used are Statistics Canada's Low-Income Measure (LIM) and the Market Basket Measure (MBM). Sharma (2012) noted that the LIM is a measure that classifies a family as poor if the family's income is 50 percent of the median income. Similar to the LICO, it can be calculated before and after tax. The LIM is adjusted for household size (the larger the household, the greater the income needs) and whether the members are children or adults (Raphael, 2011; Sharma, 2012). A criticism of this measure is that, like the LICO 20% factor, the LIM 50% factor is also somewhat arbitrarily selected and the LIM does not adjust for community size (Raphael, 2011; Sharma, 2012). The LIM is often used

to make international comparisons but was not as commonly used in Canada, until more recently (Raphael, 2011; Statistics Canada, 2015).

The MBM is based on the cost of a minimum set of goods and services (e.g., food, shelter, recreation, entertainment, internet, and phone services) that is required to maintain a basic standard of living by a reference family (two adults and two children; Sharma, 2012; Statistics Canada, 2017h). The MBM can be adjusted based on family size and composition and it accounts for differences in communities, provinces, and geographical regions across Canada (Albanese, 2010; Statistics Canada, 2017h). A national survey is used to estimate the cost of the basket of goods such as food, clothing, shelter, transportation, footwear, recreation, and other basic necessities such as utilities. If a family's income falls below the cost of the basket of services for their community or region, then they are said to be living in a low-income situation (Statistics Canada, 2019b). A criticism of the MBM is that even though the cost of the basket of goods and services is determined through a national survey, there is a lot of subjectivity as to what constitutes a minimum amount of goods and services (Raphael, 2011; Sharma, 2012) and there are some criticisms that suggests costs such as childcare or transportation are not adequately addressed by the measure (Statistics Canada, 2019). The LICO and LIM are said to be relative measures of poverty whereas MBM is said to be a measure of absolute poverty (Raphael 2011; Sharma, 2012). The research literature and statistical reports often focus on the LICO and LIM measures of poverty, but there has been a movement in recent years to adopt the market basket measure as the primary measure of poverty/low-income (Statistics Canada, 2018). However, Statistics Canada has emphasized that low-income measures are quite different than "poverty". The measures help to determine who is worse off than average, but being worse off than average does not necessarily equate to being poor (Fellegi 1999, as cited in Raphael, 2011).

Even though the study of poverty is complicated by a lack of consensus on its definition as well as subjectivity and disagreement in how poverty and low-income should be measured, given the degree to which income is related to a variety of psychological and health outcomes, there is a great need to include estimates of economic disadvantage in research. Researchers, policy makers, and program developers are faced with the difficult task of determining what constitutes living in poverty and the results of those decisions can have significant implications. From a research standpoint, the artificial nature of poverty lines makes it difficult to define study groups and creates a challenge to detect whether "poverty" or being "poor" has an impact on various psychological and social variables or determining whether interventions were effective. Differing conceptualizations also creates difficulty in comparing results across studies where varied definitions may be used. Study findings can then influence policy considerations or program development. From a policy and programing standpoint, these somewhat artificial poverty lines sometimes determine who is eligible for certain services and who is not, which for the people using services, can have great impacts. Therefore, it is important for researchers, program developers, and policy makers to be forthcoming about the limitations of measuring poverty and low-income, and to be mindful of the potential implications of using these measures for decisions that impact people's lives and well-being.

The present study will discuss low-income/depth of poverty using the LIM for several reasons. First, there is a lack of consensus on a definition of poverty/low-income. Second, the LIMs have been in use for many years by Statistics Canada to describe the Canadian economic climate and they offer one of the more acceptable indicators of low-income. Third, there is a lack of an acceptable alternative methodology, as the MBM has only recently been adopted in Canada (Statistics Canada, 2019b). In the case of the current study, slightly more families are considered

to be living in poverty when it is calculated using the LIM (as opposed to the LICO). Therefore, to uncover any potential relationships among the economic disadvantage and the study variables, the LIM will be the income measure of economic disadvantage. Furthermore, the present study uses the LIM as a depth of poverty variable which provides a continuous scale of the relative degree of low-income the families experience, that is, how far under (or over) LIM a particular family is located (Guo, de Los Santos, So & Templeton, 2013; Raphael, 2011). A further discussion of depth of poverty measures is provided in the methodology section.

Indigenous peoples in Canada. Indigenous people are very diverse. Specifically, the term Indigenous people refers to the original inhabitants of Canada and includes First Nations, Inuit, and Metis. According to the 2016 census, the Indigenous population was approximately 4.9% of the national population (Statistics Canada, 2016). The National Collaborating Centre for Indigenous Health (NCCIH, n.d.) notes that the history of "colonization and colonialism cross-cut and influence all other social determinants of health of First Nations, Inuit, and Metis, individuals, families and communities. We also know the health disparities and inequities experienced by Indigenous peoples are rooted in racism, marginalisation, dislocation, and social exclusions" (Social Determinants of Health, para. 2). Stemming from the impacts of colonialism, Indigenous people in Canada are significantly more likely to live in economic disadvantage than other Canadians and may also be more likely to experience health or mental health concerns. In 2014, the incidence of poverty among Canadian Indigenous families was 18.7% versus 8.8% for all Canadians (Government of Canada, 2016). Data from Statistics Canada (2013) revealed that in 2010, about 35% of Indigenous children under 6 lived in low-income environments. It was also noted that 22.3% of Indigenous households experience food insecurity (Government of Canada, 2017).

Economic disadvantages among Indigenous people are often reflective of differences in educational and employment opportunities as well as family compositions. Despite some improvements over time, Indigenous people in Canada tend to have a lower education attainment than non-Indigenous Canadians. Data from the 2016 Census demonstrated that among First Nation youth (age 20-24) living-on reserve, less than half (48%) had completed high school. For young adults living off-reserve, high school completion rates tend to be higher: First Nations (75%), Metis (84%), but is lower than non-Indigenous youth (92%; Statistics Canada, 2017e). Data from the 2016 census revealed that 10.9% of Indigenous peoples (aged 25-65) had attained a post-secondary qualification of bachelor degree or higher, which was an increase since the 2006 census (7.7%; Statistics Canada, 2017e). However, this remained lower than the 54% of the general Canadian population who had a post-secondary attainment in the same age category (Statistics Canada, 2017e).

In terms of employment, in 2011, the unemployment rate among the Indigenous population living off-reserve was higher (17.6%) than the non-Indigenous population (7.5%; Government of Canada, 2016). For Indigenous people who completed post-secondary education, the employment rate in 2015 was 78.4% compared to 42.8% for those with less than high school (Statistics Canada, 2017e). In comparison, for non-Indigenous people, the employment rate was 85.9% for those who completed post-secondary, and 60.5% for those with less than high school (Statistics Canada, 2017e). Indigenous people were also reported to have a lower full-time employment rate (40.5% versus 53.9% for non-Indigenous Canadians; Raphael, 2011). There is also inequality in terms of wages earned. Specifically, Indigenous employees working full-time earned an average of $26.00 per hour, whereas non-Indigenous full-time workers earned an average of $27.41 per hour in 2015 (Statistics Canada, 2017a). Discrepancies in wage are said to

be the result of lower educational attainments among Indigenous workers, and those with post-secondary certifications earn wages that are more equivalent to non-Indigenous workers (Statistics Canada, 2017a).

In terms of family composition, a higher proportion of Indigenous families are single-parent families with female lone-parent families being twice as common among Indigenous families as non-Indigenous families (Arriagada, 2016). Indigenous families may have a greater number of children and are also more likely to have relatives, such as grandparents, aunts, uncles, cousins, etc., living within a single household (Albanese, 2010; Statistics Canada, 2018). In 2016, 18.3% of Indigenous peoples lived in a home that was crowded in comparison to about 8.5% of non-Indigenous Canadians (Statistics Canada, 2018) and 19.4% of Indigenous people lived in a home requiring major repairs (Statistics Canada, 2017d).

Although the health of Indigenous people in Canada has been improving, they continue to experience health disparities and have a disproportionate burden of disease and these differences are attributed to social, economic, cultural, and political inequality (NCCIH, 2013). Furthermore, there are often disagreements as to whether it is the Federal or Provincial governments' jurisdiction to work to close the gap on inequalities and improve access to health services and these disagreements result in continued service barriers for families (Boksa, Joober, & Kirmayer, 2015; NCCIH, 2011). In addition, there are challenges in the provision of health and mental services within rural and remote areas but also delivering services that are appropriately responsive to diverse Indigenous populations (Boksa, Joober, & Kirmayer, 2015). The NCCIH (2011) indicated that strategies to improve access to health services and improve health outcomes, must not solely focus on increasing access to seeing a health professional or treating illness, but must focus on the many socio-economic disparities that act as barriers to access and

utilization of services, and while these disparities continue to exist, access to services will remain a concern for Indigenous people in Canada.

Not only is general health a concern, but Indigenous people in Canada may experience disproportionately high rates of mental health-related concerns (Kirmayer et al., 2000; Kirmayer, Brass, & Tait, 2000). Moreover, due to distrust in the system, many Indigenous people may not receive mental health services (Mental Health Commission of Canada, 2014). Kirmayer (2012) noted that although there are many reports of significantly higher estimates of suicide and mental illness among Indigenous people, when looking across communities, the rates tend to be more variable and some communities may even demonstrate lower suicide rates than those in the Canadian population. However, there is also evidence that Indigenous people in Canada experience higher rates of suicide, substance abuse, violence, and feelings of demoralization, depression, and issues related to trauma and these issues may be particularly prominent in youth (de Leeuw, Greenwood, & Cameron, 2010; Kirmayer, Brass, Tait, 2000; Nelson & Wilson, 2017). The Public Health Agency of Canada (2016) reported that suicide and self-inflicted injuries are the leading causes of death among Indigenous people under the age of 44 and 13% of First Nation adults living on-reserve have experienced a suicide attempt. The suicide rate among First Nations people is said to be three times the rate of non-Indigenous people, two times the general population rate for Metis people, and nine times higher for Inuit people (Kumar & Tjepkema, 2019). Indigenous youth are five to six times more likely to die by suicide than those in the general population, (Public Health Agency of Canada, 2016). It has also been noted that mental health related concerns may stem from the legacy of the residential school system and forced assimilation which continues to have lasting and intergenerational impact on Indigenous individuals, families, and communities (Kirmayer, Simpson & Cargo, 2003).

Unfortunately, mental health service delivery may be inadequate for serving Indigenous peoples in Canada. A barrier may be accessibility and not having health services available in rural or remote areas but also due to services being more focused on western medical models which incorporate colonial conceptualizations of mental health and interventions rather than Indigenous holistic views of healing (Boksa, Joober, Kirmayer, 2015; NCCIH, 2012 & 2013; Nelson & Wilson, 2017). Therefore, a shift in service delivery to incorporate Indigenous principles of health would greatly help support Indigenous people receive mental health services when needed. Boksa, Joober, & Kirmayer (2015) reported that Indigenous communities have a strong role in advancing mental health services and are developing wellness programs that incorporate both western models as well as Indigenous practices. Moreover, it is important to recognize that even with the significant inequalities in the social determinants of health faced by Indigenous peoples in Canada, Indigenous people exhibit a great deal of resilience and have been instrumental in encouraging the incorporation of Indigenous approaches to health, including a focus on a healthy balance of four elements: physical, emotional, mental, and spiritual (NCCIH, 2013). Indigenous people are also a strong driver in conducting research and developing and promoting strategies that address social determinants of health (NCCIH, 2012). Furthermore, there is starting to be a shift from focusing on health challenges to improving health from a wellness and a strengths-based approach (Pulla, 2013). Kirmayer, Simpson, and Cargo (2003) note that efforts made to the recovery of Indigenous culture, traditions, languages, and spirituality would be healing for the community. They suggested that in order to advance mental health services for Indigenous people, those delivering services must adjust their own conceptualization and biomedical culture as a way to work toward integrating Indigenous perspectives (Kirmayer, Simpson, & Cargo, 2003). While a focus on health for Indigenous

people should continue to be a priority, it is important to recognize the social, economic, and political climates that influence health, and the impacts these climates have on Indigenous peoples in Canada (NCCIH, 2013).

Immigrant populations. Statistics Canada's (2017) definition of ethnic origin (also known as ethnic ancestry), refers to the ethnic or cultural origins of an individual's ancestors. It is suggested that ethnic origin "not be confused with language, place of birth, or citizenship" (Statistics Canada, 2017f). For example, an individual may identify their ethnic origin as being Ukrainian, speak English and French, but be born in the United States and have Canadian citizenship (Statistics Canada, 2017f). The foreign-born population (also known as the immigrant population) denotes individuals who are born in another country and are landed immigrants in Canada[1] (Statistics Canada, 2006). Recent immigrants (also referred to as newcomers) refers to immigrants who came to Canada up to five years[2] prior to a given census year (Statistics Canada, 2006). It is important to note that, at times, the term "newcomer" has been used in the literature to describe any individual newly arrived to Canada and may not make the distinction between immigrants and refugees. A refugee is a person who is unable or unwilling to return to their country of nationality due to fears of persecution for reasons of race, religion, nationality, or membership in a particular social group or political opinion (Immigration and Refugee Protection Act, 2001). Visible minorities are defined as "persons, other than Indigenous peoples, who are non-Caucasian in race or non-white in colour" (Statistics Canada, 2013)[3].

[1] The foreign-born population generally excludes persons born outside Canada who are Canadian citizens by birth (Statistics Canada, 2006).
[2] Some references define "recent immigrants" as being in Canada less than 10 years as opposed to 5 years. In the current study, 5 years is the predominant way "recent" is being used, but it will be highlighted where sources use the 10-year definition.
[3] Under the Statistics Canada (2013) definition, the visible minority populations consist primarily of: Chinese, South Asian, Black, Arab, West Asian, Filipino, Southeast Asian, Latin American, Japanese, and Korean.

In 2016, the foreign-born population represented about 21.9% of the total population (Statistics Canada, 2017g). Children under the age of 15, who were foreign-born or had a parent who was foreign-born, represented 37.5% of children in Canada (Statistics Canada, 2017g). In general, the poverty rate remains relatively high among immigrants compared to those who are Canadian-Born (Picot & Lu, 2017). Recent immigrants (those in Canada less than 10 years) have a poverty rate of 20.3% compared to the overall poverty rate of 8.8% (Statistics Canada, 2017g). Picot and Lou (2017) noted that immigrants living with chronic low-income are those who are unable to emerge out of poverty (incomes below LICO) for 5 years or more, and represent 12.3% of those in low-income. Picot and Lu (2017) reported that the chronic low-income rate was 2.6 times higher in 2000 among immigrants than Canadian-Born and 3.3 times higher in 2012 (Picot & Lu, 2017). They listed that in 2012, there was a marginal difference in the chronic low-income rates between those who had been in Canada for 5 to 10 years compared to those who had been in Canada for 16-20 years, which suggests that chronic low-income was not exclusive to those who had arrived in Canada more recently (Picot & Lu, 2017).

In 2015, immigrants had an unemployment rate of 10%, which was higher than the 7% rate for those who were Canadian-Born (Statistics Canada, 2016). Many immigrants are also visible minorities and it has been found they are more likely to be unemployed or underemployed, have less full-time employment opportunities, and receive lower wages than other Canadians, despite often having a high level of skills and education (Government of Canada, 2016; Raphael, 2011; Sharma, 2012). For example, in 2010, the average earnings for working age visible minorities was $42,032 compared to $47,634 for those who were not part of a visible minority group (Government of Canada, 2016). In addition, poverty within immigrant

families can have a significant impact on children. The economic difficulties may lead to inadequate education for children, which may then result in poorer employment opportunities as those children become adults (Sharma, 2012). In order to prevent the intergeneration transmission of poverty, it is important to focus prevention and intervention strategies aimed towards both adults and children.

There have been several studies that demonstrate that immigrants tend to be healthier than the general population of both the country of origin and the country of settlement (Beiser, 2005; Kirmayer et al., 2011; Vang Sigouin, Flenon & Gagnon, 2017) and immigrants tend to demonstrate lower rates of mental health conditions than the general population (Kirmayer et al., 2011). However, it has also been noted that the mental health of immigrants tends to become comparable to that of the general population over time (Kirmayer et al., 2011), and the nature of the health advantage is not always clear in the literature.

The notion that immigrants are often healthier than the general population of the host country has been termed "the healthy immigrant effect" (Statistics Canada, 2013; Vang, Sigouin, & Gagnon, 2017) or "immigrant paradox" by American researchers (e.g. Hernandez, Denton, Macartney, & Blanchard, 2012). The reasons for the seemingly better overall health and well-being of immigrants compared to those in the country of settlement may be reflective of the intense selection process immigrants must go through to enter the country (Kirmayer et al., 2011; Vang et al., 2017). That is, those who are more educated, have better language skills, higher incomes, and are healthy are more likely to be selected for entry (Kirmayer et al., 2011; Lu & Ng, 2019; Vang et al., 2017). In a more recent systematic review, Vang, Sigouin, Flenon, and Gagnon (2017) identified several key findings related to the "healthy immigrant effect". Importantly, they reported that the healthy immigrant effect is not universally found across

studies and that the health advantage varies within stages of the life course and by the health outcome under investigation. Their review found that the healthy immigrant effect was most prominent for adults, and less so for children, adolescents, and seniors (Vang, et al., 2017). They also noted a link to the duration of residence in the country, with those who are newer to the country, generally having the health advantages. However, they indicated that this may be a reflection of cross-sectional nature of data used in most of the studies reviewed (Vang et al., 2017). In terms of general health among adult immigrants, Vang et al. (2017) reported that healthy immigrant effect applied to several conditions such as mental health, chronic conditions, disability/functional limitations, risk behaviors, and that there was a particularly clear effect for mortality.

Particularly pertinent to the current study, are Vang et al.'s (2017) findings surrounding mental health in the immigrant population. Their findings show some evidence of the healthy immigrant effect but this advantage was not found in all studies reviewed and there is still conflicting information on who has the advantage and how long the advantage lasts. For instance, in Vang et al's (2017) review, it was revealed that immigrant mothers experienced poorer mental health rates in terms of perinatal and postpartum depression, and postpartum depression was found to be higher for those more recently in Canada. For adults in general, Vang et al. (2017) reviewed ten studies on mental health and found that immigrants seemed to fare better in most studies with results showing that immigrants were significantly less likely to report symptoms of depression, anxiety, and psychosocial distress. However, they reported one study that found worse mental health for immigrants (among a homeless study group; Dealberto, Middlebro, & Farrell, 2011 as cited in Vang et al, 2017) and another found minimal differences between immigration status and psychological distress (Pahwa et al., 2012; as cited in Vang et

al., 2017). Three studies found mixed results with mental health appearing to vary based on gender, country of origin or duration of time in Canada. Variations were found across studies in relation to duration of time in Canada and mental health. One study found a health advantage for recent immigrants (those in Canada for less than 10 years) but not for those in Canada for a longer duration (Wu & Schimmele, 2005 as cited in Vang, et al, 2017). Another study showed that immigrants continued to show better mental health than Canadian-born individuals 20 years post migration and but after 20 years mental health became similar to those in the country of settlement (Ali, 2005 as cited in Vang et al, 2017).

Vang, et al. (2017) also found conflicting evidence as to whether foreign-born children are healthier or more at-risk than those in the country of settlement, and there has been less inquiry into this area. Vang et al. (2017) reported that immigrant children's health varied across different health outcomes and that there was no clear conclusion regarding health advantage or disadvantage, compared to Canadian-Born children. In terms of mental health, they reviewed three studies which revealed mixed results on whether there is a mental health advantage for immigrant children. One found that second and third generation immigrant children had less internalizing and externalizing problems (Beiser et al, 2002 as cited in Vang et al., 2017). A study using provincial estimates showed that first-generation children have more psychosocial distress than second-generation peers (Hamilton, Noh & Adalf, 2009 as cited in Vang et al., 2017), whereas another sub-provincial level study showed that internalizing symptoms were better for first-generation immigrant children (Vang, et al., 2017). For externalizing symptoms, immigrant and host-country children were similar but results varied based on the income levels of the country of origin (Montazer & Wheaton, 2011 as cited in Vang et al., 2017). Mental health estimates among immigrant children may also vary based on sample population. For instance,

Kirmayer et al. (2011) indicated that some smaller studies that use data from community samples or treatment facilities, may find youth from immigrant families have an increased risk of psychiatric disorders, whereas studies using large community surveys show that the rates among immigrant children are not greater than of those who are Canadian-born, and some studies even find better outcomes for immigrant youth.

Despite a few exceptions, it appears that, overall, immigrants generally tend to have some mental health advantage as compared to their Canadian-Born counterparts. However, it could be argued that the rates of mental health problems among immigrants may not always reflect a healthier population, but may represent an underreporting of mental health issues. Kirmayer et al. (2011) noted that "immigrants and refugees are less likely than their Canadian-born counterparts to seek out or be referred to mental health services, even when they experience comparable levels of distress" (p. 962). Furthermore, there are social, cultural, religious, and linguistic differences in how different groups understands and copes with mental health related issues, including whether they access services, how mental health is assessed, and how it is approached by mental health professionals (Gopalkrishnan, 2018). There is also some evidence that there may be increased risk of mental health issues and that racism and discrimination may play a role. For instance, Kirmayer et al. (2011) reported a meta-analysis that revealed a higher risk of psychotic disorders among first-and-second generation immigrants and that those from a developing country and where the population is mostly black increased the risk, which suggested that racism or discrimination may have been a factor. Several Canadian studies (Noh, Beiser, & Kaspar 1999; Noh & Kaspar, 2003; Noh, Kaspar, Wickrama 2007) have found a connection between racism and discrimination and increased mental health issues among immigrants and refugees. A more recent study by Straiton, Aambo, and Johansen (2019) regarding immigrants in

Norway, found that about 27% of the sample reported that they perceived discrimination within the last 12-months and that this was predictive of 1.86 higher odds of mental health problems. They did not find a similar association for general health (Straiton, Aambo, & Johansen, 2019). In addition, psychiatric illnesses are often more highly stigmatized in some countries and cultures and, thus, individuals may be reluctant to attribute symptoms they experience to a mental condition because of stigma, fear of losing respect, or fear of bringing shame to their family or communities (Gopalkrishnan, 2018; Kirmayer et al, 2011).

Furthermore, differing estimates of mental health among immigrants and refugees (or even between various cultural groups), may not only be attributed to varying perspectives about mental health and the origins of mental illness but also to how psychological issues are assessed. Generally, what is considered normal as opposed to abnormal behavior is culturally constructed (Yamada & Marsella, 2013). Symptoms of mental illness in the North American conceptualization of mental health may be considered normal in other cultures (Yamada & Marsella, 2013). Various cultures have differing expectations as to what degree of conformity or deviance to norms is considered acceptable, which may lead to differing estimates of when behavior is considered to reflect a mental health issue (Yamada & Marsella, 2013). These culturally-defined standards may create difficulty for measuring mental health, particularly in a research context where standardized measures are often used. Culturally-competent clinicians can use their judgment or follow-up questions to distinguish whether responses to questions is perceived by the individual as an issue of concern or is simply part of acceptable cultural norms (Yamada & Marsella, 2013). However, in research contexts where the use of standardized forms is more common, it can be difficult to determine how individuals of various cultures interpret questions related to mental health concerns or behaviors and whether an endorsed item is, in fact,

an indication of an issue. Many well-established mental health measures may have included individuals from various cultural backgrounds in the standardization sample often in relative proportions to the census data in the country of publication (e.g., BASC-2: Reynolds & Kamphaus, 2004) but may not necessarily take into consideration whether the individual is foreign-born and, if so, how long they have resided in the country of standardization. Many measures often do not, initially, include comprehensive standardization samples and require further research on the applicability of the tool across various cultures after the tool has been published (e.g., Family Assessment Device; Epstein, Baldwin, & Bishop, 1983) which can increase the time to establish validity. All of the aforementioned challenges in measuring psychological constructs across cultures can contribute to the difficulty in making conclusions as to whether immigrants and refugees have higher or lower prevalence of mental health issues.

Despite the complexity of measuring mental health across cultures and the notion that immigrants may demonstrate better mental health, there are aspects of the migration experience that may come with inherent risks to well-being given the changes that individuals and families may encounter. Kirmayer et al. (2011) explain that there are three major sets of transitions that coincide with migration phases, and that navigating these can potentially impact mental health. The major sets of transitions are: "changes in the personal ties and the reconstruction of social networks, the move from one socio-economic status to another, and the transition from one cultural system to another" (p.961). The three coinciding phases of migration are: pre-migration, migration, and resettlement each which come with its own risks to mental health (Kirmayer et al., 2011). For instance, in the pre-migration stage, there is a risk to mental health while undergoing the change in social roles and networks. Risks during this stage can be particularly applicable to children and youth who may experience change or disruption in education

(Kirmayer et al., 2011). During the migration phase, the mental health risks may be due to uncertainty regarding citizenship, uncertainty about the areas where one will reside, as well as disruption to family and community networks (Kirmayer et al., 2011). According to Kirmayer et al. (2011) resettlement can bring hope and optimism but can also present risks to mental health when individuals and families experience losses due to migration and must face a variety of challenges such as housing, employment, having credentials recognized, and possibly racism and discrimination. Kirmayer et al. (2011) indicated that during resettlement children may experience difficulties with a new school setting, challenges with acculturation and discrimination or social exclusion from peers. Mental health effects for adults may also come from changes in social status, such as going from a higher status job in the country of origin to a less prominent role in the country of settlement. (Hansson, Tuck, Lurie, & McKenzine, 2010). Importantly, there have been some indications that immigrants may be at higher risk for suicidal behavior (Forte et al., 2018; Johnston, 2012). Despite the evidence that immigrants may be a generally healthier group, there are studies that show increased mental health issues and many aspects of the migration experience can leave immigrants, particularly children, vulnerable to both economic difficulties and mental health issues. Children in immigrant families may be a group who is underserved by social systems and, therefore, should be the focus of research efforts.

Refugees. It is somewhat common in the literature to see both immigrants and refugees included in the same analytic or research groups. This makes sense in some regards, because, often when recruiting newcomers for research, the refugee population is much smaller. Thus, having an adequate sample size may prevent refugees from being considered a distinct study group. In addition, both immigrants and refugees may face similar challenges in the resettlement process (i.e., language barriers, housing and employment challenges, racism, discrimination, or

adjusting to a new culture). However, there are some fundamental differences between immigrant and refugee populations that may make it more appropriate to consider them as distinct groups in some studies. It has been suggested that migrating to a new country causes stress regardless of whether the individuals decided to move voluntarily or were forced to re-locate involuntarily (Dow, 2011). However, in the case of refugees, there may be added stress when individuals are forced to escape their country due to persecution and fear they could be injured or killed should they remain or return to the home country. Dow (2011) suggested that immigrants have likely been able to make an educated choice to change their country of residence, have a choice regarding the location of settlement, and have been able to plan for the move psychologically, whereas refugees usually have to escape their situations on short notice and often have to relocate to unknown destinations. Both immigrants and refugees may have experienced hardships in their country of origin, but refugees are more likely to have been exposed to violence, rape, torture, harsh living conditions (e.g., refugee camps), and may be more likely to suffer conditions such as post-traumatic stress disorder (PTSD; Kirmayer et al., 2011; Hodes, Anagnostopoulou, & Skokauskas, 2018). In contrast to the health advantages in immigrants, Lu and Ng (2019), noted that there was inconclusive evidence as to the healthy immigrant effect in refugees, and this may be a reflection of the selection process for entry into Canada. Immigrants are often selected for entry to Canada based on higher economic standing and health, whereas refugees are permitted entry for humanitarian reasons and may not have the same medical screening requirements (Lu & Ng, 2019).

Fazel, Wheeler, and Danesh (2005) conducted a systematic review to determine the prevalence rates of serious mental disorders among refugees who resettled in western countries. From their meta-analysis, they found that about 1 in 10 adults, (9% of 6743) were diagnosed

with PTSD, 1 in 20 with major depression, and 1 in 25 with generalized anxiety disorder and that there was co-morbidity among diagnoses. In the review, they found that among 260 refugee children, the prevalence of PTSD was approximately 11%. They concluded that refugees experienced depression at similar rates as the general population but could be about 10 times more likely to have PTSD (Fazel, Wheeler & Danesh, 2005). Other studies show much higher rates of mental health issues among refugee children. Fazil and Reavell (2016) reported that the prevalence range for PTSD among refugee minors was 40-60% and depression ranges from 25-50%. A Canadian study of refugee children found that 21% had psychiatric diagnoses, with anxiety, major depression, and conduct disorders being the most common (Tousignant et al, 1999). In addition to the mental-health effects associated with facing violence and witnessing unimaginable atrocities, there may be additional stressors caused by feeling powerlessness to protect one's children and family or feeling unable to change their situation. However, Hodes, Anagnostopoulou, and Skokauskas (2018) indicated that even though refugees experience adversity both before and after migration, there are significant variations in the range of prevalence of psychological symptomology and not all refugee children and youth who are exposed to adversity develop disorders, and they may actually demonstrate a high level of resilience. They also reported that parental psychological distress seems to have an impact on children's adjustment and that some refugee families may benefit from access to mental health services. Hodes et al. (2018) reinforce the importance of having a health system that is mindful of the link between the migration history, asylum issues, and cultural perceptions of psychological symptomology, as well an understanding that there can be cultural differences in attitudes towards interventions.

Another important consideration, as a result of differing pre-migration histories, there may also be several socio-demographic differences between immigrants and refugees. As previously noted, in contrast to the way many immigrants are selected for entry into Canada, refugees are often selected for humanitarian or compassionate purposes rather than other characteristics such as health, education, employment skills or economic stability (Lu & Ng, 2019). Thus, refugees may face additional barriers to economic success, particularly in the first few years of settlement. For instance, DeVortez, Pivnenko, and Beiser (2004) noted that in terms of language, 75% of refugees from European countries and 57% of those from other regions did not speak either of Canada's official languages. This was in comparison with almost 70% of immigrants who spoke either English or French. Devortez et al. (2004) also report that 80% refugees from non-European countries had a secondary level of education or less (refugees from Europe had educational equivalencies similar to other skilled Canadian immigrants). In addition, even after they settle in Canada, there is evidence that refugees may have difficulty obtaining post-secondary education. Prokopenko (2018) reported that participating in post-secondary education during the first 7 years of arrival is associated with a higher probability of employment, but refugees participate at a lower rate than immigrants from the economic class (they participate at the same rate as family class) during their first year of arrival, and this may be due to difficulties with language or insufficient pre-requisites (Prokopenko, 2018). It may also be more challenging for refugees, who have educational credentials, to receive documentation of their qualifications from educational institutions that are in conflict areas, which then limits access to employment or educational opportunities (Prokopenko, 2018).

Not surprisingly, how well refugees fare economically in the country of settlement largely depends on their employment opportunities. Devortez et al. (2004) reported in their study

period (1980-2001) that only 52% of the refugees aged 20 to 64 found employment. However, those that did find employment had similar earnings as family-class immigrants both at the time of arrival and in subsequent years after settlement (Devortez et al., 2004). Picot, Zhang, and Hou (2019) looked at employment rates of refugees entering Canada between 1980-2009 and found that for 7 out of 13 of the major source countries examined, 75% of male refugees had found employment within 5 years of entry, but also found that income earnings varied greatly. They a-reported that female refugees from a number of source countries (e.g., Iran, Somalia, Afghanistan, Iraq, and Pakistan) had very low employment rates (Picot, Zhang, & Hou, 2019). Employment prospects are particularly important as it has been noted employment improves the mental health of refugees (Hansson, Tuck, Lurie, & McKenzine, 2009). The economic outcomes of refugees in Canada may be largely dependent on local employment opportunities and, thus, programs aimed at improving integration into the workforce and educational opportunities are key. Refugees will be considered a distinct group in the current study, given that there are expected differences on the key variables included in the current study, coupled with the limited previous research on the effects of low-income, family functioning on the mental health of children and caregivers in refugee families.

Lone-Parent Families. Although lone-parent families are not in and of themselves a distinct group for analysis in the current study, lone-parent status is an important consideration, given that lone-parents (particularly female headed) are more likely to be living in situations of economic disadvantage. In 2015, nearly 2 in 5 (38.9%) children in lone-parent families lived in low-income which was 3.5 times higher than for two-parent families (11.2%; Statistics Canada, 2017b). In lone-parent families, the majority of children lived with their mother. The low-income

rate for these children was higher (42%) than those who lived with their father (25.5%; Statistics Canada, 2017b).

In addition, lone-parent status is also prevalent in vulnerable groups, particularly those in Indigenous or visible minority groups. Results from the 2016 census showed that among Indigenous children aged 0 to 4, more than one-third lived with a lone-parent (38.9% of First Nations, 25.5% of Métis, and 26.5% of Inuit children; Statistics Canada, 2017c). Milan (2015) reported that in 2011, about 9.8% of immigrant women were lone-mothers, which was marginally higher than Canadian-born women (8.1%), but women who were recent immigrants tended to have even lower rates of lone-parent status (6.9%). Milan (2015) reported that 2.3% of immigrant men were lone-parents with lower rates among recently arrived immigrant men (1.3%). For women who were visible minorities, 10% were lone-parents in comparison to a rate of 8.1% among those who were not visible minorities (Milan, 2015).

The relationships between income, family type, and outcomes for both parents and children have been reported in previous studies. For instance, Kerr and Beaujot (2002) used data from the National Survey of Children and Youth to investigate impacts of family structure, income, family functioning, and children's emotional, behavioral, and psychological difficulties (hyperactivity, emotional disorder, physical aggression, indirect aggression, and property offenses). They found that living in a female-headed lone-parent family or a step-family was an important factor in predicting emotional, behavioral, and psychological outcomes in children (Kerr & Beaujot, 2002). However, family functioning was found to be a stronger predictor, with better family functioning resulting in less child difficulties. This finding varied based on family type with family functioning being most related to childhood outcomes in two-parent families than in step and lone-parent families (Kerr & Beaujot, 2002). They found lone-parent families

had lower family functioning scores than two-parent families and two-parent step families. Only a weak relationship between low-income and children's outcomes was found, but they found an interaction with family type. They reported that the incidence of low-income to be comparatively high (67%) in female-headed lone-parent families than to those in step-families (23%) or intact two-parent families (14%). For female-headed lone-parent families and step-families, low-income was found to have a significant effect on child psychosocial outcomes but this was not found for those from two-parent families (Kerr & Beaujot, 2002). However, it was also noted that low-income was not as important as other factors such as family functioning, number of children in the family or education and age of parents (Kerr & Beaujot, 2002). This study did not include a measure of caregiver's mental health, but previous studies have found higher rates of stress, depression, anxiety, and other psychiatric disorders in single mothers (Cairney et al, 2006; Carirney, Boyle, Offord, & Rancine, 2003; Cairney, Thorpe, Rietschlin, Avison, 1999) and that these types of conditions were significantly more likely for lower-income single mothers (Byrne et al., 1998; Crosier, Butterworth, & Rodgers, 2007; Lipman, Offord, & Boyle, 1997). Given the relationship between income, family type, and children's social, emotional, and behavioral outcomes, it is of importance to investigate whether there is an effect of family type on caregiver's mental health and family functioning as well as on children's social, emotional, and behavioral outcomes in low-income families.

Theoretical Framework

A number of theoretical frameworks have been proposed to explain the relationships between the economic environment in which a child resides and childhood social, emotional, and behavioral well-being. The following section focuses on three related theories that inform the current study about the proposed relationships between living in impoverished situations and

children's well-being. The first, and most well-known theory, is Bronfenbrenner's Bioecological theory of human development (Bronfenbrenner, 1979). Second, a more recent framework by Shonkoff et al. (2010, 2012), the ecobiodevelopmental explanatory framework, is presented. Finally, Conger and Elder's (1994) family-stress model is discussed. Principles from each of the theories are presented below and are used as a mechanism to develop hypotheses about the nature of the relationship between contextual factors in which children live and their social, emotional, and behavioral well-being. In Tudge, Morkrova, Hatfield, and Karnik's (2009) article regarding the use of Bronfenbrenner's theory, they noted researchers do not need to use all aspects of a theory, but can draw on specific concepts. However, researchers should clearly acknowledge when only components are being used to avoid misinterpretation as to the degree to which the theory is being tested (Tudge, 2009). While the current study uses the work of other scholars' previously developed theories, it is important to note that it is not the intention to test these theories or even substantial components of the theory. The current study uses principles from the following theories to formulate a framework for understanding the relationships of interest but does not test any theory in its entirety.

Principles from Bronfenbrenner's Bioecological Model of Development

Bronfenbrenner's bioecological model of human development that he proposed in the mid 1970's and continued to develop until 2005 suggests that, when looking at factors that affect child development and well-being, it is imperative to look at the environments in which children grow (Bronfenbrenner, 1994; Rosa & Tudge, 2013). Rosa and Tudge (2013) described the evolution of Bronfenbrenner's theory and both earlier versions and components that were added later, are discussed. In Bronfenbrenner's early model, there are five general systems that influence child development. The first is the microsystem, where children are influenced by their

immediate day-to-day interactions and relationships such as with family, school, daycare, or peer groups (Bronfenbrenner, 1994). Importantly, stable and healthy relationships at this level would be expected to promote positive development. The second is the mesosystem, which takes into consideration the linking between two settings of the developing child, such as the link between school and home, or between peer group and family (Bronfenbrenner, 1994). Thus, this system constitutes the interaction between two microsystems, and research could be conducted across both settings (Rosa & Tudge, 2013). The third is the exosystem, which represents the connection between two or more systems, at least one of which the child is not actively involved, but where they are still indirectly affected. Examples of exosystems are parents' workplace or children's neighborhood (Bronfenbrenner, 1994). The fourth is the macrosystem, which comprises the overarching system of culture, beliefs, and values, and customs but also the larger political and economic systems (Bronfenbrenner, 1994). The fifth and final system (which was added later than the other four systems) is the chronosystem, which considers how time influences development (Bronfenbrenner, 1994). It is not focused exclusively on changes that come with chronological age, but also transitions that can occur over the life course (socio-economic status, family structure, and parents' employment status) as well as societal changes over time, such as economic cycles (Bronfenbrenner, 1994, Rosa & Tudge, 2013).

Important to the current study is the components Bronfenbrenner added to the theory later on in its development, namely the "Process-Person-Context-Time" model (Bronfenbrenner, 1995; Eriksson, Ghazinour, & Hammarstrom, 2018; Rosa & Tudge, 2013). According to this part of the theory, proximal processes are key to human development and involve the reciprocal interaction between children and significant people in their environment, as well as interactions with objects and symbols (Eriksson et al., 2018). Bronfenbrenner contended that proximal

processes were the most powerful predictors of human development and are key aspects to be included in studies (Eriksson et al., 2018). Eriksson et al. (2018) discussed how aspects of Bronfenbrenner's theory can be included in research. They suggest to assess "Processes" would be to include measurements of interactions with significant persons, objects or symbols. Measuring aspects of "person" would be to assess how individual characteristics (e.g., age, gender, temperament, intelligence, etc.) impact the activities and interactions with individuals close to the developing person (Eriksson et al., 2018). "Context" would be to investigate four interrelated systems: the microsystem (immediate environment), mesosystem (interactions among microsystems), exosystems (settings with indirect impacts), and macrosystem (larger belief systems; Eriksson et al., 2018). An example of including "context" in research would be to look at how shared belief systems within cultural groups relate to variables under investigation (Eriksson et al., 2018). It has been suggested that including "time" in a research study usually means conducting a longitudinal study. It is important to note that Eriksson et al. (2018) claim that Bronfenbrenner did not propose that each of the four components need to be included in every research design, but noted that studies that use this framework should focus on proximal processes and demonstrate how characteristics of the individual, and the context in which they occur, influence the outcomes of interest (Eriksson et al., 2018; Tudge et al., 2009).

In the current study, the relationships between family functioning and impact on children's social, emotional, and behavioral functioning is an example of a measure of proximal processes. Context variables are caregiver mental health, economic disadvantage, as well as group membership (e.g., Canadian-Born Indigenous, Canadian-Born Non-Indigenous, Foreign-Born Immigrant, and Foreign-Born Refugee). However, with the cross-sectional nature of the design, time is not included.

Bronfenbrenner's framework is particularly important to the study of economic disadvantage and the social, emotional, and behavioral well-being of children as it provides a mechanism for understanding how contextual factors influence outcomes. It provides the basis by which models such as the Family Stress Model (Conger & Elder, 1994; Conger & Donnellan, 2007) and the conceptual model proposed in this study can be derived. Models are discussed in more detail in the following sections.

Principles from Shonkoff et al.'s Ecobiodevelopmental Framework

Shonkoff (2010) described a multidisciplinary model that incorporates biology, neuroscience, genomics, ecology, and developmental explanations for relationships between children's environments and their physiology. Intersections between biological and social sciences help inform this framework that postulates that early experiences are biologically connected to the development of multiple organ systems, including brain development (Shonkoff, 2010). Important to the understanding of the ecobiodevelopmental framework, the *Center on the Developing Child* at Harvard University (2007a, 2007b) released reports that list seven core concepts of child development, with several of the concepts being key to the theoretical framework of the current study.

The first concept listed in the Center on the Developing Child (2007a) report is that child development is the foundation for community and economic development (p.4). Healthy early development promotes strong foundations for successful societal participation into adulthood. Second, children's brains are constructed over time and a considerable portion develops in early childhood (p.5). The early experiences create a foundation for learning, behavior, and physical and mental health across the lifespan. Third, there is an interactive influence of genes and experience that helps form the developing brain, with a key component being the nature of the

children's relationships with their parents, caregivers, or other members of their family and community. The most significant relationships are said to begin in the family, and a key component is the "serve and return" interactions children have with their caregivers (p.6). Fourth, both brain and skill development are built "from the bottom up," with early circuits and skills providing the foundation for the growth of more advanced circuits and skills (p.7). Fifth, the cognitive, emotional, and social capabilities are integrated throughout the lifetime and the relationship between these capabilities develops continuously over time (p.8). The social and emotional well-being and cognitive competencies constitute foundations for growth and development. Sixth, the framework suggests chemical stress reactions in children can be triggered by adverse environmental factors (p.9). Chronically elevated stress hormones (e.g., cortisol and adrenaline) lead to stress on other body systems including the brain, which then has an impact on cognition, learning, behavior, and emotional regulation across the lifespan. Toxic stress may come from prolonged activation of the stress system, such as from extreme poverty, emotional abuse, maternal depression, parental substance abuse, and family violence. The seventh concept of the framework contends that providing the right conditions for healthy development in childhood is more effective than treating problems later on (p.12). The model suggests that relationships with adults can mitigate some of the adverse reactions that come from the environment, such as living in poverty (Center on the Developing Child at Harvard University, 2007a; 2007 b). These concepts then formulate the basis for the biodevelopmental framework wherein the early foundations of child development have an interactive impact on a child's biology which subsequently affects outcomes into adulthood and across the lifespan.

Shonkoff (2010) noted that when children's early environments are nurturing, stable, and predictable then healthy brain development would be expected. However, when early

experiences are challenging such as in the case of abuse, neglect, or unstable living environments, the stress management system can become overactive and result in disruption to developing brain circuitry. Shonkoff (2010) indicated that the prolonged activation of the stress system in childhood can lead to a predisposition for subsequent activation of the stress system later in life. Related to the sixth concept listed above, Shonkoff (2010) explained three categorizations of stress responses to differentiate stress related to normal life challenges from those responses that would create a significant negative impact on health and development. First, Shonkoff (2010) described positive stress which is characterized by moderate and transitory stress reactions (e.g., increased, heart rate, blood pressure, and cortisol). These types of reactions are said to occur in a child's normal everyday experiences, such as dealing with frustration, receiving an immunization or getting used to a new day care (Shonkoff, 2010). A primary feature is that these occur in the context of healthy environments where caregivers can assist the child with the temporary stress response. Second, Shonkoff (2010) described another stress response, tolerable stress, wherein the stressful situation has the potential to impede brain development. He states that these types of situations may include parental divorce, death in the family, homelessness, or natural disaster. However, this type of stress can be offset by supportive caregivers that can assist the child in coping with the stressor. Without this support, long-term effects such as posttraumatic stress disorder may occur (Shonkoff, 2010). Similar to the first categorization, the important characteristic is the presence of a supportive caregiver to help with the stress response. Shonkoff (2010) described a third category, toxic stress, wherein the child experiences a more prominent, recurrent or ongoing activation of the stress response system and does not have the supportive caregiver to help return the stress system to a baseline level. Important to the current study is the notion that risk factors for toxic stress may come from areas

such as poverty or severe maternal depression. This toxic stress is said to disrupt brain development, to impact other body systems, and to lead to lower stress tolerances that can continue throughout the lifetime (Shonkoff, 2010). While living in low-income does not always equate to abusive or neglectful living environments, and many low-income children do have a supportive caregiver, those living in economic deprivation tend to be at greater risk for mental health issues and may be exposed to a greater number of risk factors that can lead to stressful situations or environments. The framework suggests that the relationships with adults and appropriate functioning within the family would be important factors impacting child well-being.

When it comes to applying the ecobiodevelopmental principles to developing interventions, Shonkoff (2012) suggested that

> Human health and development are the product of a complex mixture of biological adaptations and disruptions that result from the dynamic interaction of genetic predispositions and environmental influences. These mediators are shaped by three foundations of healthy development—child–adult relationships, aspects of the physical environment, and nutrition—that provide important targets of intervention to improve life outcomes. Caregiver and community capacities have a major influence on the evolving quality of these foundations, and the extent to which policies and programs generate high returns on investment is tied to their effectiveness in strengthening those capacities. (p. 17304)

Shonkoff (2010) contends that areas for further research, policy, or intervention development that use the elements of the biodevelopmental framework should be focused on three target domains: "(a) interactions among foundations of healthy development and sources of early adversity, (b) measures of physiological adaptation and disruption, and (c) both positive and negative outcomes in learning, behavior, and health" (p. 360). In the first target domain, Shonkoff (2010) noted that a child's relationships with the people closest to them are key to development and include both family and non-family members. Healthy relationships will promote proper development and act to mitigate stress situations. Furthermore, appropriate living

environments and proper nutrition are key foundational components to promoting healthy development (Shonkoff, 2010). Within the second domain, Shonkoff (2010) noted that a variety of physiological responses and biological variables may help inform both healthy development in children but also whether interventions were effective. Shonkoff's (2010) third target domain focuses on adult outcomes such as educational achievement, employment engagement, and health behaviors (including risk behaviors such as substance use), and using scientific evidence to describe the degree to which these are influenced by early childhood environments.

Shonkoff, Richter, van der Gaag, and Bhutta (2012) reported that the biodevelopmental framework helps programmers and decision makers realize how critical it is to ensure that the needs of those in the most disadvantaged situations are addressed. They suggested that, without intervention, the impacts of poverty pose long-term threats to both physical and mental health. Shonkoff (2012) noted that the extensive evidence from program evaluations and research on interventions lend support to the conclusion that intervention strategies can improve outcomes for children who live in low-income or who have parents with limited education and other social disadvantages, but the efficacy of programs and magnitude of impacts on outcomes can often be variable. Shonkoff et al. (2012) maintain that for children living economically disadvantaged situations, there have been noted benefits to developmental outcomes through interventions targeting physical and mental health of mothers, stability and security of families, childhood nutrition, basic health services, and creating culturally appropriate connections between social service programs and homes. Investigating factors such as caregiver mental health and family functioning may help explain the impact of living in economic disadvantage on children's outcomes and may be key areas that can be supported by services or interventions.

Principles from Conger and Elder's Family Stress Model

Tying into Bronfenbrenner's model, Eamon (2001) suggested that the Family Stress Model (Conger et al., 1992; Conger & Elder, 1994) is an example of how economic deprivation affects the microsystems of the family, in that it is often family processes (parental depression, marital relationship, etc.) that are found to mediate the relationships between economic disadvantage and children's socio-emotional functioning. One can see how poverty has an influence on all systems affecting the developing child. Concomitantly, when discussing economic effects on family systems, the macrosystem is particularly important because economic and political systems often have a strong influence on who is poor and for how long. Within these larger systems, are individuals with the power to fund initiatives that help alleviate the burdens that come from economic disadvantage. Although strategies should be aimed at all systems to improve social, emotional, and behavioral outcomes for children, changes in the macrosystem, (i.e., political and economic systems that perpetuate poverty), would be expected to be the most powerful and produce long-lasting improvements. However, not surprisingly, much of the research on socio-emotional development of children who live in poverty have focused on the microsystem of the family (Eamon, 2001; Eriksson et al., 2018) likely because this is an area particularly amenable to intervention.

In thinking about systems that might be amenable to interventions within low-income families, one might look at models that map how economic factors influence family and child outcomes. For instance, Conger and colleagues developed a model that helps explain the linkages between economic hardship, parental mental health, family processes, and negative childhood functioning. Their model, "The Family Stress Model" (FSM; Conger & Conger, 2002; Conger & Donnellan, 2007; Conger & Elder, 1994) proposes that economic difficulties have a

negative effect on parents' emotions, behaviors, and relationships. These, in turn, have a negative influence on the caregiver's ability to parent appropriately and family dynamics, which subsequently affects children's social, emotional, and behavioral outcomes (Conger et al., 2002; Conger & Conger, 2002, Conger & Donnellan, 2007). The FSM model suggests that the way in which the SES impacts families is through the degree to which economic hardship creates economic pressure within the family (Conger & Donnellan, 2007). Conger and Donnellan (2007) noted that indicators of economic hardship include "low income, high debt relative to assets, and negative financial events (e.g., increasing economic demands, recent income loss, and work instability)" (p. 179). According to the model, this economic hardship exerts an influence on family functioning and parental psychological adjustment largely through the economic pressure the hardship creates. Conger and Donnellan (2007) noted that economic pressure indicators include "(a) unmet material needs involving necessities such as adequate food and clothing, (b) the inability to pay bills or make ends meet, and (c) having to cut back on even necessary expenses (e.g. health insurance and medical care)" (p.179). They suggested that this "pressure" is what creates the psychological impact from the experiences of economic difficulties. The FSM further suggests that, as economic pressure increases, parents become at greater risk for psychological or behavioral problems, such as depression, anxiety, anger, substance abuse, or antisocial behavior (Conger & Donnellan, 2007). The model posits that the economic hardship and pressure leads to emotional distress among parents and that they may experience more marital conflicts, reduced warmth towards each other, and these relationship difficulties then impacts children. The distress and the relationship challenges can cause parents to become less affectionate towards children, less nurturing, less involved in everyday activities, and become more irritable, harsh, or inconsistent in parenting (Conger & Donnellan, 2007). As a result of

economic challenges, parental distress, and family disruption, children are at greater risk for experiencing both "decreased positive adjustment (e.g. cognitive ability, social competence, school success, attachment to parents) and increases in internalizing (e.g. symptoms of depression and anxiety) or externalizing problems" (e.g., aggressive and antisocial behavior; Conger & Donnellan, 2007, p. 179). Importantly, Conger and Donnellan (2007) noted that for lone-parent families, the inter-parental conflict component of the model may be excluded or can be replaced with the relationship between the parent and a step-parent or conflicts with a former spouse.

In sum, the basic premise of the model is that psychological distress experienced by parents and parenting behaviors mediates the relationship that is seen between economic disadvantage and the negative outcomes experienced by children (Conger et al., 1992; Conger & Elder, 1994). It should be noted that Conger and Donnellan (2007) also described a related model called the Family Investment Model, suggesting that income is related to positive child development. Specifically, income allows families to invest in their children by purchasing things that enhance child development such as learning materials, activities and experiences (e.g., museums, music lessons), enhanced standards of living (i.e. improved housing, food, clothing, medical care), whereas lower-income families need to focus more on investing in immediate needs (Conger & Donnellan, 2007). When parents have greater resources and invest in child development, better outcomes would be expected (Conger & Donnellan, 2007). While the current study focuses on the principles of the Family Stress Model, it is worth noting that the investment model is also key to the understanding of the economic impacts on children's development.

There have been several studies that use the FSM as a framework to investigate parental mental health and family relational processes as mediators between income and children's mental health. For example, Yeung, Linver and Brooks-Gunn (2002) used the family stress and investment models to investigate behavioral and cognitive development in children. Their results showed that children in higher income families had higher cognitive scores and less behavior problems. In terms of behavior, they found that the relationship between economic disadvantage and increased externalizing behavioral problems, was partially mediated by the child's physical home environment, maternal depressive symptoms, and parenting behaviors (Yeung, Linver & Brooks-Gunn, 2002). Consistent with the family stress model, they reported that increased maternal depressive symptoms were related to harsher parenting which then influenced the child's externalizing behavioral problems. It was found that maternal depressive symptoms were the best predictor of behavior problems and was the primary mediator between income and children's behavior (Yeung, Linver & Brooks-Gunn, 2002). They also noted that the effect of income on behavior problems was reduced and became non-significant after controlling for other socio-demographic and mediator variables. Similar findings were also reported in Linver, Brooks-Gunn and Kohen (2002) where children's cognitive ability and behavioral development were measured at age 3 and 5 years. Maternal mental health and parenting practices were found to mediate the relationships between economic disadvantage and behavioral outcomes (Linver, Brooks-Gunn & Kohen, 2002).

Kiernan and Huerta (2008) used the family stress and investment models to investigate the relationships between economic deprivation and children's internalizing and externalizing problems and cognitive development in 3-year olds and included both single and two-parent families. They looked at mediators such as reading activities, mother-child relationships, and

parental disciplinary practices. They found that living in economic disadvantage was related to increased maternal depression and increased internalizing and externalizing problems in children. The association between the economic measures and children's outcomes were found to be partially mediated by mother's depression, which was reported to account for a significant part of the effect (Kiernan & Huerta, 2008). Furthermore, they found direct relationships between maternal depression and externalizing and internalizing problems, with the impact on externalizing problems being stronger. They also noted that the relationship between economic factors and children's emotional and behavioral symptoms was partially mediated by parenting behaviors and maternal depression. They reported that depression reduced the positive relationship with the child and increased the use of harsh parenting which, in turn, was related to emotional and behavioral problems (Kiernan & Huerta, 2008). In terms of lone-parenting, the findings suggested that influence of maternal depression was more important to children's well-being in single mother households than in two-parent families (Kiernan & Huerta, 2008). An overall conclusion was that living with economic disadvantage has a greater influence on children's cognitive development, whereas, mother's mental health has a greater influence on children's emotional and behavioral outcomes. However, they noted that economic disadvantage leads to increased maternal depression which then impacts children's emotional and behavioral development (Kiernan & Huerta, 2008).

Similarly, Rijlaarsddam, et al. (2013) built upon the studies such as Yeung, Linver & Brooks-Gunn (2002) and Kiernan and Huerta (2008) and investigated the mediating mechanisms between economic disadvantage and children's emotional and behavioral problems in children, using data collected longitudinally from pre-natal to age 3 years. They found that children in lower economic households had increased externalizing and internalizing problems. In line with

the Family Stress Model, they found the association between economic disadvantage and internalizing and externalizing problems in children were partially mediated by maternal depressive symptoms, parenting stress, and harsh discipline (Rijlaarsddam, et al., 2013). They reported direct and indirect effects of economic disadvantage on internalizing problems but for externalizing problems only indirect effects were noted. They reported that maternal depression and disrupted parenting largely explained the relationship between economic disadvantage and externalizing problems. In light of the results, Rijlaarsddam et al. (2013) suggested that interventions cannot only focus on improving the economic situations of families, but need to focus on some of the factors within families than can influence children's emotional and behavioral well-being.

Family Stress Model in Cross-Cultural Groups. Although the FSM was originally used to describe the results of economic hardship among families of European descent (Conger et al., 2002; Conger & Elder, 1994), variations of the model have demonstrated to be applicable in a variety of cultural groups. For example, Conger et al. (2002) evaluated whether the FSM was applicable in a sample of 422 African-American families and found that the results were similar to those of European descent. However, they noted that in the African American sample there was no direct effect from caregiver depressed mood to low nurturing and involved parenting, which had been the case in European samples. They also predicted a relationship between economic variables and positive children's positive adjustment, but the results did not support this finding in African-American families. Emmen et al. (2013) conducted an investigation using FSM principles with a sample of 107 low-income Turkish-Dutch mothers and their children and the findings supported the basic premise of the Family Stress Model. They noted that the relationships between SES (parents' income and education) and positive parenting

was partially mediated by maternal psychological distress, but also found maternal acculturation stress to be a factor (Emmen, et al., 2013). Taylor et al. (2012) tested the FSM with 674 Mexican-American families and included both single and two-parent families. They found that higher maternal optimism led to less internalizing symptoms in the mother and increased involvement in parenting. They reported that mother's optimism moderated the relationship between economic pressure and internalizing symptoms, (i.e. the relationship between economic pressure and internalizing symptoms was not apparent when optimism was high) and nurturing and involved parenting were found to impact child social adjustment (peer competence, school attachment, and teacher attachment; Taylor et al., 2012). Among their conclusions were that the model generalized well to Mexican-American families and that the model worked similarly well for both single and two-parent families (Taylor et al., 2012).

Parke et al. (2004) used the FSM to compare 111 European and 167 Mexican-American families and found some similarities and differences in applicability of the model across groups. For instance, they found that economic hardship was related to economic pressure in both groups, but income was more strongly related to economic pressure in European families. Consistent with the FSM model, it was found that economic hardship was related to depressive symptoms in parents which resulted in an increase in marital problems and hostile parenting, and these were linked with children's outcomes (externalizing and internalizing problems). This was found across groups. Group differences noted by Parke et al. (2004) were that in European families, hostile parenting was directly linked to more childhood adjustment problems. In contrast, marital problems were more strongly related to adjustment problems in Mexican-American families. For the Mexican-American group, maternal acculturation was also related to

increased marital problems but lower hostile parenting (Parke et al, 2012). Overall, the authors suggested that the FSM appeared to be applicable to the Mexican-American families.

Iruka, LaForett, and Odom (2012) investigated whether the Family Stress Model generalized to non-European families (African Americans, English-speaking Hispanic Americans, Spanish-speaking Hispanic Americans and Asian Americans) in a study of children's school readiness. They investigated family demographics (number of children, maternal education, maternal education and employment), and the meditational effects of parenting processes and parental depression on various aspects of school readiness (e.g. receptive and expressive language, literacy and numeracy) across the cultural groups. They found that the FSM model was applicable in European American, African American families, and Spanish-speaking Hispanic American families but not as applicable for English-speaking Hispanic Americans and Asian American families. The authors speculate that the model may not have been applicable for Asian American families because values in parenting in this group may not be conceptualized in the same way as European-American families. For English speaking Hispanic Americans, the authors' question whether language status may be a "meaningful proxy" (p.368) for other underlying group differences (e.g., immigration status or acculturation status) and these factors may affect parenting (Iruka et al., 2012).

A study by Benner and Kim (2010) investigated the FSM model with Chinese Americans. Interestingly, they included whether the parents were American-Born or Foreign-Born. Among other aspects related to the FSM, the results showed that American-Born parents had more favorable financial situations, reported less economic pressures and had a smaller number of depressive symptoms than those who were Foreign-Born (Benner & Kim, 2010). However, it was not reported whether being American-Born or Foreign-Born had an impact on

parenting or adolescent outcomes. Overall, the authors suggested that the FSM was generalizable to Chinese Americans (Benner & Kim, 2010). Generalizability of the model has also been found in Korean families (Kwon, Rueter, Lee, Koh, & Ok, 2003).

Despite the number of studies involving the FSM and the research on the model's applicability to a variety of cultural groups, a notable gap in the literature is investigating the mental health and family relational processes in low-income immigrant and refugee families. This may be of particular importance, because there are conflicting findings in the literature regarding the relationship between parental mental health and childhood mental health of immigrants, whether they have better mental health than those in the country of settlement, and how long after migration mental health advantages may last. A notable exception to the limited research on the mediating effects of poverty on immigrant children's mental health is a study by Beiser, Hou, Hyman, and Tousignant (2002). They noted that:

> Although many newly-arrived immigrant families are poor, factors that are specific to immigrant life may invest poverty with a different meaning for newcomers, compared with receiving-country families. For example, poverty in immigrant families apparently does not invoke the panoply of associated risk factors that it does for majority culture families. (p. 220)

Their study examined the relationship between family poverty and emotional and behavioral problems among immigrant children, Canadian-Born children of immigrant parents, and children of non-immigrant parents using regression models. They also included measures of ineffective parenting, parental depression, family dysfunction, whether the family was headed by a single parent and other demographic variables. The results demonstrated that new immigrant families were more likely to live in poverty than non-immigrant families (36.4% vs. 13.3%). Higher poverty levels were found to be related to a greater proportion of single-parent families, higher levels of parental depression, and increased family dysfunction (Beiser et al., 2002). However, their results demonstrated that despite the higher level of poverty, immigrant children seemed to

fare better than non-immigrant children in terms of mental health. Higher levels of poverty were found to be related to ineffective parenting among non-immigrant families but not among immigrant families (Beiser et al., 2002). Single parenting did not impact the relation between poverty and mental health outcomes for immigrant children or Canadian-Born children of immigrant families, but was a significant factor for non-immigrant children (Beiser et al., 2002). Beiser et al. (2002) noted that "ineffective parenting, parental depression, and family dysfunction mediated the relationship between poverty and the mental health of Canadian-born children in immigrant families and non-immigrant families but family factors played a relatively weak role among immigrant children" (p.224). Overall, Beiser et al. (2002) suggested that for children in non-immigrant families, familial problems associated with poverty are a more significant issue than they are for immigrant children, whereas for immigrant children, material deprivation, may be the greater concern.

A more recent study by Nadeau et al. (2018) investigated the relationships between immigration, poverty, the family environment, and emotional and behavioral problems in youth. They did not find an association between immigration, poverty, and children's emotional or behavioral problems, but did find that family environment such as family conflicts were related to children's emotional and behavioral problems. They found that immigrant children were healthier in regards to mental health, which lends support to the healthy immigrant hypothesis (Nadeau et al., 2018). These findings suggest that while relationships between poverty and children's outcomes are not always uncovered, investigating family factors particularly in low-income immigrant families would be beneficial.

Similar to the amount of literature regarding immigrant families, there has been limited study into the relationships of low-income on caregiver mental health, family functioning and on

children's mental health in refugee families. However, there has been research to try to explain the relationships among socio-demographic factors and development of mental health issues among refugees. For instance, Miller and Rasmussen (2017) described an ecological model of refugee mental health. They suggested that impacts to refugee's mental health may come from the pre-migration exposure to a variety of traumatic experiences but also noted that the daily stressors and stressors related to being displaced could be just as important and may be a key contributor to current mental health concerns (Miller & Rasmussen, 2017). They suggested that those studies or clinicians that only consider links between pre-migration exposures to adversity and psychological distress in refugees may miss the impacts of the post-migration stressors while only focusing on the previous traumas (Miller & Rasmussen, 2017). For instance, they noted a direct effect of war exposure on PTSD are generally found in various studies, but once post-migration stressors (e.g., social isolation, poverty, family violence, discrimination, uncertainty regarding migration status) are added to the model, the direct effects were reduced. This suggests that the post-migration stressors act as mediators in the relationship between exposure to traumas and the psychological well-being of refugees. Miller and Rasmussen (2017) maintain that it is important to aim interventions at helping refugees process the significant traumas and adversities they may have experienced prior to migration, but that the scope of intervention needs to be broadened to include a focus on the post-migration challenges as those may be the factors that are currently most salient to the presenting psychological concerns of refugees.

Another recent study by Bryant et al. (2018) investigated the relationships between caregiver's PTSD and children's psychological difficulties (emotional, conduct, hyperactivity and peer difficulties) among refugees re-settling in Australia. They included additional factors such as trauma history, post migration difficulties and parenting styles. The findings revealed the

greater the caregiver's PTSD symptoms the harsher they were in parenting, which then resulted in higher levels of conduct, hyperactivity, emotional and peer problems in their children (Bryant et al., 2018). The indirect relationship between parental PTSD on children's psychological difficulties was stronger than the direct relationship, with the exception of the emotional problems in which the direct path was stronger. Furthermore, they reported that post-migration stressors (e.g. employment, financial difficulties, housing, and discrimination) and previous exposure to trauma impacted caregiver's symptoms of PTSD, which also led to harsher parenting and resulted in increased conduct, emotional, and hyperactivity problems in children (Bryant, et al, 2018). Bryant et al. (2018) indicated that the results show a potential for the impacts of caregiver's PTSD to interact with the stress that comes with adapting to a country of settlement, which can create challenges in parenting. These challenges then impact children's mental health outcomes (Bryant, et al, 2018). This study did not include a measure of income or socioeconomic status but still contributes important information to the current study regarding the relationships between caregiver's mental health, family dynamics and children's emotional and behavioral functioning within refugee families.

There have been other studies that focus on the connections between maternal mental health, family variables, and children's mental health in refugees. For instance, Panter-Brick, Grimon, and Eggerman (2014) conducted a study with children and adolescents in Afghanistan to investigate caregiver-child mental health association in refugee and humanitarian contexts. They found that caregiver mental health was significantly associated with eight facets of children's mental health, particularly post-traumatic stress and depression. Children's symptomology was predicted by caregiver's mental health and was considered comparable to the predictive effect of having experienced one or two traumatic events (Panter-Brick et al., 2014).

Eruyar, Maltby, and Vostanis (2018) found that among Syrian refugees, over half of the children in the sample experienced symptoms of post-traumatic stress, and that these were best predicted by exposure to trauma. In contrast, other aspects of mental health (e.g. emotional and conduct issues) were better predicted by parental psychological symptoms and parenting stress. Meyer, Steinhaus, Bangirana, Onyango-Mangen and Stark (2017) studied refugee settlements in Uganda and found that caregiver's depression was related to higher levels of adolescent depression and anxiety. However, Ahmad, Sofi, Sundelin-Wahlston, and Von Knorring (2000) found that among Kurdish-Iraqi children, caregiver's PTSD was not predictive of the children's PTSD, but rather by their own shared exposure to trauma experiences.

Much like the literature in immigrant and refugee families, there is limited literature on the relationships between mental health of caregivers, family functioning and social, emotional, and behavioral outcomes in low-income Indigenous families. As previously noted, a history of marginalization, abuse, and discrimination have contributed to Indigenous peoples being disproportionately affected by poorer economic situations and poorer health outcomes but the nature of these relationships still remains unclear. An American study conducted by Frankel et al. (2014) replicated another study (Sarche, Croy, Big Crow, Mitchell & Spicer, 2009) and investigated whether maternal depression, social support, drug and alcohol use, isolation, and mother-child interactions were related to their toddlers' social-emotional development in a group of American-Indigenous peoples living on a reservation. They found that difficulties in the mother-child relationships resulted in increased externalizing and internalizing issues in children and maternal depression increased the prediction of behavior problems among the children. They also noted the strength in ascribing to their Indigenous identity related to positive behavioral strengths in children (Sarche et al, 2009). However, measures of income or socioeconomic status

were not included in this study. Thus, the role of income in these relationships is not yet clear. In terms of relationships between parental mental health and children's social, emotional, and behavioral well-being in Indigenous families, it is important to note as a result of historical exposure to marginalization, residential schooling, and oppression, there can be an intergenerational trauma where impacts of traumatic events experienced by caregivers may also impact children (O'Neill, Fraser, Kitchenham & McDonald, 2018).

Low-income links to mental health and mediating variables. As can be understood from the theories that had been referenced above, children develop within their environments, and economic disadvantage does not affect children in isolation but affects the emotional well-being and the functioning of the entire family. The inclusion of indicators of socioeconomic status in psychological research is not a new concept and there is substantial evidence that children in low-income households are more likely to experience mental health symptoms and poorer social and emotional functioning than those living in higher income households (e.g., Bradley & Corwyn, 2002; McLeod & Shanahan, 1993; Yoshikawa, Aber, & Beardslee, 2012). In addition to the factors listed above, there are a number of interwoven factors that impact low-income families which makes it difficult to discern the nature of the relationship between economic disadvantage and children's outcomes (Yoshikawa, Aber, & Beardslee, 2012). The relationships may be, at least in part, due to the increased exposure to a variety of physical and psychological risk factors that are beyond the scope of the family. The factors that have been studied are numerous and include, but are not limited to: poor prenatal care, exposure to toxins and pollution, reduced access to nutritional foods, unstable living situations, living in poorly resourced or more dangerous neighborhoods, and increased exposure to violence (Bradley & Corwyn, 2002; McCurdy, Gorman, Kisler, & Metallinos-Katsaras, 2012). The links between

these factors and negative outcome are often found across all ages, from infancy to adolescence (McCurdy et al., 2012). The list of risk factors found in the literature is lengthy and there is generally no disagreement that those in low-income families are exposed to more of these factors, which make it difficult to isolate which factors are most influential. A further complication is the difficulty discerning whether living in economic disadvantage is a cause of the development of mental health issues or whether having a mental health issue negatively impacts economic standing. The issue of directionality is generally examined using two main approaches: the social causation hypothesis (Dohrenwend & Dohrenwend, 1969 as cited in Reiss), where it is posited that the impacts associated with experiencing economic disadvantage is related to the development of mental health issues. A competing hypothesis is that of social selection (Eaton, 1980, as cited in Reiss, 2013), where it is suggested that having a mental health condition can causes one to fall down into a lower social status, perhaps due to not being able to adequately participate in the workforce. Reiss (2013) suggested that there is evidence to support both of these hypotheses and they need not be considered mutually exclusive as economic disadvantage and mental health problems can be cyclical across generations. For example, a parent's mental health issue could result in them experiencing economic hardship or a lower socioeconomic status, whereas the economic disadvantage may then result in the development of mental health problems in their children or adolescents (Reiss, 2013). Conger and Donnellan (2007) also acknowledge that there is evidence to support both hypotheses and that the debate between the causal relationships is similar to that of the nature-nurture debate, in that, without true randomized experimental designs, it would be difficult to definitively establish causality or relative contribution of these factors on mental health. However, these types of studies are not always feasible nor ethically possible (Conger & Donnellan, 2007). They contend that the

Family Stress and Investments Models are largely based on the social causation premise and that there has been much empirical support for those models. However, they also proposed an interactionist model that incorporate both social selection and social causation components but also highlight that studies involving this model would be complex and would need to be conducted over larger periods of time to more conclusively understand the relationships (Conger & Donnellan, 2007).

Nonetheless, despite the complexity and the abundance of research demonstrating poorer outcomes for children, mediating mechanisms offer an important avenue for investigation, particularly in the area of children's social, emotional, and behavioral well-being. Yoshikawa, Aber, and Beardslee (2012) noted that there has been much more research focusing on the linkages between poverty and physical health, cognitive development, and academic achievement, and therefore, a focus on the mediating mechanisms between economic disadvantage and emotional and behavioral health would be of value as there has been less inquiry into the area. To investigate mediating mechanisms, Yoshikawa, Aber, and Beardslee (2012) identified three levels that could be explored: 1) individual or child level (e.g., nutritional intake); 2) relational factors (e.g., quality of family or peer relationships); and 3) institutional factors (e.g., neighborhoods, child care, schools). Focusing on mediating mechanisms in these areas offer a promising avenue for investigation as it helps point to areas for intervention. Although it is recognized that intervention efforts at all levels suggested by Yoshikawa et al. (2012) would be important, it is apparent that some levels are more amenable to intervention programs than others. For instance, programs and services that could be aimed at child-level factors and relational factors are areas often targeted for intervention but larger, more systemic

policy changes would be needed in order to influence the institutional or community factors which may be at the root of inequality.

Investigating economic, individual and family relational mediation mechanisms will help uncover some important relationships within these vulnerable groups. Despite the notion that immigrants may be somewhat less susceptible to poorer mental health outcomes than their Canadian-born peers as result of living in poverty, there is still much evidence that suggests that mental health is an important factor requiring attention, as immigrant and refugee populations are often underserved and less satisfied with the mental health system (CAMH, 2014). The greater likelihood of economic disadvantage coupled with other related factors that affect mental health of immigrant and refugee families such as loss of social status, unemployment or underemployment, loss of family and community supports, leaving family members in the home country, language challenges, discrimination, and social exclusion (Kirmayer et al., 2011) make the investigation of caregiver mental health and family functioning and its relationship to children's social, emotional, and behavioral functioning a key priority. Additionally, Indigenous people in Canada also experience disproportionate rates of poorer health as well as higher rates of economic disadvantage, unemployment or underemployment, income inequality and also experience discrimination and social exclusion. Furthermore, Indigenous people may have distrust in the health system which may be further exacerbated by a health system that may not be as culturally appropriate for Indigenous populations. Therefore, improvements are acutely needed in this area and given the potential economic impacts on children and families, investigating the relationships among economic disadvantage and caregiver mental health, family functioning and children's social, emotional, and behavioral well-being is expected to

provide insights into policy and practices. This has not been investigated as extensively in these vulnerable groups.

Goals of the Study

Research that investigates the relationships of economic disadvantage, caregiver mental health, family functioning, and children's mental health outcomes will be a significant contribution to the limited literature in this area. Uncovering how economic disadvantage affects caregivers and children as well as family functioning is a key step to informing intervention programs aimed at alleviating long-term consequences that can result from living with lower income. While recognizing the importance of evaluating mediating factors at all levels, this study will focus on an area that may be particularly amenable to intervention programs and will evaluate the meditational relationships of individual caregiver factors (caregiver mental health) and relational factors (family functioning) to investigate the toll living in conditions of low income takes on the social, emotional, and behavioral well-being of children from vulnerable groups.

Identifying relationships of how financial hardship plays a role in the social, emotional and behavioral well-being among Foreign-Born Immigrant and Refugee children and Canadian-Born Indigenous and Non-Indigenous children helps in the development of community programs that can help overcome the potential negative consequences of economic disadvantages that may be faced by the low-income Canadians. It is important to understand and be respectful of how relationships among economic disadvantage, caregiver mental health, and family functioning relate to children's outcomes may vary among groups and to be thoughtful about ensuring that interventions can be developed to be congruent with individual's culture and ways of knowing and understanding of mental health.

The primary goal of this study is to expand upon the existing literature regarding the relationships among economic disadvantage and negative social, emotional, and behavioral outcomes for children. Specifically, this study investigates relationships between economic factors, caregiver mental health, family functioning and social, emotional, and behavioral outcomes for children and investigate whether the relationships vary among various groups such as Canadian-Born Non-Indigenous families, Canadian-Born Indigenous families, Foreign-Born Immigrant families and Foreign-Born Refugee families, as well as whether there are differences between single and co-parenting families (See Figure 1).

This study expands on the existing literature in the following key ways:

1) Although there have been previous studies that attempt to identify the relationships between living in economic disadvantage, caregiver mental health and children's social, emotional, and behavioral outcomes in various ethnic groups, there has been limited research into how these relationships may generalize or vary among Foreign-Born Immigrant and Refugee families as well as Canadian-Born Indigenous families and Canadian-Born Non-Indigenous families.
2) A larger number of studies that use models to map the relationships among economic disadvantage, caregiver mental health and children's social, emotional, and behavioral outcomes (e.g., the Family Stress Model) focus on dual parent families and include measures of inter-parental conflict as a mediator between parent mental health and children's outcomes. However, the reality is that many low-income families are headed by a single parent. Thus, a measure of inter-parental conflict is not always appropriate for these families. The current study proposes to evaluate family functioning as opposed to measures of inter-parental conflict as a mediator between caregiver mental health and

children's social, emotional, and behavioral well-being to better reflect the experience of single parent families.

3) Many studies that investigate children's mental health outcomes focus on externalizing and internalizing problems. The current study looks at children's internalizing and externalizing outcomes as well as behavioral symptoms and adaptive skills. Investigating adaptive skills are an important contribution as indicators of wellness rather than negative mental health symptomology are less frequently evaluated in research.

Research Questions

The purpose of this study is to investigate the interrelationships of economic disadvantage, caregiver mental health and family functioning on children's social, emotional, and behavioral well-being, and whether there is variation in these relationships in Foreign-Born Immigrant families, Foreign-Born Refugee families, Canadian-Born Indigenous families, and Canadian-Born Non-Indigenous families, as well as whether there are differences when there is lone-caregiver families and co-parenting families. It is hypothesized that the relationships seen between economic disadvantage variables and negative child social, emotional, and behavioral outcomes will be mediated by caregiver mental health and family functioning (e.g., economic disadvantage→ caregiver mental health→family functioning→children's social, emotional, and behavioral well-being). This study evaluates both direct and indirect paths of influence of these variables in an overall model as well as among four family groups: Canadian-Born Indigenous people (those self-identifying as Canadian-Born Indigenous peoples), Canadian-Born Non-Indigenous people, Foreign-Born Immigrants, and Foreign-Born Refugees. Research questions and hypotheses are as follows:

- What is the effect of the economic disadvantage (family depth of poverty, caregiver education, and employment status) on caregiver mental health and family functioning? (Direct effect)
- What is the effect of economic disadvantage on the social, emotional, and behavioral well-being of children? (Direct effect)
- What role does the mental health of the primary caregiver and family functioning play in the relationship between economic disadvantage and children's social, emotional, and behavioral well-being? Does the mental health of the primary caregiver and family functioning mediate the relationship between economic disadvantage and children's mental health? (Indirect effects and direct effects)
    - What impact does lone-parenting have on the mental health of the primary caregiver, family functioning, and the relationship between economic disadvantage and children's social, emotional, and behavioral well-being? (Direct and Indirect effects)
- Are the relationships between economic disadvantage, caregiver mental health, and family functioning and children's social, emotional, and behavioral well-being different for those from vulnerable groups, (i.e., Foreign-Born Immigrants, Foreign-Born Refugees, or Canadian-Born Indigenous people in Canada)?

Hypotheses

The following hypotheses were proposed by considering the previous literature suggesting that the greater the economic disadvantage, the poorer the social, emotional, and behavioral outcomes for children. Figure 1 illustrates the conceptual model and paths.

1) Greater economic disadvantage will lead to increased caregiver mental health issues and decreased family functioning for all groups (Direct effect, paths a)
2) Greater economic disadvantage will lead to increased children's internalizing, externalizing, behavioral symptoms and decreased adaptive skills, for children in all groups. (Direct effect, paths b)
3) a) Greater economic disadvantage will lead to increased mental health difficulties among caregivers, and reduced family functioning, which will result in more externalizing and internalizing problems, behavioral symptoms, and less adaptive behavior among children in all groups (direct effects paths b, indirect mediational effects; paths a-d, a-e)

   b) Not having a co-parent in the home (lone-parenting) will have a negative effect on children's outcomes through its impact on caregiver mental health and family functioning (direct effects paths c; indirect mediational effects, paths c-d, c-e)
4) The model of the relationships is hypothesized to differ across groups given there may be differences on the economic factors.

   a) Previous results from the FFE study (Guo et al., 2013) note that refugees have the greatest economic disadvantage, which in the current study is hypothesised to lead to increased mental health difficulties among caregivers, poorer family functioning and poorer social, emotional, and behavioral outcomes for children.

   b) Immigrants have increased economic disadvantage but will experience less mental health difficulties among caregivers, better family functioning, and better social, emotional, and behavioral outcomes for children ("healthy immigrant" hypothesis).

c) Indigenous families were reported to have greater economic disadvantage (Guo et al., 2013), which may lead to higher caregiver mental health difficulties, reduced family functioning, and more negative social, emotional, and behavioral outcomes for children.

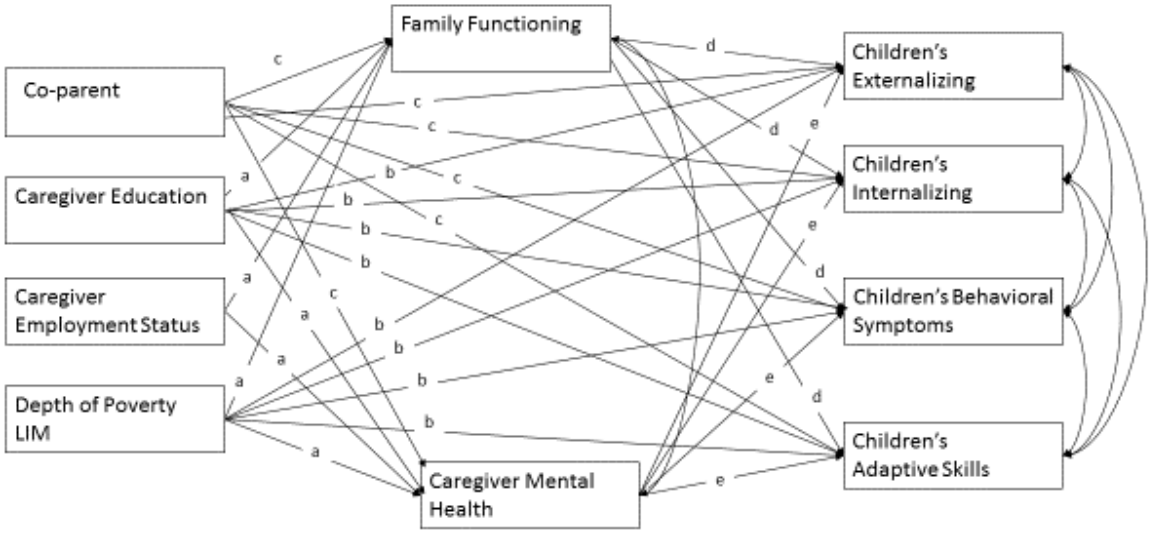

Figure 1. Hypothesized model to be tested in the total sample as well as four family groups (Foreign-Born Immigrants, Foreign-Born Refugees, Canadian-Born Indigenous people, and Canadian-Born Non-Indigenous people).

II. Methodology

Data Source

Researchers from the University of Alberta partnered with individuals from the Government of Alberta and not-for-profit community agencies to undertake a community-based research project called *Families First Edmonton (FFE)*. The FFE project was conducted in order to determine whether community-based service-integration approaches with low-income families from Edmonton, Alberta would lead to improved service linkages, and social and health outcomes (Drummond et al., 2014). Although the current study uses only baseline data from the FFE study, it is important to note that the FFE study was designed as a randomized, two-factor, single-blind, longitudinal effectiveness trial where low-income families continued to access existing services, in which they were already participating, but were also randomly assigned to receive either (1) Family Healthy Lifestyle service integration (families were linked to health services, social services, and child care options), (2) Family Recreation service integration (families linked to recreation services), (3) Family Healthy Lifestyle plus Family Recreation service integration (Comprehensive; families were linked to both family healthy lifestyle services as well as recreation services), and (4) Self-Directed (control group families continued to access their existing services and were followed for three years (see Drummond et al., 2014 for full study details).

The original FFE study received full ethics approval (Pro00000145) from the University of Alberta Research Ethics Board. During the FFE project design and data collection, there was extensive collaboration with partnered community agencies regarding study procedures including consultation regarding working with diverse low-income families. The current study underwent an ethics review for the secondary use of the data (Pro00093016). The original study

participants had previously provided consent for future use of data collected through the FFE project. The data used for the current study had been de-identified and there was no possibility of re-identifying the participants through the current analysis. In addition, there was no further contact with study participants. Although the results of the current study may not benefit the original FFE participants directly, it is hoped that what is discovered through this analysis will help support future policy, programming, and research for other low-income families.

The aim of the current study is to use the baseline data (n=1173)[4] from the FFE project to investigate the potential mechanisms by which living under conditions of low-income contributes to children's social, emotional, and behavioral difficulties in vulnerable groups, namely those who are immigrants, refugees, Indigenous identity or lone-parents. Guo, de Los Santos, So, and Templeton (2013) have developed a report which includes information from the research protocol (Drummond et al., 2014) and demographic profiles of the participating FFE families. Results from this report provide much of the following information about the original study's research protocol and some of the demographic information of the participants.

Participants

As previously noted, data for the study were drawn from the Families First Edmonton (FFE) project. Data were collected from 1173 low-income families and the current study uses data from the first wave of information collected from the participants' initial interview with the study team. In each family, data were collected from an adult who was identified as the person most knowledgeable ("PMK") about a target child ("focus child"; a randomly selected child for

[4] Baseline data are used for this project in order to avoid any potential effects of the interventions included in the randomized control design, as participants were randomized after baseline data collection. It was also noted that there was greater attrition among the more vulnerable families and since the intention of the current study was to focus on vulnerable families, it was decided that using baseline data would be the most appropriate to accomplish the goals of this study.

whom the study measures were administered). In most cases, this individual was a biological parent of the target child (Guo et al., 2013). For the purposes of this study, the PMK will be referred to as the child's caregiver. The majority FFE families were single parent families (60.7%; Guo et al., 2013). However, some families identified another individual who shared care giving of the children. This person is referred to as the "co-parent" in this study. Although some families note a second individual, the focus of this study will be on the individual who identifies as the person most knowledgeable (often the primary caregiver) of the focus child. The focus child was a child who was 12 years or younger at the beginning of the study and for whom the primary caregiver provided information for the duration of the study (Drummond et al., 2014). Data from only one child per caregiver was used to test the hypotheses in this current study, but it is important to note that there was a total of n= 2613 children in the FFE families with an average of 2.1 children per family (range: 1-11 children)[5] (Guo et al., 2013).

Participants were from 100 countries, with the most common being Canada, China, Philippines, Pakistan, India and Sudan. Participants did not need to speak English to be included in the FFE study and respondents noted approximately 91 languages/dialects spoken, with the five most common being English (60.1%), Mandarin (7.1%), Spanish (3.0%), Arabic (2.5%), and Cree (1.6%; FFE, 2011). Interpretation services were available to assist participants during data collection, and these services were used by 21.8% of the Foreign-Born Immigrant caregivers and 37.5% of Foreign-Born Refugee caregivers (Guo et al., 2013).

[5] Children in the household were defined as the primary caregivers' biological, adopted, foster, step or grand-children that were younger than 18 years and living in the household at least 50% of the time (Quo, de Los Santos, So & Templeton, 2013).

Study Groups

The current study seeks to evaluate the relationships between economic disadvantage and social, emotional, and behavioral outcomes for children from low-income families including those from vulnerable groups. The total sample size at baseline was *n* = 1,173 participating families. For the current study, this was further reduced to a sample size of *n* = 985 due to the outcome measure (BASC-2) being unavailable for children under 2 years of age.

The FFE study protocol incorporated questions to identify the immigrant status and Indigenous identity of participants (see Appendix A for specific questions.). For the purposes of the current study, group membership of the family was assigned based on the responses to the questions of the primary caregiver. It is important to note that these groups are assigned membership at the analysis stage and were not part of the randomization in the original FFE study protocol.

Table 1 depicts that primary caregiver participants identified as: Foreign-Born (*n*=388), Canadian-Born Indigenous (*n*=149) and Canadian-Born Non-Indigenous people (*n*=448). To investigate whether there are differences for the Foreign-Born families based on length of time in Canada, (i.e., that recent immigrants are healthier than those in the country of settlement), the foreign-born group was divided into "recent immigrants" (primary caregivers who identify as being born outside of Canada and having resided in Canada for less than 5 years) and "non-recent immigrants" (primary caregivers who identify as being born outside of Canada and having resided in Canada 5 years or more; see Table 2). Based on the status of the caregiver the majority of participants were Canadian-Born Non-Indigenous 45.5%, followed by 39.4% Foreign-Born participants (33% Immigrant and 6.4% Refugee), and 15.1% reported being Canadian-Born Indigenous people (see Table 1). Of the Foreign-Born caregivers, *n* = 206 were considered

recent immigrants (53%; in Canada for less than 5 years), while 163 caregivers (42%) were in Canada for 5 years or more (see Table 2).

Table 1

Groups Included in the Study

Group	n	%
Canadian-Born Indigenous Peoples	149	15.1
Canadian-Born Non-Indigenous People	448	45.5
Foreign-Born Immigrant	325	33.0
Foreign-Born Refugee	63	6.4
Total	985	100.0

Table 2

Foreign-Born Groups Included in the Study

Group	n	%
Recent Immigrants (<5 years)	206	53.0
Non-Recent Immigrants (>=5years)	163	42.0
Missing Data: Date of Arrival in Canada	19	4.9
Total	388	100

*Refugee group Recent (<5 years) *n*=35; Non recent (>=5) *n*=26, date of arrival in Canada is missing for 2 participants identifying as Refugee.

Demographic Characteristics of Participants

The majority of caregivers are female (85%; see Table 3), while the sex of the children in the study was fairly evenly split with 53% males and 47% female (see Table 3). Table 4 shows age range of caregivers and children. Lone-parent status was determined by asking the primary caregivers the yes/no question: "is there a co-parent living in the household?" As shown in Table 5 and Table 6, it is clear that most caregivers are considered lone-parent families, with about 64% of the caregivers indicating that that they were single (never married) or separated, divorced, or widowed. Furthermore, as can be seen in Table 6, around 62% of the caregivers

indicated that there is no co-parent living in the home. Canadian-Born Indigenous caregivers were more likely to report being single and were more likely to report being separated, widowed, or divorced. Although lone-parent families are not treated as a "group" in the current study, lone-parent status is an important consideration given the high number of lone-parent families that live in economic disadvantage and its potential influence on the study variables.

Table 3

Sex of Caregiver and Focus Child by Group

	Focus Child				Caregiver			
	Male		Female		Male		Female	
Group	#	%	#	%	#	%	#	%
Canadian-Born Indigenous	75	50	74	50	8	5	141	95
Canadian-Born Non-Indigenous	243	54	205	46	32	7	416	93
Foreign-Born Immigrant	163	50	162	50	88	27	237	73
Foreign-Born Refugee	37	59	26	41	21	33	42	67
Total	518	53	467	47	149	15	836	85

Table 4

Means, Standard Deviations, and Range of Age of Caregiver (PMK) and Focus Child by Study Group

	Caregiver (PMK)			Focus Child		
Group	*M (SD)*	*n*	*Range*	*M (SD)*	*n*	*Range*
Canadian-Born Indigenous	34.09 (7.32)	147	19.75-61.77	7.02 (3.17)	147	2.35-13.39
Canadian-Born Non-Indigenous	35.17 (8.09)	433	17.81-70.06	7.38 (3.05)	435	2.04-13.38
Foreign-Born Immigrant	39.19 (6.55)	322	20.82-70.05	7.64 (3.17)	324	2.06-14.31
Foreign-Born Refugee	39.45 (8.84)	62	24.14-61.60	7.75 (3.59)	62	2.09-13.83

Table 5

Marital Status of the Caregiver by Group

	Single (never married)		separated/divorced/widowed		Married (and living with spouse)		Married (spouse living elsewhere)		Common law relationship		Living with Partner		
Group	#	%	#	%	#	%	#	%	#	%	#	%	Total
Canadian-Born Indigenous	93	62	33	22	3	2	2	1	15	10	3	2	149
Canadian-Born Non-Indigenous	172	38	185	41	62	14	1	<1	24	5	4	<1	448
Foreign-Born Immigrant	25	8	102	31	184	57	12	4	2	<1	0	0	325
Foreign-Born Refugee	8	13	19	30	28	44	6	10	2	3	0	0	63
Total	298	30	339	34	277	28	21	2	43	4	7	<1	985

Table 6

Co-parent Living in the Home by Group

	No Co-parent living in the Home		Co-parent is living in the home	
Group	#	%	#	%
Canadian-Born Indigenous	118	80.3	29	19.7
Canadian-Born Non-Indigenous	317	72.9	118	27.1
Foreign-Born Immigrant	134	41.4	190	58.6
Foreign-Born Refugee	29	46.8	33	53.2
Total	598	61.8	370	38.2

Measures

Economic Disadvantage

Low-income/depth of poverty. All families who participated in the FFE study were considered to be low-income. To be eligible to participate in original study, the families were

receiving benefits from at least one of the following programs designed to support low-income families in the city of Edmonton: Income Support (e.g., welfare or social assistance), Alberta Child Health Benefit, City of Edmonton's Leisure Access program, Alberta Adult Health Benefit, or Capital Regional Housing (Drummond et al., 2014).

For the purposes of this study, *low-income* is operationalized from Statistics Canada's Low-Income Measure (LIM). The LIM is a fixed percentage (i.e., 50%) of the median household income adjusted for household size. To calculate the LIM, an equivalent household income for each household is derived by dividing income by the adjusted size, which represents the square root of the number of individuals in the household (Statistics Canada, 2011). In the sample used for this study, 69% of the families are considered to live in low-income according to the LIM (Table 7). Consistent with the literature, newer immigrants are more likely to live in poverty during the first five years living in Canada according to the LIM. Specifically, 75% of the Foreign-Born Immigrant families residing in Canada for less than five years lived in poverty compared to 69% who lived in Canada five or more years (Table 8).

As was used in other analyses of the FFE data (Guo et al., 2013), depth of poverty using LIM is derived by comparing a family's income by household size, and then determining how far under or over the low-income threshold a particular family is located (Guo et al., 2013). Families with incomes that are at or above LIM will have a depth of poverty score that is greater than or equal to 100%, whereas families that have incomes below the poverty line will have depth of poverty scores that are less than 100%. This method provides a continuous scale in order to evaluate the degree to which families experience low-income (Guo et al., 2013).

Table 7

Family Poverty Status Using the LIM by Study Group

	family is not living in poverty		family is living in poverty	
	#	%	#	%
Indigenous, Canadian-Born	33	22	115	78
Non-Indigenous, Canadian-Born	158	36	283	64
Immigrant, Foreign-Born	97	31	217	69
Refugee, Foreign-born	7	18	53	88
Total	295	31	668	69

Table 8

Family Poverty Status for the Foreign-Born Group by Length of Time in Canada

	family is not living in poverty		family is living in poverty	
	#	%	#	%
Foreign-Born (recent < 5 years)	51	25	149	75
Foreign-Born (not recent, >=5 years)	47	31	106	69

Employment. Employment is a key factor that often influences whether a family lives in poverty as well as the depth of poverty a family may experience. From Table 9, it can be seen that just over half of the caregivers were employed at the time of the study. Canadian-Born Indigenous caregivers and Foreign-Born refugee caregivers were more likely to report that they were not currently employed.

Table 9

Employment Status of the caregiver by Study Group

	not currently working		currently is working		
Group	#	%	#	%	Total
Canadian-born Indigenous	109	73	40	27	149
Canadian-born Non-Indigenous	180	40	268	60	448
Foreign-born Immigrant	150	46	173	54	323
Foreign-born Refugee	38	60	25	40	63
Total	477	49	506	52	983

Education of Caregiver. Highest education obtained is often a key factor in relation to families living in low-income, and there is an ever-increasing demand for a higher credentialed workforce (Chase-Landsdale et al., 2019). Highest level of education was obtained from primary caregiver involved in the study and is shown in Table 10. Highest educational attainment includes foreign credentials and the majority of foreign-born caregivers obtained their highest level of education outside of Canada (Guo et al., 2013).

Table 10

Educational Attainment of the Caregiver by Study Group

	Some but less than high school		High school		College diploma/trades certificate		University degree	
Group	#	%	#	%	#	%	#	%
Canadian-Born Indigenous	64	43.8	59	40.4	20	13.7	3	2.1
Canadian-Born Non-Indigenous	68	15.7	209	48.3	127	29.3	29	6.7
Foreign-Born Immigrant	40	12.3	67	20.7	46	14.2	171	52.8
Foreign-Born Refugee	10	16.1	27	43.5	13	21	12	19.4
Total	182	18.9	362	37.5	206	21.3	215	22.3

Caregiver Mental Health

As a measure of mental health, primary caregivers completed the Symptom Checklist (SCL-90-R) Inventory (Derogatis, 1975; Derogatis 1993). The SCL-90-R is a 90-item instrument in which respondents rate themselves on a 5-point Likert scale (0 no distress to 4 extreme distress) across 9 subscales: Somatization, Obsessive Compulsive, Interpersonal Sensitivity, Depression, Anxiety, Hostility, Phobic Anxiety, Paranoid Ideation, and Psychoticism (Derogatis, 2017). The SCL-90-R scale contains a global severity index (GSI) which is an average of the subscales and serves as an overall measure of psychological distress. Results are represented as t-scores and are compared against four normative groups: adult psychiatric outpatient, adult non-patient, adult psychiatric inpatient, and adolescent non-patient (Derogatis, 2017). Scores on the SCL-90-R are considered of significance if either a GSI score, or two or more subscale scores at or above a T-score of 63. An individual with a score in this range would be considered at high risk for a psychiatric diagnosis (Derogatis, 2017). This study used adult non-clinical patient norms and well as the criteria of a t-score at or above 63 as an indicator of having psychological distress that is considered at-risk or of clinical significance.

The SCL-90 is widely used for both clinical and research purposes. The measure can capture current mental health as well as changes in symptoms over time (Derogatis, 2017). The SCL-90-R has well established psychometric properties. In terms of reliability, internal consistency coefficient ratings on subscales ranged from 0.77 for psychoticism to 0.90 for depression. Test-retest was found to be between 0.78 (Hostility) to 0.90 (Phobia) at a one-week interval. In terms validity, the subscales of the SCL-90-R are well correlated with the Minnesota Multiphasic Personality Inventory (Derogatis, 2017). The SCL-90 adult non-patient clinical norms were standardized using a stratified random sample from a large Eastern state in the US

which included individuals from various cultural backgrounds (Derogatis, 2017). This scale has been translated into a variety of languages and shown utility in studies with a wide variety of cultural groups, such as Hispanic students (Martinez, Stillerman, & Waldo, 2005), Korean Immigrants (Noh & Avison, 1992), Japanese outpatients and university students (Tomioka, Shimura, Hidaka & Kubo, 2008), Chinese, Japanese and Korean immigrant students (Yeh, 2003), and African Americans (Ayalon & Young, 2007; Kevin Chapman, Petrie & Vines, 2012), among other studies with various cultural groups.

Family Functioning

Family functioning is defined as "the processes engaged in by families in their day-to-day lives to achieve goals, address challenges, and support and enhance each individual's health and development" (Williamson, Skrypnek, & de Los Santos, 2011, p.398). In the original FFE study, family functioning was assessed using the three scales from the McMaster Family Assessment Device (FAD; Epstein, Baldwin & Bishop, 1983) which included General Functioning, Communication and Problem Solving. The FAD has shown to have acceptable levels of reliability and validity (Miller, Epstein, Bishop, & Keitner, 1985).

However, Williamson, Skrypnek, and de Los Santos (2011) reported that in the course of collecting the family functioning information with the FFE families, it became apparent that many of the items included on the tool were not appropriate for single parent families with young children (61% of FFE families were single-parent families). They reported that the full version of the FAD relies on the assumption that there are least two family members that would be old enough to participate in family life, engage in reciprocal relationships with other members, and offer mutual support. Williamson et al. (2011) found that this assumption created problems for single parent respondents with young children. They provided examples of various problematic

items such as “we are able to make decisions about how to solve problems” (p. 403) or “we confront problems involving feelings” (p.403). They reported that these types of questions assume that there is more than one person available to engage in problem solving discussions. Additionally, single parents reported that they may not engage in certain discussions with their children to avoid involving them in issues that would only be appropriate for adults (or older children) and, thus, in the absence of another adult in the household the participant would have difficulty responding to the item (Williamson et al., 2011). Moreover, respondents with infants or toddlers had difficulty answering items regarding communication, as their children were too young to participate in discussions or were not yet verbal (e.g., “we cannot talk to each other about the sadness we feel,” p.403). FFE researchers found that when single-parent respondents answered negatively to problematic items, it may have been reflective of the family structure or age of their children rather than poorer family functioning. Williamson et al. (2011) noted that other commonly-used measures of family functioning such as the Family Adaptability and Cohesion Evaluation Scales (FACES-IV; Olson, Gorall, & Tiesel, 2004), the Family Environment Scale (FES; Moos & Moos, 2009), and the Self-Report Family Inventory (SFI; Beavers & Hampson, 2003) would also present with similar difficulties for single-parent respondents with young children.

In light of the difficulties identified, and in the absence of an alternative tool, Williamson, et al. (2011) suggest that four items from the General Functioning Scale of the FAD provide useful measures of family functioning and would be appropriate for use with single-parent families with young children. As such, a total score from the four items were used as a measure of family functioning for all participants in the study: 1) “we can express feelings to each other”, 2) “there are lots of bad feelings in the family”, 3) “we feel accepted for what we are”, and 4)

"we do not get along well together" (Williamson et al., 2011, p. 404). Caregivers were asked how well each statement describes their family and rated the items on a 4-point Likert-type scale from "Not at all well" to "Very well", with higher scores indicating more problematic family functioning. Williamson et al. (2011) reported that these four items correlated well ($r = .91$, $p < .05$) with the General Functioning Scale of the FAD. Therefore, they are believed to be "doing a relatively good job of capturing the essence of family functioning as measured by the General Functioning Scale" (p. 412). In support of the shortened version proposed by Williamson et al. (2011), another study found that a 6-item short version of the general functioning subscale of the FAD had equivalent psychometric properties to the full subscale (Boterhoven, Hafekost, Lawrence, Sawyer, & Zubrick, 2015).

Although the FAD was developed in North America, it has been translated into a variety of languages. However, only a small number of studies could be located that assessed the properties of the FAD with various cultural groups. Examples of studies have included university students from Lebanon (Kazarian, 2005), Armenian adolescents from Lebanon (Kazarian, 2010), immigrant and second-generation Latino adolescents (Hovey & King, 1996), as well as African-American and Latino parents/caregivers (Groenenberg, Sharma, Barbara, & Fleming, 2013). These studies did not note any problems with applicability of the FAD with these cultural groups. However, other studies found difficulty with the factor structure or psychometric properties when the FAD was used in different cultural groups. Shek (2002) found the FAD worked with Chinese adolescents but factors may have differed from the English version. Morris (1990) tested the FAD with Hawaiian-American and Japanese American families and found the FAD to be valid in the Hawaiian-American families but less so in Japanese-American families. Aarons, McDonald, Connelly, and Newton (2007) found that model fit, reliability, and validity

were poorer for Hispanic-Americans than Caucasian Americans, but suggested the scale was still applicable. Also, Roncone et al. (1998) found that the factor structure was different when used with Italian participants. However, another study found the Italian version of the FAD to have adequate reliability and validity (Grandi, Fabbri, Scortichini, & Bolzani, 2007). These conflicting results indicate the use of the FAD in culturally diverse populations may need to be used with caution, but in the absence of an alternative tool, the 4-item scale proposed by Williamson et al. (2011) will serve as a measure of family functioning in this study and results will be interpreted with these potential limitations in mind.

Children's Social, Emotional, and Behavioral Functioning

As a measure of child mental health and behavior, both the primary caregiver and the focus child completed the Behavior Assessment System for Children (BASC-2; Reynolds & Kamphaus, 2004), however BASC-2 self-reports were only available for children over the age of 8 years old but parent reports were available for all age groups. Therefore, parent reports are used for the current analysis. This scale assesses emotional and behavioral health on several dimensions (adaptive skills, hyperactivity, aggression, conduct problems, anxiety, depression, somatization, atypicality, withdrawal, attention problems, adaptability, social skills, leadership, activities of daily living, functional communication, anger control, bullying, developmental social disorders, emotional self-control, executive functioning, negative emotionality, and resiliency). In addition to these dimensions, there are also four composite scales that help identify overall tendency towards emotional problems, behavioral symptoms, adaptability, and adjustment. These composite scales are: externalizing problems, internalizing problems, behavioral symptoms and adaptive skills which are used as the children's outcome measure for the current study (Reynolds & Kamphaus, 2004). All ratings on the BASC-2 are presented as T-

scores with a mean of 50 and a standard deviation of 10. For the purposes of this study scores will be compared to normative non-clinical samples to determine severity of problem or range of positive functioning.

To interpret the clinical scales (externalizing, internalizing, and behavioral symptoms) higher scores indicate more problematic functioning. A T-score of 70 or greater indicates clinically significant problems and scores between 60-69 are considered elevated or "at-risk" of developing clinically significant problems. All scores below 60 less are generally interpreted as reflecting the absence of maladaptive/problematic behavior. Scores between 41-59 reflect responses that are within the average range; 31-40 indicates a low level of maladaptive behavior/problems; and 30 or less reflects very low levels of maladaptive behavior/problems (Reynolds & Kamphaus, 2004).

The adaptive scales measure behavioral strengths and lower scores generally indicate more problems (i.e. less adaptive skills). A T-score of 30 or lower indicates clinically significant problems/maladaptive behavior; 31-40 is considered to be elevated or "at risk" of developing clinically significant problems; 41-59 indicates responses that are in the average range; 60-69 indicates a high level of adaptive behavior; and 70 or greater means very high levels of adaptive behavior (Reynolds & Kamphaus, 2004).

The BASC-2 is a widely-used instrument in both research and clinical settings. The BASC-2 standardization sample included individuals that would be comparable to the U.S. Census data with regard to gender and race/ethnicity. The standardization sample also included children from clinical populations as well as those with special-education classifications (Reynolds & Kamphaus, 2004). The BASC-2 is said to be useful in screening individuals from across various cultural backgrounds. However, culturally-competent practitioners should always

follow-up results to evaluate whether there is an area in need of intervention or whether the results are reflective of differences in interpretation or are culturally normative (Dowdy, Kamphaus, Twyford, & Dever, 2014). The BASC has shown strong psychometric properties and the manual provides extensive information on reliability and validity of the measure, with most results demonstrating moderate to good reliability and validity. The scales and composite areas have demonstrated high internal consistency and test-retest reliability, and construct validity for the BASC scales are supported by factor analyses and comparison to other children's behavioral measures (Reynolds & Kamphaus, 2004).

Data Analysis

The purpose of this study was to investigate the relationships between economic disadvantage, caregiver mental health, family functioning in low-income families in an overall sample, as well as to investigate whether the results are consistent across four groups that had been represented in the study sample: Canadian-Born Indigenous families, Canadian-Born Non-Indigenous families, Foreign-Born Immigrants, and Foreign-Born Refugees. Table 11 below shows the primary study variables and levels of measurement. In the first step, data screening procedures and testing of assumptions are conducted. Prior to analyses to test the research questions, the data were screened for missing data, skewness, kurtosis, and outliers removed by calculating the Mahalanobis distance. In addition, a MANOVA was conducted to assess whether the Foreign-Born groups should be analyzed based on time In Canada (e.g., recent: less than 5 years; or not recent: 5 years or more). Similarly, a MANOVA was conducted to determine whether the Immigrant and Refugee groups should be analyzed together or separately.

In the second step, descriptive analyses and bivariate correlations were conducted for the entire data set as well as for each of the groups. In the third step, a path analysis was conducted

with the entire sample to uncover the direct and indirect effects of economic deprivation variables on both the caregiver (mental health and family functioning) and child (externalizing, internalizing, behavioral symptoms, and adaptive skills) variables. In the fourth and final step, a multi-group path analysis was used to investigate whether the results are similar or vary across groups represented in the sample. Path-analysis was selected over multiple regression as it allows for the analysis of more complex models simultaneously, and allows the researcher to show the total, direct, and indirect effects via mediation (Jeon, 2015).

Table 11

Key Demographic and Study Variables

Variable	Measurement
Group	1=Canadian-Born Indigenous People 2=Canadian-Born Non-Indigenous 3=Foreign-Born Immigrant 4=Foreign-Born Refugee
Lone-Parent Status	0=no co-parent 1=co-parent
Depth of poverty	Continuous (range 0-240)
Caregiver Education (highest earned)	0=No education 1=Some but less than high school 2=High school diploma 3=College diploma/trades certificate 4=University degree
Caregiver Employment status	0=not employed 1= employed
Family Functioning*	Likert 1-4 (1=not well, 4=very well)
Caregiver Mental Health *	t-scores (range 30-81)
Children's Externalizing Problems*	t-scores (range 32-99)
Children's Internalizing Problems*	t-scores (range 30-101)
Children's Behavior Symptoms*	t-scores (range 22-96)
Children's Adaptive Skills	t-scores (range 22-72)

*High scores indicate poorer functioning

III. Results

The purpose of this study was to examine the relationships among measures of economic disadvantage, caregiver mental health, family functioning, as well as children's social, emotional, and behavioral well-being at the sample level and in four family groups: Canadian-Born Indigenous, Canadian-Born Non-Indigenous, Foreign-Born Immigrants, and Foreign-Born Refugees. Each research hypothesis is tested by using descriptive, univariate, and multivariate statistics using SPSS 25 and AMOS 25 for Windows (Arbuckle, 2017; IBM Corp., Armonk, N.Y., USA). The findings are divided into 3 main sections: 1) data screening, 2) model testing for the entire sample, and 3) multi-group model testing. The research questions and hypotheses are addressed within the second and third sections.

Data Screening

Prior to conducting path analyses, the first step is to screen for missing data, multicollinearity, multivariate outliers, and issues with normality. Data were screened according to the checklist outlined by Tabachnik and Fidell (2013). The section below outlines results of data screening procedures.

Missing Data. Missing data can be a problem in psychological research because it has the potential to introduce bias in parameter estimates, decrease power, increase standard errors, and may limit the generalizability of the results and simply disregarding the cases with missing data can lead to a loss of information (Dong and Peng, 2013). However, Dong and Peng (2013) explain that there is no universally accepted cut-off of satisfactory percentage of missing data to ensure valid statistical inferences. Schafer (1999, as cited in Dong & Peng, 2013) suggested that a missing rate 5% or less would be inconsequential, while Bennet (2001, as cited in Dong & Peng 2013) suggested that a missing rate of 10% or less is unlikely to have an effect. A

frequency analysis was conducted on the data used for this study. Table 28 in the Appendices shows that less than 5% of data are missing on all the key study variables. Given that the amount of missing data is below the more conservative cut-off of 5%, no further analysis of missing data was conducted.

For the path analysis used in this study, missing data are dealt with using maximum likelihood estimation (MLE) methods. According to Allison (2012) the maximum likelihood is an appropriate way to handle missing data, as it has optimal statistical properties and several advantages over multiple imputation methods. Allison (2012) suggested that the most important advantage is that there is no potential conflict between an imputation model and an analysis model. However, multiple imputation using regression was conducted using the bootstrapping procedure in AMOS to test the indirect mediational hypotheses. Allison (2003) suggested that multiple imputation methods are almost as effective as maximum likelihood methods. Similarly, Dong and Peng (2013) indicated that maximum likelihood and multiple imputation procedures produce similar estimates and standard errors.

Normality. The data were also screened for multivariate normality. According to Kline (2015), normality can be evaluated using the skew index and kurtosis index, which is an option available in AMOS 25. In terms of skewness, Kline (2015) indicated that values greater than 3 in absolute value would be described as more "severely" skewed. Kline (2015) indicated that there is less consensus regarding kurtosis but that a distribution would be described as having severe kurtosis with values between 8 and 20. Kline (2015) suggested that a conservative general rule for kurtosis would be that a value greater than 10 would suggest a problem, but that a value greater than 20 would be a more serious issue. Tables 29 to 32 in the Appendices show the values of skewness and kurtosis for the key study variables for each group. None of the variables

violated the assumption of normality based on the skewness and kurtosis guidelines outlined by Kline (2015).

Multicollinearity. Tabachnick and Fidell (2013) noted that correlations among variables should not exceed .90 or they are considered multicollinear. From Tables 12, 17, 19, 21, & 23 below, it can be seen that there are no correlations above .90. Furthermore, to detect collinearity, Kline (2015) indicated that one could calculate the variance inflation factor (VIF), wherein multivariate collinearity would be suspected if the VIF is greater than 10.0. Using this criterion, no issues of multicollinearity were detected in the present data.

Multivariate Outliers. The data were also screened to detect multivariate outliers (i.e., extreme scores) on more than one variable (Kline, 2015). It is suggested that a Mahalanobis distance be calculated for each case (Kline, 2015). Using this method, 24 multivariate outliers were detected and removed from subsequent analysis. Several cases were removed each group: 17 from the Canadian-Born Non-Indigenous group (435 cases remaining), 5 from the Canadian-Born Indigenous group (144 cases remaining), 4 from the Foreign-born Immigrant group (322 cases remaining), and one from the Foreign-Born Refugee group (61 cases remaining). To assess univariate outliers, univariate box plots were used to detect any additional outliers, 3 outliers were detected on the depth of poverty variables (2 from the Canadian-Born Non-Indigenous group, 1 from the Foreign-Born Immigrant group). The final sample size consisted of 431 cases for the Canadian-Born Non-Indigenous group, 144 for the Canadian-Born Indigenous group, 321 for the Foreign-Born Immigrant group, and 61 for the Foreign-Born refugee group.

Time in Canada. Previous literature has suggested that for Foreign-Born groups, there may be differences on key study variables based on length of time in Canada. Therefore, prior to conducting descriptive analysis and testing the proposed model, multivariate comparisons on key

study variables were conducted between recent (< 5 years in Canada) and non-recent (> = 5 years in Canada) Foreign-Born groups to determine if these groups should be considered separately or together during the model-testing phase of analysis. Similarly, multivariate comparisons were conducted on key study variables to ascertain whether the Foreign-Born Refugee group differed significantly from the Foreign-Born Immigrant group to determine whether these groups would be considered separately or together in subsequent analysis.

A MANOVA was conducted to determine if there were significant differences between Foreign-Born recent and non-recent Foreign-Born groups on the key variables (economic disadvantage, family functioning, caregiver mental health, and the four composite scores of children's mental health (externalizing problems, internalizing problems, behavioral symptoms, and adaptive skills). The results of the MANOVA were not significant [$F(7, 300) = 0.77$, $p > .05$,$\eta_p^2=.02$][6]. Therefore, no further analyses were conducted with the Foreign-Born group divided based on amount of time in Canada. Similarly, a MANOVA was conducted to see if there were significant differences between the Foreign-Born Immigrant group and the Refugee group on the key study variables. The results of the test were significant [$F(7,317) = 2.57$, $p < .01$, $\eta_p^2=.05$], with the primary difference between the two groups being depth of poverty [$F(1, 323) = 9.17$, $p < .001$, $\eta_p^2=.03$] and caregiver mental health [$F(1,323) = 3.83$, $p < .05$, $\eta_p^2=.01$]. Therefore, the Refugee group will remain a distinct study group in subsequent analyses.

Model Testing for the Entire Sample

It was hypothesized that the relationship between economic disadvantage, lone-parenting, as well as children's externalizing, internalizing, behavioral symptoms, and adaptive skills would be mediated by caregiver mental health and family functioning. Thus, it was of interest to test

[6] Cohen's (1988) thresholds for interpreting effect sizes: .20 (small), .50 (medium), .80 (large).

this hypothesis in the entire sample and then in each of the four groups. Depth of poverty, co-parent in the home, caregiver's highest education attained, and caregiver's employment status were included as exogenous variables. Caregiver's mental health and family functioning were entered as mediators, and children's externalizing, internalizing symptoms, behavioral symptoms, and adaptive skills as endogenous variables. The results of descriptive and path analysis are presented below, with a discussion regarding the research questions and hypotheses. Table 12 presents the mean, standard deviations, and correlations for the overall sample.

Table 12

Means, Standard Deviations, and Correlations for the Entire Sample (n=957)

	1	2	3	4	5	6	7	8	9	10
Means	.38	82.99	2.48	.52	58.61	1.78	53.19	52.06	53.91	47.62
Standard Deviations	.49	36.99	1.04	.50	10.87	.46	10.49	11.35	10.52	9.44
Variable										
1. Co-parent	-									
2. Depth of poverty LIM	.14**	-								
3. Highest Education	.30**	.12**	-							
4. Employment Status	-.06	.24**	.12**	-						
5. Caregiver's Mental Health	-.15**	-.09**	-.13**	-.13**	-					
6. Family Functioning	.02	-.03	-.04	-.03	.17**	-				
7. Children's Externalizing	-.16**	-.02	-.14**	-.07*	.40**	.15**	-			
8. Children's Internalizing	-.11	-.07*	-.05	-.02	.49**	.14**	.54**	-		
9. Children's Behavioral Symptoms	-.16**	-.06	-.13**	-.05	.49**	.20**	.88**	.69**	-	
10. Children's Adaptive Skills	.11**	.07*	.14**	.05	-.27**	-.26**	-.47**	-.26**	-.61**	-

*$p < .05$; **$p < .01$

Model fit refers to the ability of a hypothesized model to be reproduced by the data (Kenny, 2015). It is evaluated before interpreting the paths in a structural model. The chi-square test is often used as the first measure of model fit, but it can be sensitive to sample size (i.e., it can become statistically significant with large samples; Kenny, 2015). A good model fit using chi-square produces an insignificant result at the .05 level, but due to the sensitivity to sample size, it is suggested that additional fit indexes be included, particularly when the chi-square test is significant (Hooper, Coughlan, & Mullen, 2008).

The RMSEA is one of the most popular fit indexes due to the sensitivity of the number of estimated parameters (Hooper et al., 2008). However, there has been some debate as to what RMSEA index is considered a good fit. Hooper et al. (2008) indicated that, previously, an RMSEA between .08 and .10 was a mediocre fit and below .08 was considered a good fit. However, Hooper et al. (2008) noted that, currently, most researchers would consider a cut-off value of .06 with an upper limit of .07 as being a good fit. The CFI (comparative fit index) is one of the most popularly reported indices because it is one of the measures least impacted by sample size (Hooper et al., 2008). Researchers originally stated that a cut-off criterion CFI of > .90 was considered a good fit, but many now suggest a CFI of $\geq$ .95 to be indicative of a good fit (Hooper et al., 2008). The NFI statistic compares the chi-square value of the model to the chi-square of the null model, which specifies no correlation between all measured variables. Recent recommendations are that an NFI value $\geq$ .95 would be indicative of a good fit (Hooper et al., 2008).

It was also noted that statistical packages often produce a multitude of fit indices but that it is not good practice to only select those that demonstrate a good model fit (Hooper et al., 2008). The RMSEA, CFI, NFI, and chi-square are produced using AMOS when there is missing data and, thus, all three of measures are reported. The fit indices showed that the conceptual model for the entire sample had a good fit to the data with a non-significant chi-square as well as other fit indices that meet the criteria for good model fit [($\chi 2$ (4) = 5.76, p = .22 ; RMSEA = .02 (90% CI = [.00, .06]); CFI = .99; NFI = .99, TLI = .99].

The fit indices indicate a good fit to the data, therefore the standardized path coefficients for the direct, indirect, and total effects (Table 13) are further analyzed to address the research questions and hypotheses. Kelley and Preacher (2012) noted that one example of a standardized

effect size are standardized path coefficients in a structural model. Using Cohen's (1988) metric for effect sizes, interpreting path coefficients with absolute values less than .10 are considered to reflect a "small" effect, values around .30 reflect a "medium" effect, and values greater than 0.50 a "large" effect. It has been noted that there is no preferred effect-size measure for the indirect effect but that standardized effects are appropriate for quantifying mediated effects (Miocevic, O'Rourke, MacKinnon, Brown & Hendricks, 2018). Each hypothesis will be discussed in sequence. Figure 2 below shows the results of the path analysis for the entire sample. Table 13 lists the direct, indirect, and total effects of the path analysis for the overall sample. The numbers depicted on the arrows represent the standardized path coefficients.

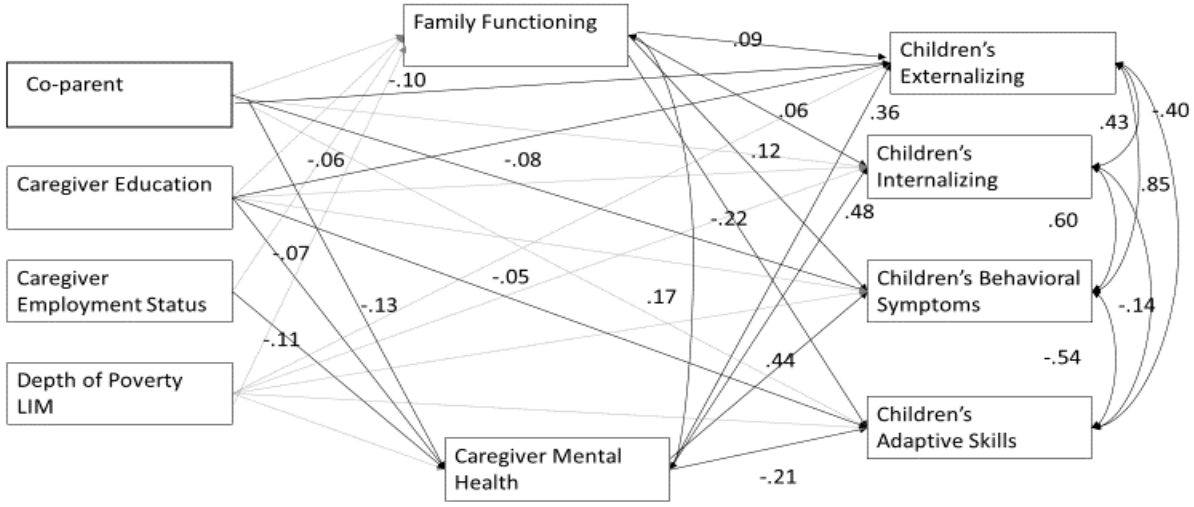

Figure 2 Standardized Estimation Coefficients for the Hypothesized Model for the Entire Sample. Note: Black solid lines represent significant paths in the hypothesized model ($p < .05$). Grey dashed lines represent hypothesized but non-significant paths.

Hypothesis 1

The first hypothesis stated that there would be a direct effect of economic disadvantage on family functioning and caregiver mental health. Surprisingly, depth of poverty was not a significant predictor of family functioning (β = -.03, *t* = -.85, *p* >.05) nor caregiver mental health (β = -.04, *t*=-1.30, *p* = >.05). However, caregiver's educational attainment was related to the caregiver's mental health. Specifically, caregivers with a higher level of education had less mental health symptomology (β = -.07, *t* = -1.98, *p* = .04). The caregiver's employment status (i.e., currently working or not working) also had a direct effect on the caregiver's mental health (β = -.11, t = -3.17, *p* = .002). Specifically, those who were not working had higher mental health scores. There was no significant effect of educational attainment (β = -.04, *t* = -1.150, *p* >.05) nor caregiver's employment status (β = -.04, *t* = -.29, *p* >.05) on family functioning. Being a lone-parent (i.e., not having a co-parent in the home) was related to higher caregiver mental health symptoms (β = -.13, *t* = -3.81, *p* < .001), but not to family functioning (β = .03, *t* = .90, *p* >.05). In sum, the variables that had an effect on caregiver mental health were educational attainment, employment status and being a lone-parent. Thus, caregivers with higher education, were working, and had co-parents in the home fared better in terms of mental health.

Hypothesis 2

The second hypothesis was that the greater economic disadvantage will lead to increased children's internalizing, externalizing, and behavioral symptoms, as well as decreased adaptive skills in children. The results of the analysis show that there was no direct effect of depth of poverty on children's externalizing (β = .04, *t* = 1.15, *p* > .05), internalizing (β = -.02, *t* = -.83, *p* > .05), behavioral symptoms (β = .00, *t* = .00, *p* >.05), or adaptive skills (β = -.02, *t* = .73, *p* < .05). However, caregiver's educational attainment had a direct effect on children's externalizing

problems (β = -.06, t = -1.96, p < .05) and adaptive skills (β = .08, t = 2.49, p < .01), but not on internalizing problems (β = .03, t = .92, p > .05) or behavioral symptoms (β = -.05, t = -1.55, p > .05). An important finding was that there was a direct effect of lone-parenting on children's externalizing (β = -.10, t = -3.23, p = .001) and behavioral symptoms (β = -.08, t = -2.75, p = .006).

In light of the finding that depth of poverty did not have the hypothesized impact on the study variables, further investigation was conducted. It is important to note that, while all participants in this study were considered low-income families by nature of being eligible for services only available to those considered low-income, not all families in this study had incomes that were below the LIM. Therefore, by that definition, they would not be considered to be living in poverty. In fact, 29.7% were not considered to be living in poverty according to the LIM. To investigate whether depth of poverty had an impact on the study variables in only those families considered to have a depth of poverty below the LIM, the analysis was re-run selecting only those cases. However, results remained non-significant, suggesting that, in this sample, depth of poverty was not a significant predictor of other study variables.

Hypothesis 3

The third hypothesis was that greater economic disadvantage will lead to increased mental health difficulties among caregivers and reduced family functioning, which will result in poorer mental health outcomes for children. First, the direct effects demonstrate that both family functioning and the caregiver's mental health have an impact on children's outcomes. Looking at family functioning, a significant direct effect can be seen on children's externalizing (β = .09, t = 2.92, p = .004), internalizing (β = .06, t = 2.09 p = .04), behavioral symptoms (β =.13, t = 4.15, p < .001), with a larger effect seen with children's adaptive skills (β = -.23, t = -6.98, p < .001).

This indicates that poorer family functioning results in a subsequent increase in children's mental health and behavioral symptomology and reduction in adaptive functioning. Caregiver mental health had a direct effect on the children's externalizing (β= .39, t = 11.85, p < .001), internalizing (β= .48, t = 16.11, p < .001), behavioral symptoms (β= .45, t = 15.13, p < .001), and adaptive skills (β = -.22, t = -6.68, p < .001). This indicates that, as the caregivers' mental health symptomology increases, there is an increase in children's symptomology and a decrease in their adaptive skills. It was also found that caregiver mental health and family functioning were significantly related (r = .17, p < .05).

To investigate the indirect effects, a bootstrapping procedure (5000 samples), 95% bias corrected confidence intervals and associated p values were used to evaluate the mediating effects of economic disadvantage on children's mental health outcome though its impact on family functioning and caregiver mental health. Table 13 below shows the indirect effects and significance levels. For caregiver mental health and family functioning to be mediators in the model, first it has to be demonstrated that the mediators are related to the predictor variables (depth of poverty, educational attainment, and employment status). As can be seen in the previous discussion, family functioning, while found to be significantly directly related to children's outcomes, was not related to the economic disadvantage variables, nor to whether there was a co-parent in the home. Therefore, family functioning is not considered to be a significant mediator in the model. Furthermore, depth of poverty was not a significant predictor of caregiver mental health, family functioning nor children's outcomes. Therefore, it is also not a significant predictor in the mediational relationship. The variables that were predictive of caregiver mental health were whether there was a co-parent in the home, employment status, and parent's education. In reviewing the indirect effects in Table 13, one can see that there is a small

but significant partial mediation found on three paths: a) caregiver's educational attainment→caregiver mental health→children's outcomes (externalizing, internalizing, behavioral symptoms, and adaptive skills); b) caregiver's employment status→caregiver mental health→children's outcomes; and c) co-parent→caregiver mental health→children's outcomes. With the exception of children's internalizing problems, there were direct and indirect effects of having a co-parent in the home and caregiver's education. For children's internalizing problems, these only had a significant effect through caregiver's mental health.

When looking at squared multiple correlations in Table 13, it can be seen that the economic variables explain very little of the variance in this sample, and that more variance is explained in the children's outcomes, namely 18% of the variance in children's externalizing, 25% of children's internalizing, 26% of children's behavioral symptoms, and 13% of children's adaptive skills.

Table 13

Standardized Direct, Indirect, and Total Effects for the Entire Sample

Endogenous Variables	*Exogenous variables*	*Direct Effects*	*Indirect*	*Total*	R^2
Family Functioning					.00
	Depth of poverty	-.03	-	-.03	
	Co-parent	.03	-	.03	
	Education	-.04	-	-.04	
	Employment	-.01	-	-.01	
Caregiver Mental Health					.04
	Depth of poverty	-.04	-	-.04	
	Co-parent	-.13***	-	-.13***	
	Education	-.07*	-	-.07*	
	Employment	-.12**	-	-.12**	
Children's Externalizing					.18
	Depth of poverty	.03	-.02	.01	
	Co-parent	-.12***	-.04***	-.16***	
	Education	-.06*	-.03*	-.09**	
	Employment	-	-.04**	-.04**	
	Family Functioning	.09***	-	.09***	

	Caregiver Mental Health	.37***	-	.37***	
Children's Internalizing					.25
	Depth of poverty	-.02	-.02	-.05	
	Co-parent	-.04	-.06***	-.10**	
	Education	.03	-.04*	-.01	
	Employment	-	-.05**	-.05**	
	Family Functioning	.06*	-	.06*	
	Caregiver Mental Heath	.48***	-	.48***	
Children's Behavioral Symptoms					.26
	Depth of poverty	-.00	-.02	-.02	
	Co-parent	-.10**	-.05***	-.15***	
	Education	-.05*	-.04*	-.05*	
	Employment	-	-.05**	-.08**	
	Family Functioning	.12***	-	.12***	
	Caregiver Mental Health	.45***	-	.45***	
Children's Adaptive Skills					.13
	Depth of poverty	.03	.03	.04	
	Co-parent	.07	.02	.07*	
	Education	.08**	.02*	.10***	
	Employment	-	.03*	.03*	
	Family Functioning	-.22***	-	-.22***	
	Caregiver Mental Health	-.22***	-	-.22***	

*$p < .05$; **$p < .01$; *** $p < .001$

The results demonstrate that, when looking at the four facets of children's social, emotional, and behavioral functioning included in this study, family functioning and the caregiver's mental health have the greater degree of impact over that of the economic disadvantage variables, with caregiver's mental health having the strongest direct effects. The findings suggest that when caregiver mental health scores increase, so do children's externalizing, internalizing, and behavioral symptoms. However, children's adaptive skills are

reduced. While these results represent an important relationship, it was of interest to understand what these findings may mean in terms of clinical significance.

Using descriptive statistics, Table 14 below shows the percentage of children in the sample that would be considered to have scores in the average, at-risk, and clinically significant ranges in terms of the four measured aspects of children's social, emotional, and behavioral functioning. Table 15 shows the percentage of caregivers in the sample whose global symptom index scores were considered to be in the clinically significant range. It can be seen that while the majority of the children in this sample were considered to be within the low level of maladaptive behavior or the average range of behavior, there was still a sizeable proportion that would be considered at-risk or within the clinically significant range (23-25%). Similarly, when it comes to the caregiver's mental health, the majority (63%) were found to be in the non-clinically significant range, whereas 37% were found to have elevated scores. According to the Canadian Mental Health Association (2013), an estimate of prevalence is that about 1 in 5 individuals in the general population will experience a mental health related issue or problem in any given year. Furthermore, the Canadian Mental Health Association (2013) estimated that 10-20% of children and youth are impacted by mental health related issues. Therefore, in this sample, the proportion of caregivers and children who have mental health scores that are in the at-risk or clinically significant range may be greater than might be expected in the general population. Given that the results show a stronger relationship between the caregiver's mental health and children's outcomes, it was of interest to understand the proportion of caregivers with global severity index scores in the clinically significant range, who also have children who are in the at-risk or clinically significant range. To evaluate, a chi-square was conducted. One can see from Table 16 below that, when the caregiver's global severity scores were in the clinically

significant range, children were more likely to be in the at-risk range or clinically significant range and less likely to be in the average or low-levels of maladaptive behavior categories. Similarly, in terms of adaptive skills, when caregivers had global mental health scores in the clinically significant range, children were more likely to have adaptive skills that were in the at-risk or clinically significant range. This demonstrates that there is not only a relationship between children's mental health scores, but that both child and caregiver can be experiencing levels of symptomology significant enough to where services may be of benefit.

Table 14

Number and Percentage of Children in BASC Clinical Categories.

	Categories							
	Low Level of Maladaptive Behavior		Average Range		At-Risk		Clinically Significant	
Outcome	#	%	#	%	#	%	#	%
Externalizing	77	8.3	629	65.7	152	16.4	70	7.5
Internalizing	135	14.7	564	61.6	146	15.9	71	7.8
Behavioral Symptoms	70	7.7	608	66.7	185	17.3	76	8.3
Adaptive Skills*	99	10.8	599	65.5	180	19.7	37	4.0

*For the adaptive skills scale, the scale is reversed in that the Low Level of Adaptive Behavior column represents high levels.

Table 15

Number and Percentage of Caregiver with Scores in the Clinical Categories on the Global Severity Index.

	Not clinically significant		Clinically significant	
	#	%	#	%
Caregiver Global Severity Scores	599	63	352	37

Table 16

Number and Percentage of Children in Each Clinical Category by Caregiver's GSI Mental Health Category

	Children's BASC Categories								
	Low Level of Maladaptive Behavior		Average Range		At-Risk		Clinically Significant		
Caregiver MH category	#	%	#	%	#	%	#	%	χ^2
Externalizing									$\chi^2(3, 923)=67.93, p<.001$
Not Clinically Significant	62	6.7	429	46.5	67	7.3	24	2.6	
Clinically significant	14	1.5	196	21.2	85	9.2	46	5.0	
Internalizing									$\chi^2(4, 911)=110.59, p<.001$
Not Clinically Significant	114	12.3	384	42.2	61	6.7	17	1.9	
Clinically significant	20	2.2	176	19.3	85	9.3	54	5.9	
Behavior Symptoms									$\chi^2(3, 907)=98.912, p<.001$
Not Clinically Significant	63	6.9	416	45.9	80	8.8	17	1.9	
Clinically significant	5	.6	189	20.8	78	8.6	59	6.5	
Adaptive Skills*									$\chi^2(3, 910)=24.07, p<.001$
Not Clinically Significant	77	8.5	381	41.9	104	11.4	13	1.4	
Clinically significant	22	2.4	213	23.4	76	8.4	24	2.6	

*For the adaptive skills scale the scale is reversed in that the Low Level of Adaptive Behavior column represents high levels of adaptive skills.

Model Analysis by Group

Hypothesis 4

Another key research question was whether the results of the model in the overall sample of low-income families varied by the groups that had been represented in the FFE study sample and who may be considered to be particularly vulnerable groups according to the literature on low-income families. Therefore, a multi-group path analysis was conducted to investigate the relationships within Canadian-Born Indigenous families, Canadian-Born Non-Indigenous families, Foreign-Born Immigrants, and Foreign-Born Refugees groups. Tables 17, 19, 21 and 23 below show means, standard deviations, and correlations for each group. The multi-group path analysis showed that the conceptual model had a good fit to the data with a non-significant chi-square and other fit indices that meet the criteria for good model fit [$\chi^2(16) = 19.00$, $p = .27$; RMSEA = .01 (90% CI = [.00, .04]); CFI = .99; NFI = .99, TLI = .98]. Given that the model fit the data, the standardized path coefficients were analyzed for each group. Using the same methodology as listed above to test whether there were significant indirect effects within the group, bootstrapping procedures (5000 samples) with 95% bias corrected confidence intervals were used to test the significance of indirect paths.

Canadian-Born Indigenous Families. Correlations, means, and standard deviations are presented for the Canadian-Born Indigenous families in Table 17, while Figure 3 shows the results of the path analysis. Direct, indirect, and total effects are presented with significant paths highlighted in Table 18.

Table 17

Means, Standard Deviations, and Correlations for the Canadian-Born Indigenous Families (n=144)

	1	2	3	4	5	6	7	8	9	10
Means	.19	76.52	1.74	.28	60.90	1.82	54.69	52.29	55.21	45.88
Standard Deviations	.39	33.57	.76	.45	10.22	.47	10.84	10.74	10.21	9.4
1. Co-parent	-									
2. Depth of poverty LIM	.09	-								
3. Highest Education	.04	.27**	-							
4. Employment Status	-.06	.38**	.13	-						
5. Caregiver Mental Health	.08	-.15	-.16	.00	-					
6. Family Functioning	-.10	.05	-.03	.23**	.12	-				
7. Children Externalizing	-.00	.04	-.09	.05	.34**	.25**	-			
8. Children Internalizing	.01	.03	-.13	.06	.33**	.10	.57**	-		
9. Children's Behavioral Symptoms	.02	.02	-.08	.13	.38**	.28**	.89**	.69**	-	
10. Children's Adaptive Skills	.15	.01	.06	-.16	-.12	-.34**	-.43**	-.11	-.55**	-

*p<.05 **p<.01

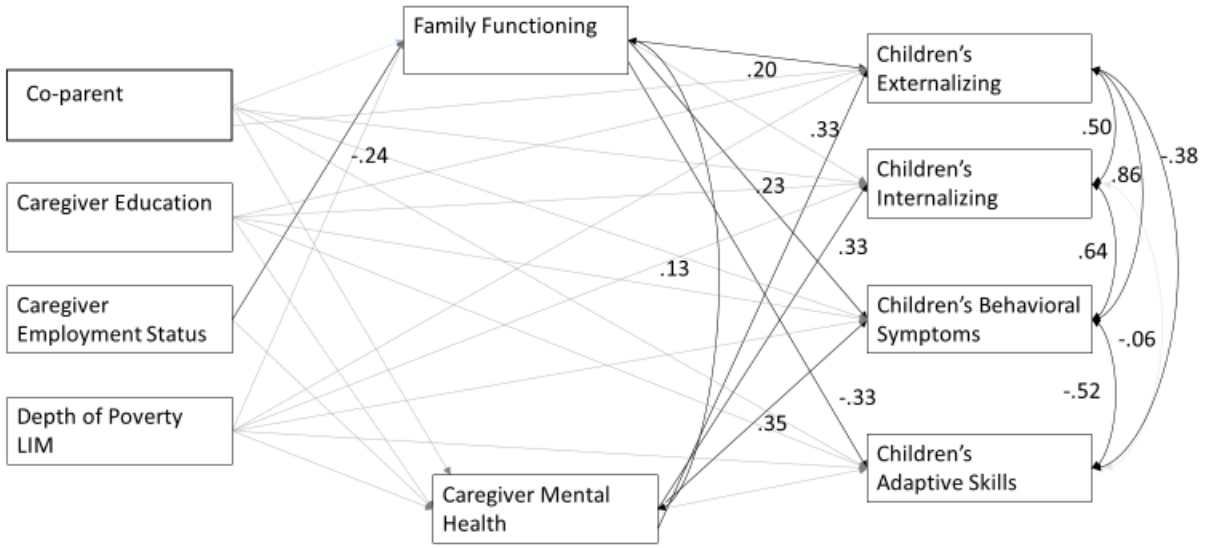

Figure 3 Standardized Estimation Coefficients for the Hypothesized Model Canadian-Born Indigenous Families. Note: Black solid lines represent significant paths in the hypothesized model ($p < .05$). Grey dashed lines represent hypothesized but non-significant paths.

Table 18

Standardized Direct, Indirect, and Total Effects for the Canadian-Born Indigenous Sample

Endogenous Variables (n=144)	*Exogenous variables*	*Direct Effects*	*Indirect*	*Total*	R^2
Family Functioning					.07
	Depth of poverty	-.02	-	-.02	
	Co-parent	-.08	-	-.08	
	Education	-.06	-	-.06	
	Employment	-.24**	-	-.24**	
Caregiver Mental Health					.05
	Depth of poverty	-.15	-	-.15	
	Co-parent	.10	-	-.10	
	Education	-.14	-	-.14	
	Employment	.08	-	.08	
Children's Externalizing					.17
	Depth of poverty	.08	-.05	.03	
	Co-parent	-.02	.02	.00	
	Education	-.05	-.06	-.10	
	Employment	-	.08	.08*	
	Family Functioning	.20**	-	.20**	
	Caregiver Mental Health	.32***	-	.32***	
Children's Internalizing					.13
	Depth of poverty	.11	-.05	.05	
	Co-parent	-.02	.03	.01	
	Education	-.10	-.05	-.01	
	Employment	-	.04	.04	
	Family Functioning	.04	-	.05	
	Caregiver Mental Heath	.33***	-	.33***	
Children's Behavioral Symptoms					.20
	Depth of poverty	-.06	-.06	.01	
	Co-parent	.01	.02	.02	
	Education	-.03	-.06	-.09	
	Employment	-	-.09*	-.09*	
	Family Functioning	.23***	-	.23***	
	Caregiver Mental Health	.35***	-	.35***	
Children's Adaptive Skills					.14
	Depth of poverty	-.03	.02	-.01	
	Co-parent	.11	.02	.13	

Education	.03	.02	.06
Employment	-	-.09**	-.09**
Family Functioning	.-.33***	-	-.33***
Caregiver Mental Health	-.09	-	-.09

*$p < .05$; **$p < .01$; *** $p < .001$

The first research question was to investigate the impact of the economic indicators on family functioning and caregiver mental health. For the Canadian-Born Indigenous families, the only significant economic predictor was employment status which was significantly predictive of family functioning (β = -.24, t = 2.86, p = .004) with those who were not working having higher (more problematic) family functioning. This is in contrast to the results of the total sample where there were no significant economic predictors of family functioning. Furthermore, the results show non-significant relationships of the economic predictors on caregiver mental health. Importantly, and similar to the results for the total sample, there were significant direct effects of caregiver mental health on children's externalizing (β = .32, t = 4.02, $p < .001$), internalizing (β =.33, t = 4.04, $p < .001$), and behavioral symptoms (β = .35, t = 4.48, p < .001). However, there was not a significant caregiver mental health direct effect on children's adaptive skills (β = -.09, t = -.13, p > .05). These results suggest that, while an important predictor of children's outcomes (social, emotional, and behavioral), caregiver mental health was not influenced by the economic factors. Only one indirect effect was evaluated given that there were non-significant relationships between the economic predictors and the mediators. It can be seen that there was a small indirect effect of employment in children's behavioral symptoms (β = -.09, *SE* = .05, 95% CI = [.006, .190], p =.03) and adaptive skills (β = -.09, SE = 0.4, 95% CI = [-.17, -.03], p = .005). Certainly, the more relevant findings are the significant direct effects of family functioning on children's externalizing (β = .20, t = 2.58, p = .01), behavioral symptoms (β = .20, t = 3.10, p =

.002) and adaptive skills (β = -.33, t = -4.15, p < .001) but not on children's internalizing problems (β = .04, t = .66, p >.05). This suggests that when families have higher (more problematic) scores on family functioning, there is an increase in children's externalizing, behavioral symptoms. However, there is a reduction in children's adaptive skills.

Canadian-Born Non-Indigenous Families. Table 19 shows means, standard deviations and correlations for the Canadian-Born Non-Indigenous Families. Figure 4 and Table 20 show the standardized coefficients for the direct, indirect, and total effects. In revisiting the research questions and hypotheses for the Canadian-Born Non-Indigenous families, it can be seen that there were significant direct effects of caregiver's employment status on caregiver's mental health (β = -.20, t = -3.97, p < .001). Thus, those who were not working have higher mental health scores. Being a lone-parent also had a negative direct effect on caregiver's mental health (β = -.15, t = -3.14, p = .002). Contrary to the hypothesis, there were no significant direct effects of any of the economic disadvantage variables on family functioning. The results show that having no co-parent in the home had a significant direct effect on children's externalizing (β = -.08, t = -1.89, p <.05), internalizing (β = -.09, t = -2.16, p > .05), and behavioral symptoms (β = -.08, t = -.1.83, p <.05). There was also a small effect of caregiver education (β = -.08, p <.05) on children's internalizing symptoms. In terms of the indirect mediational hypotheses, only relationships through caregiver mental health were possible, given that economic predictors were not found to be related to family functioning.

There were indirect effects of lone-parent and employment status on children's outcomes. As can be seen from Table 20, there were small but significant partial mediation effects of being a lone-parent on children's externalizing (β = -.06, *SE* = .02, 95% CI = [-.10, -.02], p = .001), internalizing (β = -.07, SE = .02, 95%CI = [-.12, -.02], p =.003), and behavioral symptoms (β =

-.07, SE = .03, 95% CI = [-.12, -.02], p =.006) through its impact on caregiver mental health. Furthermore, being unemployed negatively impacted caregiver's mental health and had an indirect impact on children's externalizing (β = -.09, SE = .02, 95% CI = [-.13, -.45], p <.001), internalizing (β = -.10, SE = .02, 95% CI = [-.14, -.05], p<.001), behavioral symptoms (β = -.10, SE = .02, 95% CI = [-.15, -.05], p <.001), and adaptive skills (β =.08, SE = .02, 95% CI = [.03, .11], p < .001). While the economic relationships and mediational results represent small effects, it can be seen that family functioning and caregiver's mental health have larger direct effect on children's mental health outcomes. This is similar to the findings in Canadian-Born Indigenous families. The results show that for Canadian-Born Non-Indigenous families, family functioning has a direct impact on children's externalizing (β = .16, t = 3.52, p < .001), internalizing (β = .10, t = 2.35, p =.02), behavioral symptoms (β =.16, t = 3.85, p < .001), and adaptive skills (β = -.28, t = -5.86, p < .001). When a family has more problematic family functioning, then children's social, emotional, and behavioral symptoms also increase. However, children's adaptive functioning decreases. Caregiver's mental health appeared to have the strongest direct effect on children' externalizing (β =.37, t = 8.28, p < .001), internalizing (β = .44, t = 10.07, p <.001), behavioral symptoms (β = .44, t = 10.25, p <.001), and adaptive skills (β = -.23, t = -4.89, p < .001). In sum, for the Canadian-Born Non-Indigenous families, the first hypothesis that economic disadvantage impacts family functioning and caregiver mental health was only partially supported by the relationship between whether the caregiver was employed and children's outcomes. Lone-parenting also seemed to have an impact on both caregiver's mental health and children's outcomes (externalizing, internalizing and behavioral symptoms). However, family functioning and caregiver's mental health seem to be the key factors when it comes to children's social, emotional, and behavioral functioning.

Table 19

Means, Standard Deviations, and Correlations for the Canadian-Born Non-Indigenous Group (n=431)

	1	2	3	4	5	6	7	8	9	10
Means	.27	87.52	2.27	.60	59.18	1.73	55.47	53.43	56.21	46.79
Standard Deviations	.44	37.05	.80	.49	10.47	.49	11.14	41.19	11.17	9.73
1. Co-parent	-									
2. Depth of poverty LIM	.22**	-								
3. Highest Education	-.04	.12*	-							
4. Employment Status	-.13**	.23**	.15**	-						
5. Caregiver's Mental Health	-.13**	-.10*	-.01	-.18**	-					
6. Family Functioning	.00	-.05	-.09	-.11*	.23**	-				
7. Children's Externalizing	-.13**	-.09	-.04	-.13**	.42**	.24**	-			
8. Children's Internalizing	-.16**	-.09	.07	-.04	.48**	.19**	.54**	-		
9. Children's Behavioral Symptoms	-.14**	-.10*	-.05	-.13**	.49**	.27**	.87**	.72**	-	
10. Children's Adaptive Skills	.06	.10*	.10	.15**	-.30**	-.32**	-.52**	-.34**	-.63**	-

*p<.05; **p<.01

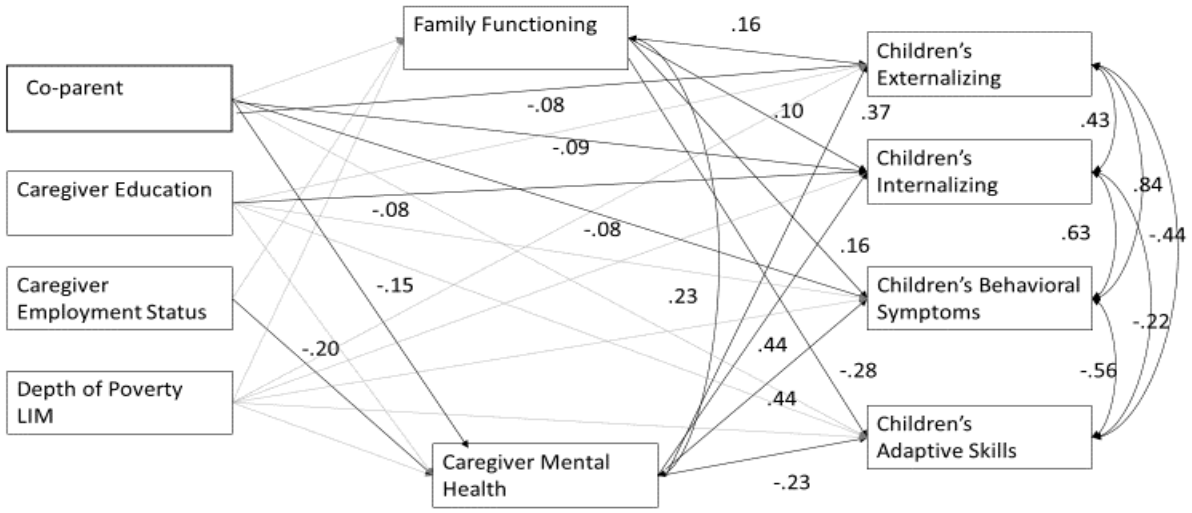

Figure 4 Standardized Estimation Coefficients for the Hypothesized Model Canadian-Born Non-Indigenous Families. Note: Black solid lines represent significant paths in the hypothesized model ($p < .05$). Grey dashed lines represent hypothesized but non-significant paths.

Table 20

Standardized Direct, Indirect, and Total Effects for the Canadian-Born Non-Indigenous Sample (n=431)

Endogenous Variables	*Exogenous variables*	*Direct Effects*	*Indirect*	*Total*	R^2
Family Functioning					.02
	DOP LIM	-.02	-	-.02	
	Co-parent	-.01	-	-.01	
	Education	-.08	-	-.08	
	Employment	-.09	-	-.09	
Caregiver Mental Health					.06
	DOP LIM	-.03	-	-.03	
	Co-parent	-.15**	-	-.15**	
	Education	.02	-	.02	
	Employment	-.20***	-	-.20***	
Children's Externalizing					.20
	DOP LIM	-.01	-.02	.02	
	Co-parent	-.08**	-.06**	-.14**	
	Education	-.03	-.00	-.03	
	Employment	-	-.09***	-.09***	
	Family Functioning	.16***	-	.16***	
	Caregiver Mental Health	.37***	-	.37***	
Children's Internalizing					.25
	DOP LIM	-.03	-.02	.05	
	Co-parent	-.09*	-.07**	-.16***	
	Education	-.08*	-.00	.08*	
	Employment	-	-.10***	-.10***	
	Family Functioning	.10*	-	.10*	
	Caregiver Mental Heath	.44***	-	.44***	
Children's Behavioral Symptoms					.28
	DOP LIM	-.03	-.02	-.04	
	Co-parent	-.08*	-.07**	-.15**	
	Education	-.03	-.00	-.03	
	Employment	-	-.10***	-.10***	
	Family Functioning	.16***	-	.16***	

	Caregiver Mental Health	.44***	-	.44***	
Children's Adaptive Skills					.17
	DOP LIM	.05	.01	.06	
	Co-parent	.02	.04	.06	
	Education	.07	.02	.08	
	Employment	-	.08***	.08***	
	Family Functioning	-.28***	-	-.28***	
	Caregiver Mental Health	-.23***	-	-.23***	

*p<.05; **p<.01; *** p<.001

Foreign-Born Immigrant Families. Table 21 shows means, standard deviations and correlations for the Foreign-Born Immigrant Families. The path diagram for the Foreign-Born Immigrant group is presented in Figure 5 and direct, indirect, and total effects in Table 22. First, none of the economic factors seemed to have a direct effect on caregiver mental health or family functioning. However, in contrast to the Canadian-Born Indigenous and Non-Indigenous families, there was a relationship between depth of poverty and children's internalizing symptoms. As depth of poverty increases (scores are lower representing a higher level of poverty), children's internalizing symptoms increase (β = -.09, t = -1.913, p < .05). There was also a significant negative effect of lone-parenting on caregiver's mental health (β = -.16, t = -2.69, p = .007). For the Foreign-Born Immigrant group, the most significant factor in predicting children's outcomes was the caregiver's mental health. The results show a direct effect of caregiver mental health on children's externalizing (β =.39, t = 7.383, p <.001), internalizing (β =.58, t = 12.51, p <.001), behavioral symptoms (β =.52, t = 10.72, p <.001), and adaptive skills (β = -.22, t = -3.97, p <.001). In contrast to the Canadian-Born Indigenous families and Canadian-Born Non-Indigenous families, family functioning was only predictive of children's adaptive skills (β = -.15, t = -2.84, p < .05), whereas in the Canadian-Born Indigenous families, family functioning was predictive of children's externalizing, behavioral symptoms, and

children's adaptive skills. In the Canadian-Born Non-Indigenous families, family functioning was predictive of all four of the children's outcomes.

In terms of indirect effects, the only possible effect was whether being a lone-parent had an indirect effect on children's outcomes through the impact of caregiver's mental health. There were small indirect effects of being a lone-parent on children's externalizing problems (β = -.07, SE = .03, 95% CI [-.12, -.02], p <.01), internalizing problems (β = -.10, SE = .04, 95% CI [-.17, -.02], p <.05), and behavioral symptoms (β = -.08, SE = .03, 95% CI [-.15, -.02], p <.05). Therefore, for Foreign-Born Immigrant families, lone-parenting had a direct effect on caregiver's mental health. Those who were lone-parents tended to have higher scores on the measure of mental health. Moreover, children's externalizing, internalizing, and behavioral scores were affected through that negative impact.

Table 21

Means, Standard Deviations, and Correlations for the Immigrant Families (n = 321)

	1	2	3	4	5	6	7	8	9	10
Means	.59	82.65	3.09	.53	56.81	1.82	50.01	50.16	50.82	49.13
Standard Deviations	.49	38.66	1.10	.50	11.48	.43	8.72	10.59	8.96	9.09
1. Co-parent	-									
2. Depth of poverty LIM	.16**	-								
3. Highest Education	.40**	.11*	-							
4. Employment Status	-.03	.17**	.04	-						
5. Caregiver's Mental Health	-.18**	-.06	-.11*	-.05	-					
6. Family Functioning	.05	-.03	-.05	-.04	.14*	-				
7. Children's Externalizing	-.09	-.02	-.08	-.07	.38**	.00	-			
8. Children's Internalizing	-.06	-.10	-.07	-.05	.57**	.09	.49**	-		
9. Children's Behavioral Symptoms	.09	-.09	-.08	-.04	.51**	.10	.88**	.64**	-	
10. Children's Adaptive Skills	.02	.08	.10	.03	-.22**	-.18**	-.38**	-.18**	-.58**	-

*p<.05, **p<.01

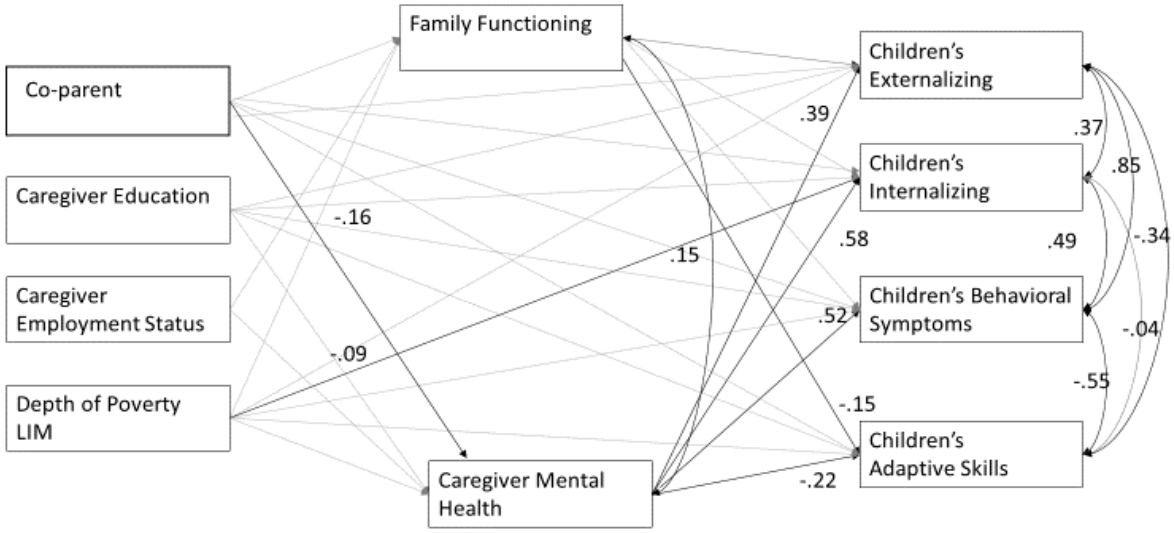

Figure 5 Standardized Estimation Coefficients for the Hypothesized Model Foreign-Born Immigrant Families. Note: Black solid lines represent significant paths in the hypothesized model (p<.05). Grey dashed lines represent hypothesized but non-significant paths.

Table 22

Standardized Direct, Indirect, and Total Effects for Foreign-Born Immigrant Families

Endogenous Variables (n =321)	*Exogenous variables*	*Direct Effects*	*Indirect*	*Total*	R^2
Family Functioning					.01
	Depth of poverty	-.03	-	-.03	
	Co-parent	.08	-	.08	
	Education	-.08	-	-.08	
	Employment	-.03	-	-.03	
Caregiver Mental Health					.04
	Depth of poverty	-.03	-	-.03	
	Co-parent	-.16**	-	-.16**	
	Education	-.04	-	-.04	
	Employment	-.04	-	-.04	
		-	-	-	
Children's Externalizing					.16
	Depth of poverty	.01	-.01	-.01	
	Co-parent	-.01	-.07*	-.08	

	Education	-.04	-.01	-.05	
	Employment	-	-.02	-.02	
	Family Functioning	-.03	-	-.03	
	Caregiver Mental Health	.39***	-	.39***	
Children's Internalizing					.35
	Depth of poverty	-.09*	-.02	-.11*	
	Co-parent	.07	-.10*	-.03	
	Education	-.02	-.02	-.05	
	Employment	-	-.02	-02	
	Family Functioning	.00	-	.00	
	Caregiver Mental Heath	.58***	-	.58***	
Children's Behavioral Symptoms					.29
	Depth of poverty	-.08	-.06	-.10	
	Co-parent	.03	-.08*	-.05	
	Education	-.02	-.03	-.05	
	Employment	-	-.03	-.02	
	Family Functioning	.04	-	.04	
	Caregiver Mental Health	.52***	-	.52***	
Children's Adaptive Skills					.10
	Depth of poverty	.07	.01	.08	
	Co-parent	-.06	.02	-.04	
	Education	.08	.02	.10	
	Employment	-	.01	.01	
	Family Functioning	-.15**	-	-.15**	
	Caregiver Mental Health	-.22***	-	-.22***	

*$p < .05$ **$p < .01$ ***$p < .001$

Foreign-Born Refugee Families. Foreign-Born Refugees comprised the smallest group in the sample ($n = 61$). Table 23 shows the means, standard deviations, and correlations. Figure 6 and Table 24 show the direct, indirect, and total standardized effects. The results of the path analysis demonstrated that the only economic predictor of the other study variables was current employment status. It had a direct impact on family functioning ($\beta = .25$, $t = 1.950$, $p < .05$), with those who were working having more problematic family functioning. This is in contrast to the

results found with the Canadian-Born Indigenous families who had the opposite effect, in that caregivers who were not working reported higher (more problematic) scores on family functioning. Also, it was found that those who had a co-parent in the home had children with higher scores in terms of adaptive skills (β = .22, t = 2.48, p < .05). Contrary to the hypotheses, the economic factors did not have the predicted effect on family functioning and caregiver's mental health. Therefore, the only indirect effect that may be evaluated was that of employment status of the caregiver and its impact on children's internalizing symptoms, through family functioning. The results suggest a non-significant indirect effect (β = -04, SE = .09, 95% CI [-.22, .13], p >.05).

In terms of other direct effects, for the Foreign-Born Refugee families, family functioning was only a significant predictor of children's internalizing (β=.21, t = 2.17, p <.05), with more problematic family functioning resulting in increased internalizing symptoms. Similar to the other groups of families represented in the sample, children's outcomes were most strongly predicted by caregiver's mental health. The results showed direct effects of caregiver mental health on children's externalizing (β =.43, t = 3.659, p < .001), internalizing (β = .55, t = 5.73, p < .001), behavioral symptoms (β = .51, t = 4.65, p< .001), and adaptive skills (β = -.55, t = -5.19, p < .001).

Table 23

Means, Standard Deviations, and Correlations for the Foreign-Born Refugee Group (n = 61)

	1	2	3	4	5	6	7	8	9	10
Means	.54	67.59	2.44	.41	58.62	1.72	49.59	51.35	49.44	50.11
Standard Deviations	.50	28.80	.99	.49	10.65	.41.29	7.95	10.96	8.44	7.45
1. Co-parent	-									
2. Depth of poverty LIM	.03	-								
3. Highest Education	.15	.08	-							
4. Employment Status	-.10	.14	.07	-						
5. Caregiver's Mental Health	.06	-.11	-.06	-.17	-					
6. Family Functioning	-.06	-.05	-.01	.25	.15	-				
7. Children's Externalizing	.06	-.00	.17	.02	.37**	-.03	-			
8. Children's Internalizing	.27	-.14	.11	-.03	.57**	.27*	.65**	-		
9. Children's Behavioral Symptoms	.13	-.01	.16	.08	.48**	.10	.89**	.77**	-	
10. Children's Adaptive Skills	.22*	.04	.06	-.14	-.50**	.07	-.31*	-.16	-.41**	-

*p < .05, **p < .01

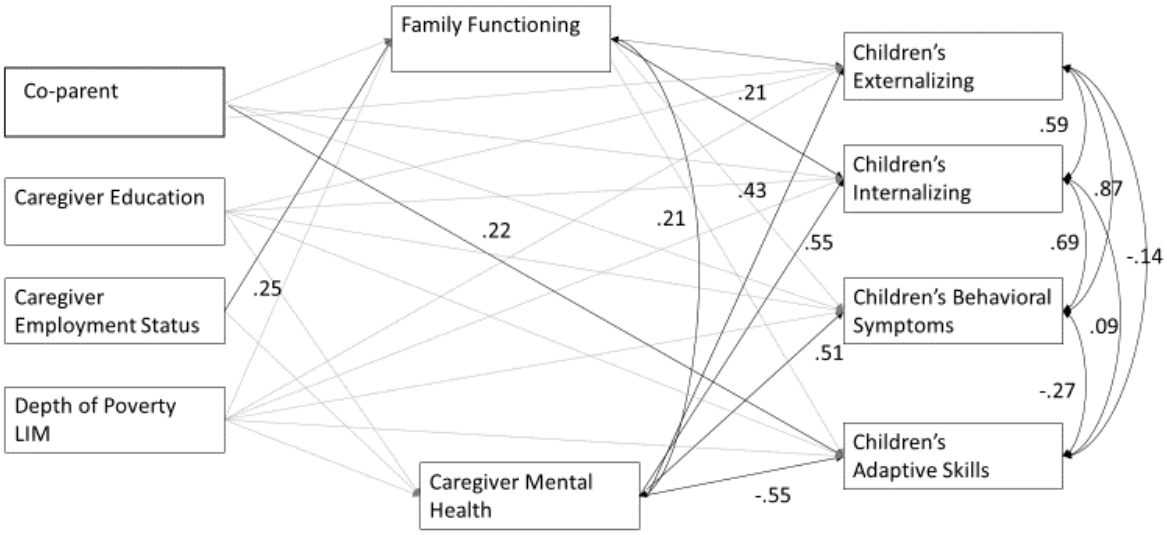

Figure 6 Standardized Estimation Coefficients for the Hypothesized Model Foreign-Born Refugee Families. Note: Black lines represent significant paths in the hypothesized model (p<.05). Grey dashed lines represent hypothesized but non-significant paths.

Table 24

Standardized Direct, Indirect, and Total Effects for Foreign-Born Refugee (n = 61)

Endogenous Variables	*Exogenous variables*	*Direct Effects*	*Indirect*	*Total*	R^2
Family Functioning					.07
	Depth of poverty	-.08	-	-.08	
	Co-parent	-.04	-	-.04	
	Education	-.02	-	-.02	
	Employment	.25*	-	.25*	
Caregiver Mental Health					.04
	Depth of poverty	-.04	-	-.04	
	Co-parent	.07	-	.07	
	Education	-.05	-	-.05	
	Employment	-.17	-	-.17	
		-	-	-	
Children's Externalizing					.21
	Depth of poverty	-.04	-.01	-.05	
	Co-parent	-.06	.03	-.08	
	Education	.20	-.02	.18	
	Employment	-	-.08	-.02	
	Family Functioning	-.05	-	-.05	
	Caregiver Mental Health	.43**	-	.43**	
Children's Internalizing					.45
	Depth of poverty	-.13	-.04	-.17	
	Co-parent	.16	.03	.19	
	Education	.10	-.03	.06	
	Employment	-	-.04	-.04	
	Family Functioning	.21*	-	.21*	
	Caregiver Mental Heath	.55***	-	.55***	
Children's Behavioral Symptoms					.30
	Depth of poverty	-.04	-.03	-.07	
	Co-parent	-.02	.03	.01	
	Education	.17	-.03	.14	
	Employment	-	-.07	-.07	
	Family Functioning	.07	-	.07	
	Caregiver Mental Health	.51***	-	.51***	
Children's Adaptive Skills					.34

Depth of poverty	-.04	.02	.06
Co-parent	.26*	-.04	.22*
Education	-.01	.03	.01
Employment	-	.11	.11
Family Functioning	.09	-	.09
Caregiver Mental Health	-.55***	-	-.55***

*p<.05 **p<.01 ***p<.001

Group Comparison. Although the economic variables did not show the hypothesized effects on the study variables, it was of interest to look at whether there were significant differences between groups on the study variables. While depth of poverty did not exert the predicted impact, there were notable differences in depth of poverty between groups. Results of an ANOVA with depth of poverty were significant [$F(3, 934)= 7.07$, $p < .001$, $\eta^2= .02$]. Post-hoc comparisons show that there are significant mean differences between Canadian-Born Indigenous and Canadian-Born Non-Indigenous families (MD = -10.99, p <.01), between the Canadian-Born Non-Indigenous and Foreign-Born Refugee families (MD = 19.94, p <.01), as well as between the Foreign-Born Refugees and Foreign-Born Immigrant families (MD = -15.06, p <.01). The Foreign-Born Refugees had the greatest degree of poverty followed by the Canadian-Born Indigenous families demonstrating that these families may be more vulnerable due to greater economic disadvantage.

There were also some significant group differences observed for caregiver mental health, [$F(3, 947) = 5.51$, p <.001, $\eta^2 = .02$], with the primary differences being between Canadian-Born Indigenous caregivers and Foreign-Born Immigrant caregivers (MD = 4.09, $p < .01$), Canadian-Born Non-Indigenous, and the Foreign-Born Immigrant caregivers (MD = -2.37, $p < .01$), with Immigrant caregivers having the lower mental health scores in either case. It can also be seen that there were significant differences between two groups in terms of family functioning [F(3,

920) = 3.01, p <.05, η^2 = .01], with the difference being between the Canadian-Born Non-Indigenous and the Foreign-Born Immigrant families (MD = .09, p <.01), with the Immigrant families having slightly more problematic scores in terms of family functioning.

In terms of children's social, emotional, and behavioral outcomes, the results of a MANOVA were significant between groups [F(12, 2670) = 6.11, p < .001, η^2 = .03]. In terms of children's externalizing problems, there were significant differences between the Foreign-Born Immigrant children who had lower scores than Canadian-Born Indigenous children (MD = -4.67, p <.001) and Canadian-Born Non-Indigenous children (MD = -5.66, p < .001). There was also a difference between Canadian-Born Indigenous and Foreign-Born Refugee children (MD = 4.82, p < .01), with Foreign-Born Refugees having the lower scores.

In terms of internalizing problems, there were significant mean differences between Foreign-Born Immigrants and Canadian-Born Non-Indigenous (MD = 3.27, p < .001) with Foreign-Born Immigrant children having lower scores. With behavioral symptoms, it was found that there were significant mean differences between Foreign-Born Immigrants and Canadian-Born Indigenous children (MD = -4.41, p <.001) and Canadian-Born Non-Indigenous children (MD = -5.41, p < .001) with Immigrants having lower scores in either case. There were also differences between Foreign-Born Refugee and Canadian-Born Indigenous children (MD = -5.26, p < .01) and Canadian-Born Non-Indigenous (MD = -6.26, p <.001) with the refugee children having lower scores in both cases.

When it comes to children's positive adaptive functioning skills, significant mean differences were found between Foreign-Born Immigrant and Canadian-Born Indigenous groups (MD = 3.21, p <.001) and Canadian-Born Non-Indigenous (MD = 2.42, p <.001) with the Immigrant group having higher (more positive) scores in either case. Similarly, differences were

detected between Foreign-Born Refugee children, Canadian-Born Indigenous children (MD = 4.46, p <.01) and Canadian-Born Non-Indigenous children (MD = 3.47, p<.01), again with the Foreign-Born Refugees having higher scores.

Table 25

Means and Standard Deviations for the BASC2 Composite T-scores by Group

Variable	Group	N	Mean	SD
Externalizing Problems	CBI	144	54.81	10.89
	CBNI	427	55.73	11.49
	FBI	310	50.10	8.83
	FBR	57	50.28	9.45
Internalizing Problems	CBI	147	52.81	11.47
	CBNI	423	53.51	12.12
	FBI	302	50.36	10.87
	FBR	55	52.02	11.93
Behavioral Symptoms Index	CBI	144	55.53	10.53
	CBNI	425	56.29	11.26
	FBI	299	50.90	9.08
	FBR	55	50.22	10.14
Adaptive Skills T-Score	CBI	144	45.67	9.49
	CBNI	425	46.79	9.72
	FBI	305	49.11	9.07
	FBR	55	49.84	7.66

Table 26

Number Percentage of Children in BASC Severity Categories by Group

		Normal Range Low/Very low Maladaptive		At-Risk		Clinically Significant	
Variable	Group	#	%	#	%	#	%
Externalizing Problems	CBI	104	72	28	19	13	8.8
	CBNI	293	69	81	19	53	12
	FBI	266	86	36	11	8	3
	FBR	48	84	8	14	1	2
Internalizing Problems	CBI	109	74	26	18	12	8.2
	CBNI	303	72	78	18	42	10
	FBI	248	82	37	12	17	6
	FBR	43	78	8	15	4	7
Behavioral Symptoms	CBI	97	67	33	22	14	9.5
Index	CBNI	291	62	78	18	56	13
	FBI	280	83	43	14	9	14
	FBR	46	84	8	15	1	2
Adaptive Skills Index	CBI	98	64	39	27	6	4
	CBNI	308	67	92	21	23	5
	FBI	247	78	49	16	9	3
	FBR	50	91	5	9	0	0

Table 27

Number and Percentage of Caregivers by GSI Severity Category

	T-Score less than 63		T-score 63 or greater. (at-Risk)	
Group	#	%	#	%
Canadian-Born Indigenous	87	60	59	40
Canadian-Born Non-Indigenous	260	60	173	40
Foreign-Born Immigrant	221	69	101	31
Foreign-Born Refugee	37	61	24	39

Summary of Results

The most notable results and those that would be of most interest to researchers and policy makers are those of the direct effects of caregiver's mental health and family functioning on the four measured aspects of children's social, emotional, and behavioral functioning.

- Caregiver mental health was the strongest predictor of children's outcomes, with small to medium direct effects noted, and these results were detected across groups with the only identified difference being that, for the Canadian-Born Indigenous families, caregiver mental health was not a significant predictor of children's adaptive skills.
- In the overall sample, there were small direct effects found between family functioning with children's externalizing and internalizing problems and stronger relationships found with behavioral symptoms and adaptive skills.
- In the overall sample, small effects of lone-parent on caregiver mental health symptoms were found. Lone-parenting was also predictive of children's externalizing and behavioral symptoms. In both the Foreign-Born Immigrant and Canadian-Born Non-Indigenous groups lone-parenting was predictive of caregiver mental health as well as children's externalizing, internalizing, and behavioral symptoms. In Foreign-Born Refugee families, having a co-parent in the home was related to improved adaptive skills.
- Within the represented groups, family functioning was a stronger predictor of children's outcomes in Canadian-Born Indigenous and Canadian-Born Non-Indigenous Families, although for Canadian-Born Indigenous families, family functioning was not a predictor of children's internalizing problems.

- For the Foreign-Born Immigrant families, family functioning was only predictive of children's adaptive skills, while for Foreign-Born Refugees, family functioning was only predictive of children's internalizing problems. This demonstrates for the two Canadian-Born Groups family functioning may have a wider range of influence than for Foreign-Born groups.

These results demonstrate that regardless of economic situations, it is factors within families that may exert the greatest effect on children outcomes. While not all hypotheses were supported, the results of this study are important to understanding family functioning, caregiver mental health, and children's social, emotional, functioning in low-income families and offer some direction of areas that could be amenable to intervention and service augmentation for low-income families. In the next section, the results will be discussed in the context theory and previous literature in this area.

IV. Discussion

There is no question that economic disadvantage impacts children and their families. However, the way in which economic issues affect families is not always easy to identify on the surface. The extensive body of research on poverty and socioeconomic status strongly links economic disadvantage to a variety of family outcomes, with children living in poverty being in a particularly vulnerable position. However, important questions still remain such as how, when, and to whom economic disadvantage exerts an impact, and how can limited funding allocations be used to offset those impacts? These funding pressures give rise to the importance of focusing on identifying outcomes that would be most amenable to interventions and identifying factors that can be targeted in order to provide the greatest impact for families. Without question, the greatest impact would come from changing the larger social and political systems where economic inequality stems in the first place, but the years it takes for the larger systemic issues to be addressed does little to assist families who are currently struggling with economic disadvantage. While the findings of this study do not focus on the larger systemic issues at the root of inequality, the results have practical and research implications and can assist in directing practices, policies, and future research endeavours that support low-income families.

Practical Implications

Caregiver mental health. The primary finding of this study was that caregiver mental health was the greatest predictor of children's social, emotional, and behavioral outcomes and was a consistent finding across children's outcomes (externalizing, internalizing, behavioral symptoms, and adaptive skills). It was also found that those caregivers who had global mental health scores in the clinically significant range were more likely to have children who also scored in the at-risk or clinically significant range on the measured outcomes. While the strength

of the relationships varied across groups, the predictive link of caregiver's mental health on children's outcomes was generally consistent across the four groups included in the study. The one exception was that caregiver's mental health was not predictive of Canadian-Born Indigenous children's adaptive skills. The connection between caregiver mental health and children's outcomes are consistent with previous studies that have suggested that the mental health of parents or caregivers is one of the most significant risk factors for children's mental health symptomology (e.g., Acri et al., 2017; Goodman et al., 2011; Kiernan & Huerta, 2008; Shonkoff, 2010; Yeung, Linver, & Brooks-Gunn, 2002).

The predictive nature of caregiver's mental health on children's outcomes support the notion of shifting from an individual intervention model to a focus on family mental health. In this service delivery model, the mental health of the caregiver may be addressed within the context of children's mental health services. Integrating services for children and caregivers has been recommended in previous research with low-income families. For instance, Acri et al. (2017) found that among low-income families attending a children's behavior program, approximately 50% of caregivers had clinically significant levels of depression, and those in the lowest income levels were more likely to display the high levels of depression. Consistent with results of the current study, caregivers who exhibited higher levels of depression were found to have children who displayed higher levels of oppositional defiant symptoms (Acri et al., 2017). They suggested that services should be provided to both children and caregivers concurrently but, at minimum, caregivers' mental health should be assessed and they should be directed towards further services when needed (Acri et al., 2017). Similarly, the Center for the Developing Child at Harvard (2007a) suggested that there needs to be an increased focus on caregiver mental health, particularly maternal depression, because of the impact it can have on

the well-being of children. The authors suggested that, in order to prevent detrimental impacts stemming from mental health concerns, early identification and treatment of both caregiver and child is required. They recommend that efforts need to be focused on detecting maternal depression in pediatric clinics, programs that serve children, and also suggest services that treat both mother and child concurrently need to be expanded (Center on the Developing Child at Harvard; 2007a). While the research literature is somewhat limited, studies have shown attending to the mental health of caregivers and children at the same time can ameliorate outcomes for both caregiver and child. For instance, Weissman et al. (2006) demonstrated that when mother's mental health improves, the probability of children receiving mental health diagnoses or displaying symptomology decreases. They also found that, for children who already had a mental health diagnosis, the likelihood of remission increased when mother's depression remitted. A study by Foster et al. (2008) evaluated whether the improvement of maternal depression (through medication) impacted children's internalizing and externalizing symptomology. Furthermore, they assessed whether family functioning and the quality of the parenting relationship mediated the association between improvement in mother's symptoms and children's externalizing and internalizing problems. They found that when the mothers' mental health symptomology resolve, children's externalizing and internalizing symptoms also showed improvement (Foster et al., 2008). In addition, when the mother's mental health improved, children reported increased expressions of warmth and acceptance behaviors which, in turn, improved children's internalizing symptoms. The improvement in maternal mental health also increased family functioning, however, the relationship became nonsignificant when income was added to the analysis (Foster et al., 2008). Previous findings also suggest that, when parent's mental health symptomology remains unaddressed, it can lead to less therapeutic intervention progress and

poorer outcomes for youth involved in treatment (Beauchaine, Webster-Stratton, & Reid, 2005; Pilowsky et al., 2008a; Rishel et al., 2006 as cited in Acri & Hoagwood, 2015). Furthermore, engaged parent participation in children's treatment is considered to be key to improving outcomes, but parent's mental health functioning, such as depressed mood, has been shown to negatively impact parent participation and engagement (Haine-Schlagel & Walsh, 2015). The findings of the current study suggest that increased mental health issues may be more prominent in low-income caregivers and is a key factor in children's social, emotional, and behavioral outcomes. These findings lend further support to a recommendation to shift from a focus on individual children's mental health intervention to an integrated family treatment model.

While the integration of services for caregivers and children would be ideal, there may be various challenges in achieving this within the current health system and there has been limited research on the effectiveness of the delivery of services together. Acri and Hoagwood (2015) evaluated the research to determine whether children's intervention services contain components that address caregiver mental health. In their review, it was reported that only a small proportion of studies involving services for children offered parent components and, of those that do, a greater focus was on parenting skills or helping the parent to assist the child with their symptomology as opposed to incorporating programing that attends to the parent's mental health (Acri & Hoagwood, 2015). However, they reported on six studies where children's interventions included a parent component that was aimed at the caregiver's own mental health. The findings demonstrated mixed results regarding effectiveness, with some studies finding benefits to parental mental health, while others found no difference between treatment and control interventions (Acri & Hoagwood, 2015). However, Swartz et al. (2008) conducted a study of children attending a psychiatric clinic to investigate whether treating depression in mothers

(through psychotherapy), impacted mother's mental health and general functioning as well as children's mental health. The results demonstrated that mothers had improvements in depression and general functioning at 3 and 9-month follow-up and children had lower depression scores at a 9-month follow-up (Swartz et al., 2008).

Even with some studies indicating that integrating services for caregivers and children may lead to better outcomes, there are considerable barriers that may prevent integration as well as barriers that may impede access and use of mental health services. Several barriers may be particularly problematic for low-income families or those belonging to an ethnic minority group (Acri & Hoadwood, 2015; Santiago, Kaltman, & Miranda, 2013). In terms of integration of child and adult services, Acri and Hoagwood (2015) listed that adult and children's services are often separated into two different service sectors, staff may not be trained to serve both children and adults, there may be differential funding or costs for services, and services may be offered in different locations. In addition to challenges in service system integration, Santiago, Kaltman, and Miranda (2013), noted that there are logistical barriers for low-income families, such as competing obligations, lack of child care, transportation, and financial coverage for services. The authors also note system level barriers such as lack of culturally appropriate services, inadequate staff training in addressing issues common to low-income families, and limited availability of low-cost services. Santiago et al. (2013) list that perceptions about mental health care may also pose a barrier, and low-income caregivers may fear that accessing services may result in losing one's children or involving the child services sector. For those who are foreign-born, there may be concerns over immigration status. Rezazadeh and Hoover (2018) indicated that foreign-born women report high rates of depression but barriers to obtaining services include language, poor understanding of available services, limited finances, economic dependence on a spouse, cultural

stigma and perceived inadequacies in cultural sensitivity in the public health and social service sectors. For Indigenous people, Boksa, Joober and Kirmayer (2015) reported that challenges include a lack of appropriate and engaging mental health services, limited funding for programs and services, few mental health professionals who are of Indigenous origins, and an undervaluing of traditional ways of addressing mental health in non-Indigenous service settings. Similar to barriers that were listed for those who are foreign-born, stigma and discrimination continue to be significant barriers for Indigenous people (Boksa, Joober, & Kirmayer, 2015).

While only some of these barriers may impede the integration on children's and adult sectors, because these issues continue to remain prominent in the Canadian mental health care system, low-income families will continue to struggle to receive appropriate assistance when necessary. The fragmented and divided service system may lead to poorer outcomes than could be achieved through more unified service delivery. Children's social, emotional, or behavioral issues may be identified and addressed through the education system or primary care settings, but the results of this study suggest that if the caregiver's mental health remains unchecked, family functioning and children's outcomes may be impacted. Although system integration may be the ideal goal, the results of this study indicate that a good starting point would be to offer mental health screenings to caregivers within the context of children's mental health services and to provide intervention and referrals when indicated. In addition, further research is needed to investigate the practicalities of integrating services as well as the degree of improvements that might be expected from providing services to both caregivers and children concurrently.

The results also show that being a low-income lone-parent may also pose additional challenges for families. It was found that in the Canadian-Born Non-Indigenous Group and Foreign-Born Immigrant group, being a lone-parent had direct effects on children's

externalizing, internalizing, and behavioral symptoms, as well as some indirect effects on children's outcomes through its impact on the caregiver's mental health. This is consistent with previous research that suggests that single parents face increased mental health issues, and may have children who are more at-risk for internalizing, externalizing, and other mental health concerns (Goodman et al., 2011; Kerr & Beaujot, 2002). While the effects were small and impacts of lone-parenting on caregiver's mental health and children's outcomes were only found within the Canadian-Born Non-Indigenous and Foreign-Born Immigrant families, it highlights that there may be additional struggles for those parenting alone. Even though lone-parenting may not be strong predictor of mental health and family functioning, when there is only one caregiver available to the child, it becomes apparent how the health of the caregiver may be more critical (Kiernan & Huerta, 2008). In lone-parenting situations where the caregiver is impacted by their own mental health challenges, their ability to help offset the stress or provide a supportive environment, which Skonkoff (2010) suggested is essential, may become more limited. In this sense, screening and attending to the mental health of lone-parent caregivers becomes of even greater importance.

Family functioning. Another practical implication comes from the connection found between family functioning and children's outcomes. In the overall sample, family functioning was found to be predictive of children's social, emotional, and behavioral outcomes. However, when looking at the groups separately, it was found that for Canadian-Born families (both Indigenous and Non-Indigenous families), family functioning was a significant predictor of all four facets of children's outcomes with the exception of children's internalizing problems in the Canadian-Born Indigenous group. In addition, in the overall sample as well as across all groups in this study, it was found that family functioning was significantly correlated with caregiver's

mental health. The findings from the overall sample are consistent with previous literature suggesting that children's positive development and well-being is built upon a strong base of family well-being (Bronfenbrenner, 1994; Shonkoff, 2010; Newland, 2015) and familial relational processes have an impact on parenting and children's outcomes (Conger & Conger, 2002; Conger, Conger & Martin, 2010; Conger and Donnellan, 2007). In the current study, caregiver's mental health and family functioning exerted an influence on children's outcomes whereas the measures of economic disadvantage and depth of poverty, generally, did not. This finding demonstrates that for this sample, it is the people in the children's lives, their mental health, and how they relate to each other that are more influential to children's outcomes than living in low-income. Newland (2015) suggests positive family functioning, which includes "strong family communication, satisfaction with roles and responsibilities, problem solving skills, and emotional closeness" (p.6), leads to better child outcomes, including mental health. However, this positive functioning can be impacted by caregivers' mental health (Newland, 2015). The results of the current study indicate that an intervention point for improving children's outcomes, may come from the development of programming focused on ameliorating the positive aspects of family functioning. However, given the stronger relationship of caregiver mental health and its relation to family functioning, interventions designed to improve family functioning should be complementary to ones that address caregiver's mental health when those concerns are apparent. Moreover, the results of this study suggest that creating interventions focusing on family functioning may not have a comparable influence on all children's outcomes and may not benefit all population groups equally.

What is less clear from the results of this study, are the reasons family functioning was predictive of fewer aspects of children's outcomes for those who were Foreign-Born than for

those in Canadian-Born families. For Foreign-Born Immigrants, family functioning was only predictive of children's adaptive skills, and for Foreign-Born Refugees, family functioning was only predictive of children's internalizing problems. The previous research is limited in providing an explanation as to why there may be this discrepancy between groups. As the current results might suggest, one possibility is that focusing on family functioning as a mechanism to improve children's outcomes may not be as effective for Foreign-Born groups or may not be expected to have an impact on the same children's outcomes as in Canadian-Born families. The study by Beiser, et al. (2002) highlighted some relevant group differences in this regard. For instance, they found that "ineffective parenting, parental depression, and family dysfunction mediated the relationship between poverty and mental health of Canadian-Born children in immigrant and non-immigrant families, but family factors played a relatively weak role among foreign-born children" (p. 224). Beiser et al. (2002) indicated that, for immigrant families, issues related to low-income such as material deprivation or unemployment may be more pertinent issues than family relational factors. However, the current study did not support the notion that economic factors were more impactful to children's outcomes in Foreign-Born families. For immigrant families, it was found that depth of poverty had only a weak relation to children's internalizing problems and was not related to caregiver mental health or family functioning. For refugees, the economic factors were not directly related to children's outcomes nor to caregiver's mental health but when caregivers were working, refugee families had poorer family functioning. Future research would need to be conducted to confirm whether there are true differences between Canadian-Born and Foreign-Born families related to family functioning and what the range of influence is on various children's outcomes.

Alternatively, there may be several other hypotheses for the discrepant findings between those who are Canadian-Born and Foreign-Born in relation to family functioning which may be explained by the measurement of the construct. First, there is a possibility that, for Foreign-Born families, there is a wider variety of factors impacting both family functioning and children's outcomes. Some of the potential factors may include cultural stress, discrimination, resettlement contingencies, language barriers, educational, and employment challenges (Beiser et al., 2014), and these factors would not influence family functioning in many Canadian-Born families or those from the majority culture. These factors are specific to migrants and may not be captured by current family functioning measures. As previously discussed in the methodology section, the family functioning measure used in this study had shown reliability and validity in use with various cultural groups. However, there were some findings (Aarons, McDonald, Connelly, & Newton, 2007; Morris, 1990; Roncone et al., 1998) that cautioned that the factor structure may not have held for other cultural groups. In addition, previous cross-cultural studies measured validity of the Family Assessment Device in various cultural groups, but did not assess whether the individuals were North American-Born or Foreign-Born and whether there were impacts from the length of time in the country of settlement. Another hypothesis for the differing results among groups, may be that the shortened 4-item version of the family functioning measure used in this study (to make it more appropriate for lone-parent families) may been more suitable for Canadian-Born families, and, perhaps, the full version may have yielded different results. Further investigation into measuring family functioning in Foreign-Born Immigrant and Refugee families would be valuable given the increase in Foreign-Born individuals living in Canada as well as studies demonstrating the potential influence family functioning has on children's well-being. It would be a valuable contribution to determine how stressors unique to the migration

process influence both family functioning and children's outcomes and whether there is an impact from the length of time in the country of settlement.

Theoretical and Research Implications

The links between family functioning, caregivers' mental health, and children's outcomes are consistent with theoretical frameworks used in the development of this study. For instance, in looking at Bronfenbrenner's theory (1995), it is suggested that most powerful influences on human development are proximal processes which include interactions with those closest to the child. The results of this study show that the relationships and characteristics of caregivers have the greatest influence on children's social, emotional, and behavioral outcomes as opposed to the hypothesized impact of economic variables. Similarly, the results of this study can be framed within components Shonkoff's biodevelopment framework (2010, 2012) which contends that the nature of children's relationships with their caregivers influences their developing brain, including social, emotional, and behavioral development. Whether relationships are stable and nurturing or are disrupted by caregivers' mental health, have physical and mental health consequences for children as they grow (Shonkoff, 2010). One of the foundational concepts of healthy child development is the importance of the reciprocal caregiver-child interaction. This relationship can be compromised by maternal mental health issues, such as depression, and can weaken the caregiver's capability to provide a supportive environment (Shonkoff & Garner, 2012). As previously noted, the results of the study showed clear relationships between caregivers' mental health and children's outcomes and was consistent across the vulnerable groups included in the study. Shonkoff and Garner (2012) suggest that treatment of maternal mental health does not always lead to equivalent improvements for children because interventions need to focus on the mother-child dyadic relationship, but many services treat

maternal depression as an adult mental health issue. Although a focus on the child-caregiver dyad relationship is key and Shonkoff's model does contend with aspects of the relationships with family and non-family members, the findings of this study suggest there may need to be a greater focus on family functioning given the relationship to children's outcomes. For obvious reasons, research, frameworks, and interventions that attempt to understand children's outcomes or remediate mental health concerns, focus heavily on dyadic relationships between child and caregiver and usually focus on the mother. It is possible, that one of the reasons that studies find mixed or non-significant results using this narrow focus is that they may miss key contributors to children's well-being. In reality, families are often complex and involve many different players (e.g. siblings, step-siblings, biological and step parents, grandparents), all who may contribute to children's outcomes. Each individual may have their own mental health concerns, can have nurturing or detrimental impacts on the child, and can influence how well families interact and function. Research and models of children's mental health should expand beyond the focus on maternal mental health and dyadic relationships to encompass more family level factors, including how well they function as unit.

Impacts of depth of poverty and economic disadvantage. A particularly surprising finding was that depth of poverty did not have the expected relationships with caregiver mental health, family functioning, or children's outcomes. The hypothesis that caregiver mental health and family functioning would operate as mediators between depth of poverty and children's outcomes was not supported given that the economic disadvantage variables were, generally, not related to outcomes. The first hypothesis was that indicators of economic disadvantage (caregiver education, employment status, and depth of poverty) would impact family functioning and the caregiver's mental health. For the overall sample, none of the economic factors were

found to impact family functioning. However, when examining the relations among the key variables by group, it was found that for Canadian-Born Indigenous families and Foreign-Born Refugees, whether or not the caregiver was working had a significant impact on family functioning, albeit in opposite directions. For Canadian-Born Indigenous families, caregivers who were not working tended to have higher (more problematic) family functioning, whereas for the Foreign-Born Refugee group, when the caregiver was working, there tended to be higher family functioning scores. When looking at economic influences of caregiver mental health, the overall model suggested there was a small direct effect of caregiver education and employment status on the caregiver's mental health. Specifically, those with higher education or who were working had lower mental health scores. However, these results were not detected on a group level. Furthermore, given that the economic factors were not significant predictors of family functioning and the caregiver's mental health, the mediational relationships were largely not supported.

There were some small indirect relationships uncovered between some of the economic indicators and children's outcomes such as the relationships between caregiver education and employment on children's outcomes through impact on caregiver's mental health. However, the relationships were not as strong or consistent across groups as was expected. With the abundance of research that links poverty and economic disadvantage to negative outcomes, the small or non-significant results were unexpected. However, the connections between poverty and outcomes are not always as straightforward and there has been previous research that has uncovered mixed results within some outcomes. For instance, it was noted that the relationship between low SES and social and emotional development is often less consistent than relationships found between SES and children's cognitive development (Bradley & Corwyn,

2002). Brooks-Gunn (1997) reported that family income demonstrates a stronger impact on children's ability and achievement more so that their emotional outcomes. Propper, Rigg and Burgess (2007) investigated the relationships between low-income and children's physical and mental health. They found an association between income and children's outcomes but found that once they controlled for various factors (e.g. parents health, housing, employment, diet, and maternal mental health) there were no direct effect of income on children's physical and mental health outcomes. They found that mother's mental health was a key factor that diminished the association between incomes and outcomes (Propper et al., 2007). Wlodarczyk et al. (2017) reported that the findings between economic disadvantage and mental health problems are variable, particularly in preschool children. Similar to the current study, Wlodarczyk et al. (2017) findings showed a non-significant predictive relationship between SES and children's mental health problems, but did indicate the odds of a child experiencing mental health problems was higher for those with lower SES. However, in contrast to the current study, Wlodarczyk et al. (2017) found that the child's mental health was related to parent's mental health but this association became non-significant with the addition of socio-demographic variables. Children's temperament remained significantly related to mental health problems (Wlodarczyk et al., 2017). For immigrants and refugees, Beiser, Puente-Duran, and Hou (2015) found that poverty is not a key mental health stressor for immigrant and refugee youth, which was consistent with a finding by Beiser et al. (2014) where poverty was not found to be a predictor of emotional outcomes in immigrant children settling in Canada. The results may also be impacted based on the type of health system where data are collected. For example, much of the research is conducted in the US which has different system than Canada's publicly funded health system. Propper et al.

(2007) remarked that there are relationships between low-income and children's outcomes that are found in publicly funded health care systems but that the associations may not be as strong.

Possible explanations for the non-significant results of depth of poverty on the study variables may come from principles from the Family Stress Model (Conger & Elder, 1994, Conger & Conger, 2002; Conger & Donnellan, 2007). The Family Stress Model (FSM) postulates that the links between economic hardships (e.g., low income and job loss) actually have their impact on parental psychological distress through the economic pressures they create in the everyday lives of families (e.g., difficulty paying bills, buying necessary items, etc.; Conger & Donnellan, 2007). The Family Stress Model suggests that it is the experience of economic pressure which then has an impact on family functioning, parental relationships, and gives rise to increases in caregiver mental health symptomology (Conger & Donnellan, 2007). The current study included several of the important components such as economic indicators, measures of family functioning, and caregiver mental health, but it is a limitation that there were no specific measures of the economic pressures created by living in low-income. While the conceptual model in this study was more parsimonious, the economic pressures component could be a necessary to the understanding of how living in low-income affects outcomes. It is likely, as the Family Stress Model suggests, that the pressure created by poverty, more so than the poverty itself, may be the key link that causes stressors for parents and disruption to mental health and relationships. This study attempted to extend the principles from the FSM to vulnerable groups who had been the focus of less research inquiry, and discovered that the economic pressures component may be a critical link in understanding the relationships between low-income and mental health. This may be an important theoretical finding because without understanding what consequences or hardships are experienced by those living low-income, it may lead to the

misunderstanding that economic factors do not exert an impact. Future modeling of the relationships could test this assertion by including measures of economic pressure and conducting analysis with and without these components to assess whether this may explain some of the non-significant findings. Moreover, studies using the FSM have been conducted in various cultural groups, but there has been limited research on immigrants and refugees. This study extended some of the principle of the FSM to immigrants and refugees but did not test the FSM theory in its entirety. Given the limited research in this area, further extensions of the FSM to foreign-born populations would be worthwhile.

In the current study, depth of poverty was expected to show the most influence but education of the caregiver was found to be a better predictor of both caregiver mental health as well as children's outcomes than depth of poverty. This was consistent with some previously reported findings. It has been suggested that among the three main indicators of SES (occupation, income, and education), maternal education is the most strongly connected with children's health, behavior, and cognitive development (Jackson, Kiernan, & McLanahan, 2017). Reiss (2013) reported that family income and parent's education were better predictors of children's and adolescent's mental health than parental unemployment or low occupational status. In addition, it has been suggested that material deprivation was found to be more strongly associated with the development of mental health problems, whereas parental education was a better predictor of the length and severity of the mental health issues, and it is suggested that having more highly educated parents may be associated with better access to mental health services (Reiss, 2013). Research also suggests that education is an important predictor of other pertinent family factors. For instance, Jackson, Kiernan, & McLanahan (2017), noted that parents' education helps form children's cognitive development by influencing their family

environment, including financial resources, family structure, and caregiver's mental health. It has been suggested that while income shows independent effects on children's developmental outcomes, it is also predicted by education (Jackson et al., 2017).

Challenges measuring poverty/low-income. Further explanations for mixed or non-significant results may be also partially explained by the challenges in measuring poverty. As previously discussed in the methodology section, researchers and policymakers have struggled to agree on poverty measures, the measures change over time, and it is also difficult to ascertain whether poverty lines actually reflect the true experiences of living with economic disadvantage in Canadian families. The discrepancy between measurement of constructs and actual experiences of families may influence research designs and inclusion criteria and, subsequently, may contribute to mixed results in the literature. For example, families invited to participate in the FFE study were all considered to be experiencing some degree of economic disadvantage due to being eligible for certain services available to only to those verified of living in low-income (Drummond et al., 2014). However, upon calculation of depth of poverty according to the Statistics Canada Low Income Measure, it was found that 69% were considered to be living below the poverty line while 31% were not. This discrepancy between formal low-income measures and practical recruitment of participants for a study involving low-income families highlight this challenge and it is unlikely one that is unique to the FFE or the current study. These challenges may "muddy the waters" when attempting to decipher the actual impact of economic disadvantage on various psychological constructs and may explain some unexpected findings or mixed results. Furthermore, although the abundance of research suggests that there is a link between economic disadvantage and outcomes, perhaps publication bias in which significant results confirming the link are more readily accepted in the literature and, thus, it may

mask the degree to which there may be non-significant or mixed results within in certain contexts or among various children's outcomes (Reiss, 2013). Given the impact that socioeconomic status and economic disadvantage has on families and communities and the degree to which classifications have implications for service eligibility, further research into measurement and research designs involving low-income families would be beneficial.

Limitations and Future Directions

Despite several strengths of this study, there were some further limitations that should be noted. First, while path analyses suggest a directionality for relationships, due to the cross-sectional nature of this study, it is not possible to conclude the direction of the relationship between the variables such as caregiver's mental health and family functioning and children's outcomes (Kline, 2015). It is likely that the caregiver's mental health, family functioning, and children's outcomes have some degree of bi-directionality. Specifically, having children who display challenging emotions or behaviors, may exert an impact on the caregiver's mental health and family functioning (Conger & Donnellan, 2007). Future studies involving longitudinal designs may provide a clearer picture of causality and how these relationships may change over time or with the introduction of interventions.

Second, in the current study, the caregiver reported on both their own mental health as well as the children's outcome measure. While this was a strength given that outcomes could be evaluated in those children too young to self-report, there may be limitations as well. It is possible that caregivers with mental health symptomology were more likely to rate their children as having similar characteristics. Previous studies have found there may be this type of bias in parental reporting on children's behavioral characteristics (Najman et al., 2001). Further studies

may consider using self-reports for older children or including teacher reports to further evaluate the relationships.

Third, as noted in the methodology section, there are a number of challenges in measuring family functioning in lone-parent families with young children (Williamson, Skrypnek, & De Los Santos, 2014) as well as some possible challenges with diverse cultural groups. This study uncovered some differences in family functioning results between Canadian-Born and Foreign-Born groups. Further studies would be beneficial to confirm whether this is reflective of group differences, or perhaps, whether alternative measures of family functioning may be more appropriate to reflect diverse cultural groups as well as immigrant and refugees.

Fourth, this study focused on a global measure of caregiver's mental health, but it would be worthwhile to investigate whether specific categories of mental health symptomology exert similar impacts on children's social, emotional and behavioral outcomes. Similarly, four broad aspects of children's outcomes were used, and there may be specific children's behaviors that may be more challenging than others (e.g., conduct problems). While maternal depression has been the focus of many previous studies, it is important to note that other caregivers (e.g., fathers) and other forms of psychopathology also impact children's mental health and well-being (Weijers, van Steensel, & Bogels, 2018). Future studies may investigate more specific mental health conditions within both children and their caregivers. A focus on anxiety disorders in both adults and children may be a key area of future inquiry as the anxiety often co-occurs with depression. Moreover, anxiety disorders are one of the most commonly reported mental illnesses in Canada and there has been an increase in prevalence among children and youth aged 5-14 (Public Health Agency of Canada, 2016).

Fifth, for analytic purposes, the families that were represented in the study sample were categorized as Canadian-Born Indigenous, Canadian-Born Non-Indigenous, Foreign-Born Immigrants and Foreign-Born Refugees and therefore these groups were treated as homogenous groups. This allowed for exploration of possible variations among variables between these broadly defined groups. However, it should be acknowledged that within each group there was incredible diversity in terms of culture and languages spoken and some of these factors may have an impact in understanding children's outcomes in low-income families. Future research should include both quantitative and qualitative studies to uncover the unique within group characteristics as well as stories and in-depth narratives regarding the relationship among mental health, family functioning, and children's outcomes, and how living in low-income impacts families. Furthermore, there is a great need to further understand cultural differences in the understanding of issues surrounding mental health, as well as cultural differences in attitudes towards interventions. Shonkoff (2010) suggested that there is also a great need to use a science-based approach to uncovering how programs can better address cultural context as well as a need to further understand the adversity related to racism and discrimination on children's health and development.

Sixth, a strength of the current study was conducting analysis with the Foreign-Born Refugee families as a distinct group to uncover whether there were differing patterns of relationships than for the Foreign-Born Immigrant group. However, the current study was limited by a relatively small sample for the Foreign-Born Refugee group and also did not include measures of Post-Traumatic Stress Disorder (PTSD) which is often reported as key mental health concern for both caregivers and children in refugee families (Bronstein & Montgomery, 2011, Miller & Rasmussen, 2017). Future research could further evaluate how PTSD may be a factor in

both the social, emotional, and behavioral functioning of children as well as a factor influencing caregiver mental health.

Conclusions

It is worth noting that when it comes to both economic disadvantage and mental health there is a certain degree of stigma associated with both living in economically disadvantaged situations and experiencing mental health or behavioral issues (Boksa et al., 2015; Gopalkrishnan, 2018; Kirmayer et al., 2011; Santiago et al., 2013). There may be a common assumption that for those living in low income, it is the poverty that is the most significant contributor to both caregiver's mental health and children's social, emotional, and behavioral development. However, as Shonkoff's (2010) ecobiodevelopment framework suggests, children's developmental outcomes are influenced by a variety of factors including biological, neurological, environmental, nutritional, genetic, ecological and developmental components. While living in poverty or low-income has profound impacts on families, it is just one of the factors. From a service delivery perspective, when economically disadvantaged clients present for services, the impacts of poverty on the family may take precedence as there may be a more immediate need to be addressed (e.g. for food or shelter) and it can be the most salient issue for the family, regardless of the reason for seeking services. However, one would be remiss to assume that that simply improving the financial situations of families would then lead to better social, emotional, and behavioral outcomes for children (Rijlaardam et al., 2013). While addressing economic disadvantage will always be important to supporting families, the results of this study suggest that looking to caregiver mental health and family functioning may also be key areas for intervention to improve social, emotional, and behavioral outcomes for children, but impacts may vary across different population groups. Addressing the mental health of caregivers

may be critical for improving children's social, emotional, and behavioral functioning for those in vulnerable families. From a preventative standpoint, it would be pertinent to promote healthy social, emotional, and behavioral functioning of children by promoting wellness in those people most closely associated with the child. Ensuring that service delivery systems are integrated and can address the needs of both caregivers and children when mental health concerns do arise, would serve to ameliorate outcomes for both. Addressing stigma, barriers, and incorporating cultural ways of knowing and understanding mental health will enhance the well-being of families living in low-income.

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Appendix A

Questions for Group Membership

The FFE study questions used to identify the immigrant status and Indigenous identity of participants (Drummond et al., 2014)

Immigrant

Respondent: Primary caregiver

Were you born in Canada?

If not, in which country were you born?

To which ethnic or cultural group(s) do your ancestors belong? (*up to four responses*)

Date of arrival in Canada: month/year

Indigenous

Respondent: Primary caregiver

Do you identify yourself as an Indigenous person?

If yes, are you

Status?
Non-Status?
Metis?
Inuit?

If Status, are you

Treaty?
Non-Treaty?

If Status, are you a member of a First Nations or Band?

If yes, what is the name of the First Nations or Band?

Appendix B

Assessments of Missing Data and Normality

Table 28

Summary of Missing Data for Total Sample (n=985)

		Missing	
Variable	N	Count	Percent
DOP LIM	963	22	2.2
Employment Caregiver	983	2	.2
Highest Education Caregiver	982	3	.3
Co-parent	985	0	.0
Caregiver Mental Health	979	6	.6
Family Functioning	949	36	3.7
Children's Externalizing	956	29	2.9
Children's Internalizing	944	41	4.2
Children's Behavioral Symptoms	940	45	4.6
Children's Adaptive Skills	946	39	4.0
Group membership	985	0	.0

Table 29

Assessment of Normality Canadian-Born Indigenous Families

Variable	min	max	skew	c.r.	kurtosis	c.r.
DOP LIM	6.000	200.000	1.144	5.661	1.383	3.424
Employment	.000	1.000	1.024	5.069	-.951	-2.354
Education	1.000	4.000	.759	3.755	-.060	-.148
Co-parent	.000	1.000	1.521	7.531	.315	.779
CaregiverMH	37.000	81.000	.165	.818	-.187	-.462
FamilyFunc	1.000	3.250	-.104	-.513	-.090	-.223
AdaptiveSkills	25.000	72.000	.203	1.006	-.013	-.032
BehaviorSymp	34.000	90.000	.538	2.664	.284	.702
Internalizing	30.000	101.000	.729	3.609	1.232	3.050
Externalizing	32.000	91.000	.735	3.639	.983	2.432
Multivariate					5.379	2.105

Table 30

Assessment of Normality Canadian-Born Non-Indigenous Families

Variable	min	max	skew	c.r.	kurtosis	c.r.
DOP LIM	.000	241.000	.639	5.419	.732	3.107
Employment	.000	1.000	-.387	-3.281	-1.850	-7.851
Education	1.000	4.000	.243	2.066	-.353	-1.499
Co-parent	.000	1.000	1.045	8.864	-.909	-3.856
CaregiverMH	30.000	81.000	-.263	-2.231	-.013	-.056
FamilyFunc	1.000	3.250	.219	1.856	-.294	-1.249
AdaptiveSkills	22.000	72.000	.013	.106	-.301	-1.276
BehaviorSymp	34.000	93.000	.747	6.339	.448	1.902
Internalizing	30.000	99.000	.652	5.536	.339	1.438
Externalizing	36.000	99.000	.904	7.673	1.066	4.522
Multivariate					.651	.436

Table 31

Assessment of Normality Foreign-Born Immigrant Families

Variable	min	max	skew	c.r.	kurtosis	c.r.
DOP LIM	.000	235.000	.496	3.640	.765	2.806
Employment	.000	1.000	-.131	-.958	-1.978	-7.255
Education	1.000	4.000	-.701	-5.147	-1.014	-3.721
Co-parent	.000	1.000	-.359	-2.631	-1.871	-6.865
CaregiverMH	30.000	81.000	-.030	-.218	-.287	-1.053
FamilyFunc	1.000	3.250	-.301	-2.210	.196	.720
AdaptiveSkills	23.000	69.000	-.279	-2.046	-.285	-1.045
BehaviorSymp	33.000	84.000	.549	4.030	.375	1.377
Internalizing	32.000	91.000	.699	5.126	.478	1.752
Externalizing	34.000	83.000	.791	5.805	.785	2.880
Multivariate					-.383	-.222

Table 32

Assessment of Normality Foreign-Born Refugee Families

Variable	min	max	skew	c.r.	kurtosis	c.r.
DOP LIM	.000	139.000	.011	.036	.328	.527
Employment	.000	1.000	.395	1.268	-1.844	-2.964
Education	1.000	4.000	.285	.915	-.939	-1.510
Co-parent	.000	1.000	-.129	-.416	-1.983	-3.188
CaregiverMH	34.000	79.000	-.266	-.855	-.528	-.849
FamilyFunc	1.000	2.750	-.535	-1.719	-.559	-.898
AdaptiveSkills	35.000	67.000	.142	.456	-.525	-.844
BehaviorSymp	33.523	92.000	1.298	4.174	3.735	6.003
Internalizing	28.166	88.000	.736	2.366	1.046	1.681
Externalizing	36.455	89.000	1.293	4.155	3.378	5.430
Multivariate					-1.814	-.461

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