Household, Neighbourhood, and Community Contexts and the Mental Health of Immigrants and Immigrant Mothers: An Ecological Perspective

by

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Author's Declaration

This thesis consists of material all of which I authored or co-authored: see Statement of Contributions included in the thesis. This is a true copy of the thesis, including any required final revisions, as accepted by my examiners.

I understand that my thesis may be made electronically available to the public.

Statement of Contributions

Statement of Contribution for Chapters 2, 3 and 4:

As the lead author of these three studies, Tasneem Khan was responsible for designing the studies and developing the research questions, conducting database searches and literature reviews, writing the syntax, conducting the statistical analyses, interpreting the results, and writing the initial and refined drafts of the manuscripts.

Co-authors provided feedback during various stages and reviewed drafts of the manuscripts. Dr Martin Cooke provided overall direction for the study design, guidance on the statistical analyses, literature review concepts, and editorial revisions where necessary. Dr Zahid Butt provided editorial comments and feedback on the analyses. Dr Farooq Naeem provided guidance on study design and concept development with attention to cultural sensitivity and editorial comments. The authors have no conflict of interest to declare.

Chapter 2 is based on a book chapter published initially in *Interdisciplinary migration research with a focus on new technologies and multiple crises: relating birds of passage to social policies* by Technische Universität Berlin, © 2024. Licensed under CC BY 4.0. The version of the chapter included in this dissertation has been edited slightly to align it with the remaining chapters.

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Abstract

There is growing recognition in the public health field that the determinants of mental health extend beyond biological aspects to include one's living environment and social context. Research from an ecological perspective has emphasized the importance of contextual factors across multiple levels, such as households and neighbourhoods, in determining mental health. In addition, social positions such as immigrant status, being a woman, and motherhood shape exposure to different contexts and influence mental health outcomes. This dissertation investigates how household, neighbourhood, and community-level factors influence the mental health of immigrants as well as immigrant, racialized and ethnic minority mothers in Canada.

In the empirical chapters of this dissertation, Statistics Canada's survey data were analysed to examine the associations between contextual factors at multiple levels and mental health. First, the Canadian Community Health Survey 2015/16 and the Canadian Index of Multiple Deprivation (CIMD) were used to investigate the association between factors in the household, neighbourhood, and community contexts and both mental health and mood disorder outcomes among immigrants in Canada. Second, the General Social Survey 2016, 2017, and 2018 were used to examine how family structure, dwelling characteristics, and household contextual factors relate to mental health and disorder outcomes among immigrant and Canadian-born mothers. The final study is a scoping review of literature from Canada and the United States, focusing on risk and protective factors within the neighbourhood and community contexts for mental health outcomes among immigrant, racialized, and ethnic minority mothers.

Evidence emerged for some factors that can be considered risks and others that are protective of mental health across contextual levels. At the household level, socioeconomic disadvantage in the form of low income adequacy and low household income was related to poor

mental health among immigrants and Canadian-born mothers. Being a single versus a partnered mother was also associated with poor mental health outcomes. Factors related to children, such as the age and number of children at home, were not associated with mental health outcomes. At the neighbourhood and community level, negative factors included a weak sense of belonging to the local community and living in an area with higher ethnocultural concentration, which reflects marginalization as measured in the CIMD. Negative factors also included a high proportion of dwellings in need of repair and lower education levels, captured using the situational vulnerability dimension in the CIMD. Findings from the scoping review suggested that deteriorated physical conditions and violence within neighbourhoods negatively impact mental health. On the other hand, a larger household size was associated with lower odds of having a mental health condition and was protective for both immigrant and Canadian-born mothers.

While the empirical studies did not directly assess the role of social support and community programming, findings from the scoping review suggest that mental health outcomes are shaped by these factors. Community-based programs related to social and mental health services may help mitigate the effects of socioeconomic disadvantage and foster social inclusion. Social support from friends and family was also found to mitigate the relationship between poor neighbourhood environments and depression among racialized mothers.

Findings from all three studies could be used to inform policies and strategies for mental health equity, including those that promote interventions at the community and neighbourhood levels in Canada. Examples of such interventions include tailored social services and healthcare supports for diverse and larger families that promote the mental well-being of immigrant and racialized populations. In addition, affordable childcare and housing supports for single and low-income mothers may also help protect mental health and prevent mental disorders.

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I appreciate the presence of my siblings, friends and colleagues and the encouragement of those who supported me along the way.

Dedication

Dedicated to my father, Alqamood Khan and my mother, Gul R. Khan.

To my father – Our conversations and your stories about pursuing education while being from a remote community have been instrumental in guiding me toward higher education. The wisdom you share—from stories of Rumi and the Buddha to reflections on figures dedicated to humanitarian causes in Central and South Asian history—has shaped the way I approach challenges. I am deeply grateful for the sacrifices you made to provide a better life for me and for your belief in the importance of women's education. I have drawn upon your determination and resilience throughout my academic journey.

To my mother – Your confidence in me has always encouraged me to pursue my professional, personal, and academic goals. Your ongoing guidance in navigating my research career is invaluable. I am especially grateful to you for sharing the spiritual, cultural, and practical knowledge passed down from our ancestors—mothers, grandmothers, and elders—which has helped me remain grounded and move forward with clarity and confidence.

To both – It is because of your unwavering support that I have reached this milestone.

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List of Abbreviations

AD(s) – Anxiety Disorder(s)

CCHS – Canadian Community Health Survey

CI – Confidence Interval

CIDI-SF – Composite International Diagnostic Interview-Short Form

CIMD – Canadian Index of Multiple Deprivation

CINAHL – Cumulative Index to Nursing and Allied Health Literature

DSM IV – Diagnostic and Statistical Manual of Mental Disorders, Fourth Edition

DSM V – Diagnostic and Statistical Manual of Mental Disorders, Fifth Edition

EST – Ecological Systems Theory

GSS – General Social Survey

HIE – Healthy Immigrant Effect

HNC contexts – Household, Neighbourhood and Community contexts

ICPE – International Consortium in Psychiatric Epidemiology

IRCC – Immigration, Refugees and Citizenship Canada

MHC – Mental Health Condition

MD(s) – Mood Disorder(s)

OR – Odds Ratio

PF-SRMH – Poor-Fair Self-rated Mental Health

PHAC – Public Health Agency of Canada

PRISMA – Preferred Reporting Items for Systematic Reviews and Meta-Analyses

SRMH – Self-rated Mental Health

WHO – World Health Organization

Chapter 1. Introduction & Background

1.1 Introduction

Mental health is increasingly recognized as a critical part of overall well-being and quality of life. At the core of the World Health Organization's 2013–2020 action plan for mental health was the globally accepted principle that there is "no health without mental health" (World Health Organization, 2013). A more recent action plan continues to recognize that mental health is more than just the absence of mental illness (WHO, 2021). WHO conceptualizes mental health as "a state of well-being in which the individual realizes his or her own abilities, can cope with the normal stresses of life, can work productively and fruitfully, and is able to make a contribution to his or her community" (WHO, 2021, pp. 07).

The determinants of mental health and disorders include those at the individual as well as the societal level (Shnayder et al., 2022; Uher, 2009). Some population sub-groups such as women and immigrants might be more susceptible to poor mental health due to disproportionate exposure to unfavourable social, cultural, and political factors (WHO, 2022). Living environments also contribute to one's mental health status. For example, people living in poverty and facing adversity are known to be more likely to be exposed to stressors that make them more susceptible to poor mental health (Knifton & Inglis, 2020). From a public health promotion and a health equity perspective, identifying the underlying factors that can lead to poor mental health can help inform current and future strategies for the prevention of poor mental health and illness (Knifton & Inglis, 2020; Peterson & Lund, 2010; PHAC, 2024; WHO, 2022).

In Canada, immigrant status is an important consideration for mental health equity. Canada is one of the leading host countries for immigration, with approximately 8.3 million

immigrants, representing 23% of the Canadian population as of 2021 (Statistics Canada, 2024). The number of immigrants to Canada has grown in recent years, and between 2018 and 2021, approximately 1.3 million arrived in the country (Statistics Canada, 2022). The annual target for the number of immigrants is 500,000 for the year 2025 (IRCC, 2022). The successful integration of newcomers is a key goal of Immigration and Citizenship Canada, the Pathways to Prosperity Alliance and public non-governmental organizations (Pathways to Prosperity, 2025; IRCC, 2023). Integration includes many aspects of starting a new life post-immigration such as social, economic, and cultural aspects (Aycan & Berry, 1996; Berry & Hou, 2017; Montazer & Wheaton, 2017). Positive mental health is also a fundamental to successful integration.

There is considerable evidence that immigrants to Canada have a health advantage when they first arrive, both in physical and mental health (Wu & Schimmele, 2005; Lu & Ng, 2019). This phenomenon is known as the *healthy immigrant effect*, according to which the health status of immigrant Canadians is initially better than that of native-born Canadians (Chen et al., 1996; Lu & Ng, 2019). The advantage for immigrants' health and mental health has been attributed to "selection" effects in the migration process, whereby individuals who volunteer to migrate and those selected during screening are generally younger, with good physical health and with above average education, which fosters their ability to take on the demands of migration (Lee, 1966).

However, research also shows that with long-term stay in Canada (starting at five years), the initial health advantage diminishes, and, on average, the physical and mental health of immigrants begins to deteriorate (Ali et al. 2004; Montazer & Wheaton, 2017; Wu & Schimmele, 2005). Using 1996–97 National Population Health Survey Data, Wu & Schimmele (2005) found that the risk of a major depressive episode in the form of predicted score on a depression scale rose in the first two decades after arrival (relative to immigrants' own baseline)

and decreased thereafter. Xu and McDonald (2010) used the combined 2001 to 2005 cycles of the Canadian Community Health Survey (CCHS) and found that the mental health of immigrants deteriorated with longer residence in Canada, among both men and women who are divorced or separated. Using the 2007–2008 cycles of the same survey, Aglipay and colleagues (2013) found that recent immigrants (with a stay of less than 9 years) had significantly lower odds of anxiety disorders (ADs) than Canadian-born individuals and immigrants arriving 10 or more years ago also had a reduced odds of ADs compared with native born Canadians, but to a lesser extent.

The healthy immigrant effect in mental health presents something of a paradox. Although studies find that immigrants' advantage in mental health is greatest immediately upon arrival, the immigration process is also challenging due to resettlement and acculturation pressures (Aycan & Berry, 1996; Suto, 2009; Timberlake et al., 2003). While the mechanisms underlying the plateau or decline of this effect over time in Canada are not entirely clear, it is possible that there is some accumulation of acculturative stress and social disadvantage, particularly among ethnic minorities (Kim et al., 2013). Although a general healthy immigrant effect exists, there is evidence that experiences related to age at immigration, ethno-racial or cultural background or country of origin, and gender could enhance susceptibility to poor mental health among immigrants (Montazer & Wheaton, 2017; Noh & Kaspar, 2003; Patterson et al. 2013; Rezazadeh & Hoover, 2018).

One potentially important aspect is age at migration (Breslau et al., 2009). Some studies in Canada have found that migrants who arrive at younger ages are at a higher risk for anxiety and Mood Disorders (MDs) compared to those who arrive later in life (Islam, 2015; Patterson et al., 2013). Patterson et al. (2013) studied the association between demographic and socio-economic correlates of ADs and MDs and found that the prevalence was the highest for those

arriving in Canada before the age of six, compared to those arriving at 18 years and older, even after adjusting for duration of residence. The possible mechanisms relating to the age at immigration to mental health are several. The age at which one migrates is known to influence the acculturation process and the perception of the expected social norms of the host country (Kuo & Roysircar, 2004). As well, the age at immigration might be related to the home or intergenerational environment. It has been suggested that first-generation immigrant children experience psychosocial distress related to perceived discrimination and challenges in relationships with their parents (Salami et al., 2022). Young immigrants might experience conflict between the expectations of parents and those of host country peers, in ways that those who arrive at older ages might not (Hedegaard, 2005). At the same time, migrants arriving at a younger age will have higher chances of integrating more easily into the school system and with peers (Söhn, 2011).

Among immigrants, population subgroups such as racial or ethnic minorities and refugees might also be at higher risk to poor mental health due to challenges related to integration. One potential reason is disproportionate exposure to social and economic inequities in the host country during the integration process (Karki et al., 2023; Kirmayer et al., 2011; Statistics Canada 2023a). Barriers to integration for racialized immigrants include discrimination in daily life based on ethno-cultural background or race (Noh & Kaspar, 2003). It could also include discrimination in the labour market, lower earnings compared to native-born Canadian, a lack of credential recognition and intersecting barriers related to gender, race and immigration status (Karki et al., 2023; Premji & Shakya, 2017; Statistics Canada, 2023a). Barriers to health care services related to language, stigma, and lack of adequate access might also be present (Kalich et

al., 2016). Inadequate opportunity for social integration into the host society and social and economic inequities could also affect migrants' mental health (Na & Hample, 2016).

Gender plays a critical role in shaping immigrant mental health (Hollander et al., 2011). Many immigrant women are mothers, and motherhood is influenced by gendered social roles and caregiving expectations. Some studies have pointed to the lack of a healthy immigrant effect for the mental health of immigrant mothers, particularly during the post-partum period (Gagnon et al., 2013; Urquia et al. 2012; Stewart et al., 2008). A review of literature spanning multiple countries, including Canada, also shows that the rate of postpartum depression among immigrant women is up to two times higher than those of native-born women (Falah-Hassani et al., 2015). Stewart et al. (2008) found that newcomer mothers (refugees, immigrants, and asylum seekers) had significantly higher rates of postpartum depressive symptoms compared to Canadian-born mothers. Refugees had the highest odds (OR = 4.80), followed closely by immigrants (OR = 4.58) and asylum seekers (OR = 3.06). Lower prenatal care and reduced social support were also associated with increased depressive symptoms in this study (Stewart et al., 2008). Urquia et al. (2012) studied the long-term effects of acculturation on reproductive health outcomes and analysed differential effects of length of time on maternal outcomes for recent and long-term immigrants (residing in Canada for 10 years or more) in comparison to Canadian-born women of European descent. Although recent immigrant women had a lower prevalence of preterm births, hospitalization, and illness during pregnancy, Urquia et al., (2012) reported a higher incidence of post-partum depression among immigrant women regardless of their length of stay in Canada. While adjusting for maternal age, parity, marital status, maternal education and low income, the study reported that prevalence ratios for post-partum depression were 2.42 (1.87–3.06) for recent

immigrants, and 1.44 (0.92–2.19) for long-term immigrants compared to Canadian-born women of European descent.

Although there has been a considerable amount of research into the individual characteristics and factors such as trauma and language barriers that are associated with the mental health of immigrants to Canada, there has not generally been much examination of the importance of contextual factors, particularly aspects of the social environment. In addition to biological or genetic predispositions being a cause of mental illness, mental health and stress can be determined by a complex interplay between individual, contextual and structural factors (WHO, 2008; WHO, 2022). Poor environmental and contextual factors in the distal and immediate environment are known to be associated with stress and poor health (WHO, 2008). On the other hand, some aspects of the context can also serve as buffers and protect health, and identifying these aspects can help in the development of resilience strategies for those exposed to challenging circumstances (Kolu, 2023).

Social and economic living conditions and psychosocial aspects of household, neighbourhood, and community environments are associated with mental health and illness (Barrett & Turner, 2005; Dunn et al., 2006; Ruiz-Tagle & Urria, 2022; Matheson et al., 2012). Seminal ecological work, such as that of Faris & Dunham, (1939), demonstrated that mental illness clusters in socioeconomically disadvantaged areas. Recent research continues to suggest that neighbourhood deprivation and aspects related to the physical, built environment are key determinants of poor mental health in the general population (Gong et al., 2016; Kawachi & Berkman, 2003; Sampson, 2003). In addition to infrastructure and physical aspects (Zijlema et al., 2024), psychosocial aspects of the environment including perceived safety and risk of crime, social capital, and community cohesion are known to have implications for mental health

(Kawachi & Berkman, 2001; Ross & Mirowsky, 1999). The household context has also been suggested to be important in determining the risk of mental health and illness. Low household income, a relative lack of material resources, household food insecurity, limited educational opportunities, and exposure to adversity have negative consequences for mental health, such as emotional problems and depressive outcomes (Puddephatt et al., 2020; Raphael, 2020; Spivak et al., 2019).

While some contextual factors have been identified as risks, others are protective of mental health. Structural aspects of the built environment such as green space, amenities, and accessible public transport are beneficial for mental health (Bonaccorsi et al., 2023). Social aspects such as community cohesion and access to services are also protective of mental health. Interpersonal aspects, such as supportive kin and extended family, might also be buffers for mental health (Dressler, 1985).

Evidence suggests that some contextual factors play a crucial role in shaping mental illness among immigrants in Canada (Durbin et al., 2015; Emerson et al., 2021; O'Campo et al., 2015; Sim & Georgiades, 2022). These include neighbourhood-level factors, which have been found to significantly influence mental health. Emerson et al. (2021) reviewed literature on neighbourhood level ethno-cultural concentration and found that most existing studies provide evidence of a protective association between the mental health of adult immigrants and higher ethno-cultural concentration at the neighbourhood level. A recent study by Sim & Georgiades (2022) examined neighbourhood characteristics, parental exposure to trauma and parenting behaviours and their association with children's internalizing and externalizing problem behaviours among immigrant and non-immigrant families. Sim & Georgiades (2022) found neighbourhood social disorder to be significantly associated with externalizing problems among

children and neighbourhood immigrant density with lower externalizing problems as reported by parents.

Research also suggests that household-related and family factors play a role in immigrants' well-being. Relevant to the household context, (Montazer, 2022) found that among foreign-born respondents compared to Canadian-born homeowners, homeownership was associated with significantly less psychological distress, whereas renting was associated with higher psychological distress. In additional models, Montazer (2022) studied explanatory variables for the relationship between homeownership and psychological distress and found foreign-born owners to have higher ontological security than foreign-born renters. Ontological security was conceptualized in this paper based on Gidden's (1990) definition as, "a feeling of confidence, continuity of self-identity, and constancy of one's social and material environment" (Montazer, 2022, pg. 2). Burgos et al. (2017) interviewed immigrant youth about positive aspects of their family lives. Youth in this study reported quality time, reliable connections with family members, a sense of security and maintaining aspects of ethnic identity (speaking their native tongue, eating familiar food) to be positive aspects of their family and home environment (Burgos et al., 2017).

Psychosocial and contextual factors have also been found to be associated with stress and post-partum depression. Low household income, poor social support, and recent interpersonal violence are suggested to be independent risk factors for post-partum depressive symptoms in general (Carlson et al., 2025; Dennis et al., 2012) and these factors might also be key in determining post-partum among immigrant mothers. Among immigrant women, social support, including that from community alliances and support groups is also suggested to help promote mental health (Guruge et al., 2015; O'Mahony & Clark, 2018).

Using a differential vulnerability and exposure framework, Miszkurka et al. (2012) examined contextual predictors of prenatal depression among immigrant women compared to their Canadian-born counterparts, stratified by length of time in Canada. Contextual factors in this study included adverse life-events (measured by a scale with items such as being robbed, the death of a loved one, discrimination, problems with welfare insurance), marital strain, and social support indicators such as lack of money for basic needs and household crowding. Results of Miszkurka et al.'s 2012 study show that immigrant women (regardless of time since migration) compared to Canadian born ones were significantly more exposed to high marital strain, lack of social support, poverty, and crowding. The comparative risk by contextual factors for prenatal depression also differed for immigrant women by length of time in Canada. For newly arriving immigrant women (0 to two years of stay in Canada) the risk of prenatal depression was the highest by adverse life-events, household crowding, and financial constraints, as identified by lack of money for basic needs. In contrast, elevated levels of marital strain formed the main risk for prenatal depression among immigrant women with intermediate years (three to eight years) of stay in Canada. Long-term immigrant women (staying in Canada nine years or more) were most exposed to a lack of money for basic needs.

Research on immigrant mental health is present in Canada; however, there remain gaps in research on neighbourhood level social, and economic deprivation and the mental health of immigrants, as well as on family structure, dwelling context and the mental health of immigrant mothers. The roles of social and economic aspects at the neighbourhood and community levels as protective and risk factors for poor mental health and mental disorders among immigrants and immigrant mothers remain underexplored. A particular gap exists in relation to immigrant mothers. As outlined earlier in this chapter, most existing literature has concentrated on

depression during and after pregnancy, often overlooking broader mental health outcomes and contextual influences.

1.2 Theoretical Framework

In this section, I provide a brief background of Bronfenbrenner's Ecological Systems Theory (EST). The types of earlier and more recent EST-based models and their application to studying human development and mental health are also discussed. Lastly, I provide a brief statement on how EST was used as a foundation for the theoretical framing of the dissertation studies, particularly Chapters 2 and 3.

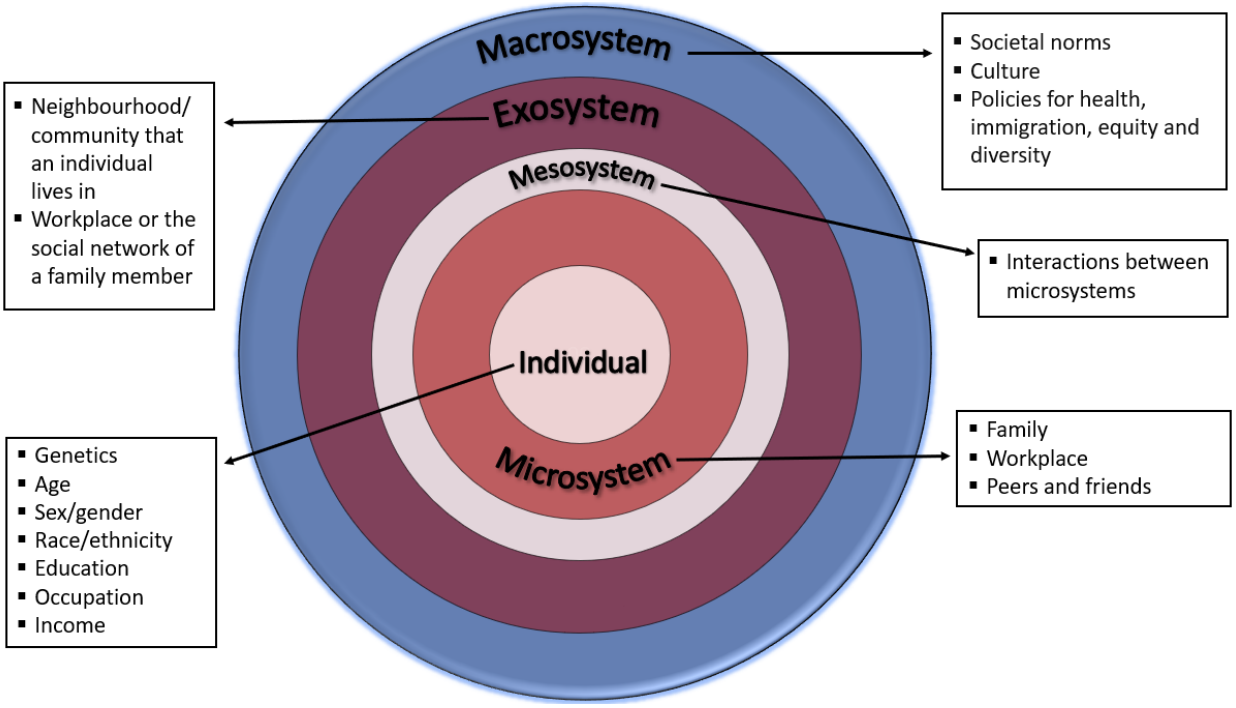
1.2.1 Background on the EST

The EST was originally formulated during the 1970s to explain the influence of concentric ecological systems on the individual (Bronfenbrenner, 1979). According to Bronfenbrenner, an individual is influenced by the contexts that they live in which could be immediate and distal. These contexts include aspects of the physical environment and social interaction with other individuals. The context closest to an individual is the *microlevel context,* which includes physical and material aspects of the environment closest to an individual. Examples of such contexts could include the household, school, or work. The immediate context also includes innermost circles of social interactions known as *microsystems,* examples of which include family, peers, friends, work, and community social networks (Bronfenbrennber, 1979).

Bronfenbrenner also explains that the *microsystem* and *exosystem* are nested within larger systems: the *mesosystem, macrosystem,* and the *chronosystem*. The *mesosystem* is where links between multiple microsystems occur to influence human behaviour (Bronfenbrenner, 1979).

Examples of the *mesosystem* include communication among parents and health care providers to strengthen support for a child's health, or the interaction between an individuals' family and work life. Along the same lines, the next system, encompassing all other ones, is the *macrosystem*. This is the overarching, larger part of society in which an individual resides. The *macrosystem* includes the culture, geographic location, and the political system of the society in which an individual lives (Bronfenbrenner, 1979). In his early work, Bronfenbrenner referred to events and transitions in the life course as a result of historical time and age and stated that these could also bring changes to behaviours and health and are considered part of the *chronosystem* (Bronfenbrenner, 1986). Examples of life course transitions include starting school, getting married, getting a new teacher, and moving. The multi-level systems in Bronfenbrenner's Ecological Systems Theory and the factors within each are depicted in Figure 1.1.

Figure 1.1 Schematic of the Ecological Systems Theory, showing factors across the multi-level systems that could associate with mental health



According to Bronfenbrenner, these systems can influence the intellectual, physical, motivational, and psychological states, either alone or in combination. As a result of this influence by the ecological systems, an individual learns and can realize their own persona, identity, and behaviours (Bronfenbrenner, 1979). Specific to the influence on psychology and behaviour, Bronfenbrenner & Evans (2000) propose that one's psychological state reflects the interactions and the meaning that an individual attributes to social interactions, and aspects of the material environment.

Furthermore, interaction with one's context may produce either of the two kinds of developmental outcomes, i.e. competence or dysfunction. Competence, according to Bronfenbrenner & Morris (1998) is "further development of knowledge, skill, or ability to conduct and direct one's own behaviour across situations and developmental domains". Dysfunction, on the other hand, refers to "the recurrent manifestation of difficulties in

maintaining control and integration of behaviour across situations and different domains of development" (Bronfenbrenner & Morris, 1998, p. 1002).

1.2.2 EST-based Models

Between the 1970s and 1990s, Bronfenbrenner and colleagues revised multiple earlier ecological models and developed the EST to illustrate how human behaviour is shaped by interactions within contexts (Bronfenbrenner, 1986; Bronfenbrenner, 1995; Bronfenbrenner & Ceci, 1994). These included the "social address", the "process-context", "person-process-context" and the "person-process-context-time" models. The "social address" model, one of the earliest, has been widely used in ecological studies to examine the effects of living in different geographic and socioeconomic contexts on psychological development. This approach has been critiqued for focusing primarily on general indicators of location without paying attention to the nature of the context and the processes in them that can affect individuals. Bronfenbrenner and Ceci (1994) also put forward the notion that "proximal processes" or the interaction between an organism and their environment is key in the psychological development of individuals (Bronfenbrenner & Ceci, 1994). Time, in Bronfenbrenner's "person-process-context-time" model refers to the historical changes that have taken place in the broader context as well as the age of an individual (Bronfenbrenner, 1995). While the chronosystem is not directly analysed in this dissertation, it is noted here to recognize the role of temporal dynamics in ecological theory.

Bronfenbrenner and others using ecological frameworks also highlight the importance of variations in psychological outcomes as a result of the characteristics and social position of an individual (Bronfenbrenner & Ceci, 1994; Bronfenbrenner & Evans, 2000; Bronfenbrenner & Morris; 1998). Taking one's social position into consideration helps us understand the

bidirectional relationship between an individual and their environment. Thus, along with the use of EST to study human development, EST based models can also be useful in considering how psychological processes and resulting behaviours and mental health vary by contexts and individual differences such as age, gender, and social group (Bronfenbrenner, 1986; Bronfenbrenner, 1995). For instance, the socio-economic status and ethnicity of one's parents have been shown to shape access to different types of environments (Conger & Donnellan, 2007). Racialized people might also experience barriers and discrimination in interactions with community members and at the structural and institutional level based on ethnicity and language (Ayón, 2015). Apart from the influence of the environment on the individual, the individual also has the capability to responds to his or her environment (Bronfenbrenner & Ceci, 1994). The response and behaviour of a person to a context might vary depending on their temperament and social position (Conger & Donnellan, 2007). Research indicates that sex- and gender-related differences exist in mental health outcomes such as anxiety. On average, women report a higher level of internalizing anxiety related symptoms, whereas men tend to report avoidant or externalizing symptoms (Farhane-Medina et al., 2022). These patterns, however, could be explained by differences due to gender socialization, as well as measurement bias that could underestimate men's prevalence of depression and anxiety (Farhane-Medina et al., 2022; Smith et al., 2018).

1.2.3 Application of the EST

The EST has primarily been applied in research on children's development and related outcomes (Duerden & Witt, 2010; Feriver et al., 2022; Tudge et al., 2009). Bronfenbrenner's earlier works focused on psychological development among children (social learning, modelling

and reinforcement) in the family and school settings (Bronfenbrenner, 1979a; 1986). More recent studies taking an ecological systems approach have also mostly examined outcomes for children or youth related to their living contexts, i.e. the physical environment and interactions between children and their caregivers and outcomes such as juvenile justice (Duerden & Witt, 2010; Feriver et al., 2022; Snyder & Duchschere, 2022). Leventhal & Brooks-Gunn (2000) reviewed evidence on how neighbourhood environments shape children's and adolescents' development through processes such as access to resources, social relations, and exposure to stressors. Some international studies have taken an ecological perspective on the mental health of immigrants and racialized people including children and youth (Mandel, 2024; Paat, 2013). Nevertheless, the use of the EST to study the mental health of immigrant adults and immigrant mothers in Canada is non-existent.

In this dissertation, I use the EST as a guiding framework to examine whether immediate *micro-level* household and more distal *exo-level* neighbourhood and community contexts influence immigrants' mental health. I use the term contexts to refer to both the environments socioeconomic or structural conditions (e.g., neighbourhood and dwelling characteristics) in which individuals live, and the *systems* and interactions described in the EST (e.g., family structure, sense of belonging to local community). The EST serves as a guide to understanding the layered nature of the household and neighbourhood contexts and the factors we study— such as area-level deprivation and marginalization—which extend beyond interpersonal aspects. While we do not directly measure proximal processes, we examine how person- and context-level characteristics, such as immigrant status, household income, and neighbourhood deprivation, are associated with mental health outcomes. This approach moves beyond simplistic

"social address" comparisons by integrating individual- and area-level indicators within a multilevel ecological perspective (Bronfenbrenner, 1979; Tudge et al., 2009).

Although we do not investigate *macrolevel* factors empirically, immigration introduces a new *macrolevel* setting. Immigration can be regarded as a turning point in the life course during which a shift occurs across all living contexts, including the macrolevel. The influence of *macrolevel* changes on employment, exposure to new norms and the acculturation process for immigrants and their mental health is also briefly discussed in Chapters 2, 3 and 5.

Lastly, along with attention to contexts and mental health, the focus of the studies is on immigrants, as well as immigrant, racialized and ethnic minority mothers keeping in line with notion that exposure to these contexts could vary by a person's social position and characteristics. This dissertation advances the use and application of the EST by examining how social positions such as gender, motherhood and racialized status interact with living environments in the household, neighbourhood and community, while considering the broader macrolevel context.

1.3 Mental Health and Illness

As the focus of the studies in this dissertation is mental health and illness, this section provides a brief background on the topic. A description of the clinical symptomology is useful in understanding the impact of mental illness on the individual and their functioning. Thus, the diagnostic criteria for generalized anxiety disorder and episodes of depression and mania using the fourth edition of American Psychiatric Association's Diagnostic and Statistical Manual (DSM-IV) are also presented (APA, 1994).

1.3.1 Mental Health

Mental health and well-being refer to an individual's ability to be competent, optimistic, and engaged with others (Stewart-Brown, 2013). Having positive mental health also reflects an individual's ability to function well cognitively and have high self-esteem and resilience (Sewart-Brown, 2013). Positive mental health is critical to overall functioning, and its absence can lead to negative life outcomes. The absence of positive mental health and living with mental disorders can be debilitating for individuals and have consequences for their families making the prevention of mental disorders a vital public health priority (Baker et al., 2009; Public Health Agency of Canada, 2024). Although on a continuum whereby better mental health can be present for individuals living with mental health challenges, those living with mental illness experience loss of productivity at work, lower quality of life and strained interpersonal relationships (Baker & Procter, 2015; De Oliveira et al., 2023).

To promote positive mental health and reduce the challenges related to mental illness, in Canada and globally, leading organizations are aiming for improved governance and services in the area of mental health (WHO, 2022, Mental Health Commission of Canada, 2012). The WHO outlined their global action plan for mental health in 2022, which emphasized the need for governance (updated rights-based policies, plans for mental health), community-based services (coverage for mental health in the community and primary care), and routine collection of data on mental health indicators across the world. In Canada, the 2012 Mental Health Strategy, *Changing Directions, Changing Lives,* laid the foundation for raising awareness about mental health and access to services including mental health and housing services for individuals from diverse backgrounds, and mobilizing leadership (Mental Health Commission of Canada, 2012).

1.3.2 Mental Illness and Anxiety and Mood Disorders in Canada

Despite efforts to reduce its impact, mental illness continues to grow in Canada and the expenditure on mental illness is high. According to Statistics Canada, the percentage of Canadians 15 years and older with anxiety and who had an episode of depression in the 12 months prior to the Statistics Canada survey almost doubled between 2012 and 2022 (Statistics Canada, 2023b). In economic terms, the expenditure for mental illness in Canada is at least fifty billion dollars per year, which is mainly related to psychiatric hospitalizations, health care services in the community, and public health promotion (Canadian Institute for Health Information, 2019a; Eaton, 2022). A recent report by Lowe et al. (2024) from the Canadian Mental Health Association mentions that Canada is lagging when it comes to spending on mental health, addictions, and substance use in the healthcare system. This report included statistics from the Organization for Economic Co-operation and Development showing that Canada spends on average 6.7% of its overall health spending on mental health, but is surpassed by France (15%), the UK (9%), Sweden (9%) and Germany (11.3%) (Lowe et al., 2024).

The social and economic impact of mental illness, including anxiety and mood disorders, has been recognized nationally and internationally (ICPE, 2000; Merikangas et al., 2011; McRae et al., 2016; Canadian Institute for Health Information, 2019b). Anxiety and mood disorders are among the most common types of mental illnesses in Canada (McRae et al., 2016). The lifetime prevalence of generalized anxiety disorder, major depression and bipolar disorder has risen in Canada between the years 2012 and 2022 (Statistics Canada, 2023b). In 2012, the estimated prevalence of anxiety disorder among Canadians 15 years and older was 8.7 percent, whereas it was 13.3 percent in 2023. Similarly, the prevalence of depression among Canadians 15 years and older was 11.3 percent in 2012 and 14.0 percent in 2022 (Statistics Canada, 2023b). The decline

in mental health among Canadians has been attributed mainly to economic stressors and the COVID-19 pandemic (CIHI, 2024). Mental disorders also have social consequences, and include challenges for caregivers and relatives in seeking timely and appropriate health care and maintaining relationships with affected individuals (Slaunwhite et al., 2017).

Anxiety and mood disorders could be debilitating for individuals living with them (Wilmer et al., 2021). These disorders have consequences for quality of life and might have adverse effects on functional and cognitive functions (Wilmer et al., 2021). For example, individuals with anxiety may be inhibited from taking part in daily activities due to excessive worry, or fears, while those living with major depressive disorder may lose interest or lack the energy to take part in their daily routines (Fox et al., 2021; Marx et al., 2023). Furthermore, major depressive disorders and bipolar disorders are cyclical in nature (Marx et al., 2023). Episodes of depression and mania could result in functioning impairment for individuals with bipolar disorder (Rosa et al., 2010).

The aetiology of mental disorders including anxiety and mood disorders has been attributed to both individual and environmental factors (Hyland et al., 2016; Merikangas & Swendsen, 1997). For instance, along with genetic origins of mental disorders, stress-related and psychosocial explanations have also been presented (Mazure & Druss, 1995). The interaction between biological (genetic, biochemical), psychological (mood, personality, behaviour) and social (cultural and familial) factors have been used to explain stress-related pathways and the development of psychiatric illnesses (Mazure & Druss, 1995).

1.3.3 Symptoms of Anxiety and Mood Disorders

The DSM is a user guide on mental disorders and DSM-V Text Revision is the most recent edition. Its primary purpose is the classification of mental disorders by means of standardized criteria for use by clinicians and researchers. The DSM-V has been criticized by some scientists as they believe some diagnostic criteria in it could lead to further 'medicalising' society (Pickersgill, 2014). For example, the exclusion of bereavement as a potential cause for grief might make it more likely to be diagnosed as depression when it could be a normal response to circumstances (Pickersgill, 2014). However, the DSM still provides a standardized tool with which clinicians can communicate about psychiatric illnesses and continues to act as a reference point for researchers.

For the purposes of this dissertation, the symptoms and diagnostic criteria provided are from DSM-IV as it aligns better with the self-reports of on anxiety and mood disorders in Canadian Community Health Survey 2015/16 which is used in Chapter 2. Changes have been made to the classification of anxiety and mood disorders between DSM-IV and DSM-V. In DSM-IV, anxiety disorders included phobia and obsessive-compulsive disorder, and the term mood disorders referred to major depressive disorder, bipolar disorder, mania, cyclothymia and dysthymia. These classifications were revised by the American Psychiatric Association in the DSM-V, including obsessive-compulsive disorder being moved from the ADs category to a separate section on obsessive-compulsive and related disorders. Similarly, mood disorders were divided into distinct categories: depressive disorders and bipolar and related disorders.

Based on the DSM-IV classification, examples of ADs include:

i) generalized anxiety disorder,

ii) social anxiety disorder,

iii) specific phobias,

iv) panic disorder,

v) obsessive compulsive disorder, and

vi) post-traumatic stress disorder,

whereas examples of mood disorders include:

i) major depressive disorder,

ii) bipolar disorder,

iii) cyclothymia, or emotional highs and lows less extreme than bipolar disorder,

iv) persistent depressive disorder or dysthymia, and

v) seasonal affective disorder (APA, 1994).

1.3.4 Diagnostic Criteria

The diagnostic criteria and symptoms based on DSM-IV for generalized anxiety disorder, major depressive disorder, and manic episodes of bipolar disorder are shown in Box 1, Box 2, and Box 3 below.

Box 1. Diagnostic criteria for generalized anxiety disorder (DSM-IV)

Adapted from the Substance Abuse and Mental Health Services Administration, Centre for Behavioural Health Statistics and Quality Methodology Report entitled, "*Impact of the DSM-IV to DSM-5 Changes on the National Survey on Drug Use and Health"* (Glasheen et al., 2016).

A. Excessive anxiety and worry (apprehensive expectation), occurring more days than not for at least 6 months, about a number of events or activities (such as work or school performance).

B. The individual finds it difficult to control the worry.

C. The anxiety and worry are associated with three (or more) of the following six symptoms (with at least some symptoms having been present for more days than not for the past 6 months):

Note: Only one item is required in children.

1. Restlessness or feeling keyed up or on edge.
2. Being easily fatigued.
3. Difficulty concentrating or mind going blank.
4. Irritability.
5. Muscle tension.
6. Sleep disturbance (difficulty falling or staying asleep, or restless, unsatisfying sleep).

D. The focus of the anxiety and worry is not confined to features of an Axis I disorder* (e.g., the anxiety or worry is not about having a panic attack [as in panic disorder], being embarrassed in public [as in social phobia], being contaminated [as in obsessive-compulsive disorder] being away from home or close relatives [as in separation anxiety disorder], gaining weight [as in anorexia nervosa], or having a serious illness [as in hypochondriasis]), and the anxiety and worry do not occur exclusively during posttraumatic stress disorder.

E. Anxiety, worry, or physical symptoms cause clinically significant distress or impairment in social, occupational, or other important areas of functioning.

F. The disturbance is not due to the direct physiological effects of a substance (e.g., a drug of abuse, a medication) or a general medical condition (e.g., hyperthyroidism) and does not occur exclusively during a mood disorder, a psychotic disorder, or a pervasive developmental disorder.

*Axis I refers to categories of mental health and substance use disorders.

Box 2. Diagnostic criteria for depression (DSM-IV)

Diagnostic criteria for depression among adults by the Agency for Healthcare Research and Quality, United States Department of Health and Human Services, presented in, "*Screening for Depression in Adults and Older Adults in Primary Care: An Updated Systematic Review*" (O'Connor et al., 2009).

1. Depressed mood and/or loss of interest or pleasure in life activities for at least two weeks, and at least five of the following symptoms that cause clinically significant impairment in in important areas such as work or social life, almost every day:
2. Diminished interest or pleasure in all or most activities,
3. Significant unintentional weight loss or gain,
4. Insomnia or sleeping too much,
5. Agitation or psychomotor retardation noticed by others,
6. Fatigue or loss of energy,
7. Feelings of worthlessness or excessive guilt,
8. Diminished ability to think or concentrate, or indecisiveness,
9. Recurrent thoughts of suicidal ideation or death.

Box 3. Diagnostic Criteria for Manic episodes (DSM IV)

Diagnostic criteria adapted from a report entitled, "*DSM-5 Changes: Implications for Child Serious Emotional Disturbance*", by Substance Abuse and Mental Health Services Administration (Ringeisen et al., 2016).

1. A distinct period of abnormally and persistently elevated, expansive, or irritable mood, lasting at least 1 week, or any duration if hospitalization is necessary,
2. Three (or more) of the following symptoms have persisted and have been present to a significant degree, during period of mood disturbance, four if the mood is only irritable:
   a. increased self-esteem or grandiosity,
   b. decreased need for sleep (e.g., feels rested after only 3 hours of sleep),
   c. more talkative than usual or pressure to keep talking,
   d. flight of ideas or subjective experience that thoughts are racing,
   e. distractibility (i.e., attention too easily drawn to unimportant or irrelevant external stimuli),
   f. increase in goal-directed activity (either socially, at work or school, or sexually) or psychomotor agitation,
   g. excessive involvement in pleasurable activities that have a high potential for painful consequences, e.g., engaging in unrestrained buying sprees, sexual indiscretions, or foolish business investment.
3. The symptoms are not due to direct physiological effects of a substance (such as drug of abuse, a medication, or other treatment) or a general medical condition (e.g., hyperthyroidism).

1.4 Overview of Dissertation

This dissertation takes a "social ecological approach" to investigate risk and protective factors for poor mental health and mental illness among immigrants and among immigrant mothers in particular. Along with the structural elements which are described by Georgiades et al. (2007) as the organization and composition of the elements that define a context, the psychosocial aspects are also integral to mental health. These compositional and social aspects of context are described in detail Bronfenbrenner's Ecological Systems Theory (EST), which was the guiding theory for this three-paper thesis. The EST highlights that the immediate and distal environments, including one's family circle, are key in helping us develop and maintaining cognitive schemas of our environment and in guiding our behaviour (Bronfenbrenner, 1995). It also establishes the importance of immediate and distal contexts in relation to mental health and illness. Building on the tenets of the EST, I conducted two empirical studies and a scoping review. In the empirical studies and the scoping review, I investigated household and neighbourhood-level social and economic factors in relation to mental health and illness, while considering individual characteristics, both for immigrant mothers and immigrants in general.

The first empirical study, Chapter 2, is on neighbourhood and community contexts and the association of factors in these contexts with self-rated mental health and self-reported diagnosis of mood disorders outcomes. The research questions we asked in this Chapter are:

1. Do immigrants and non-immigrants differ in their exposure to household, neighbourhood, and community factors?

2. Are factors in these contexts associated with mental health and mood disorder outcomes among immigrants?

Chapter 3 is a study on household contextual factors, with a focus on gender and motherhood and immigrant status. The research questions for this Chapter are:

1. Are immigrant mothers more likely than Canadian-born mothers to be exposed to different family structure and dwelling factors?

2. Are these family structure and dwelling factors associated with mental health outcomes, including mental health conditions, among immigrant mothers after controlling for age, geography, and time in Canada and socio-economic factors (e.g., income, education, and employment) and are these associations different for immigrant and Canadian-born mothers?

Building on the study of distal neighbourhood and community factors in Chapter 2 and taking an intersectional approach, the final study was a review paper, in which neighbourhood and community contexts and the mental health of immigrant, racialized and ethnic minority mothers in Canada and the United Status were explored. The research questions we answered in this study (Chapter 4) are:

1. What physical, structural, socio-economic, and social aspects of the neighbourhood and community ecological contexts are found to be associated with mental health and disorder outcomes among immigrant, racialized, and ethnic-minority mothers?

2. Which of these factors act as risks for mental health and protect against mental disorders among immigrant, racialized, and ethnic minority mothers?

In the last chapter, Chapter 5, I briefly discuss the overall objective of this dissertation and the summaries of each study. I also discuss the findings from this work in connection to the broader literature on contextual factors and mental health. Lastly, I discuss the implications of the findings for community- and neighbourhood-level interventions and macro-level strategies such as those aimed at supporting the integration of immigrants.

Chapter 2. Household, Neighbourhood and Community Contexts and the Mental Health of Immigrants in Canada

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2.1 Overview

Background

Integration and resettlement are key aspects of the immigration process that involve a change to immigrants' physical and social contexts. Following Bronfenbrenner's (1979) Ecological Systems Theory (EST), these contexts can be viewed as nested systems. The most immediate context is the *microlevel*, which includes the household's social *microsystem* and psychosocial aspects of the household setting. The intermediate context is the *exolevel*, which includes aspects of the neighbourhood and community. Lastly, the *macrolevel* context refers to broader social, cultural, and economic aspects of the society. Although the associations between individual characteristics and mental health have been studied, limited research exists on contextual factors and the mental health of immigrants and there has been little consideration of the potential role of *exolevel* contextual factors in the mental health of immigrants in Canada.

Methods

Using the Canadian Community Health Survey (CCHS) from 2015 and 2016, merged with area data from the Canadian Index of Multiple Deprivation (CIMD), we first examined and compared the proportion of immigrant and non-immigrant Canadians exposed to contextual factors in the household, neighbourhood, and community (HNC) contexts. Second, using binary multivariable logistic regression models, we estimated the association between these contextual factors and the odds among immigrants of reporting poor or fair self-rated mental health (PF-SRMH) and having been diagnosed with a mood disorder (MD). The social and economic aspects of household context we examined included income adequacy, education, presence of young children, household size, and tenure status (rented versus owned dwelling). In the neighbourhood and community context, we considered unfavourable contextual exposures to include living in a

census dissemination area with higher levels of deprivation (i.e., higher residential instability, economic dependency, situational vulnerability, and ethnocultural composition). Lastly, in the community context, having a weaker sense of belonging to local community was considered an unfavourable exposure.

Results

We found that immigrants generally had higher exposure to categories of household socio-economic factors that are potentially unfavourable to mental health such as low income adequacy, and a rented dwelling. However, low-income adequacy was the only household characteristic associated with significantly higher odds of PF-SRMH (OR= 1.66, CI: 1.04–2.62) and having a MD (OR= 1.87, CI: 1.20–2.90). Moreover, immigrants living in neighbourhood contexts of higher deprivation generally had higher odds of PF-SRMH, although these results were statistically significant only for the highest quintiles of situational vulnerability and ethnocultural composition. We did not find any significant association between higher neighbourhood deprivation and the presence of a MD. A weaker sense of belonging to local community was a strong predictor of poor mental health, however.

Implications

Our findings suggest that some contextual factors are important contributors to the mental health of immigrants, but these were mainly at the neighbourhood or community levels, rather than the household level. Immigrant households with low income adequacy are a potentially key area of focus for mental health services. Improved social integration of immigrants, including fostering feelings of local community connectedness and reducing marginalization might also promote better mental health outcomes among immigrants.

Household, Neighbourhood, and Community Contexts and the Mental Health of Immigrants in Canada

2.2 Introduction

Canada currently accepts roughly 400,000 immigrants annually, mainly through the economic and family immigration programs (Immigration, Refugees and Citizenship Canada, 2023), with the policy goal of supporting the economy as the country faces the challenge of an aging population (Statistics Canada, 2022a). By 2031, one in three persons working in the Canadian labour market is expected to be foreign-born (Martel et al., 2011). The growing size of the immigrant population makes their mental health a priority area for research (Statistics Canada, 2022a).

Among immigrants, the migration process is an important dimension of risk for mental health and illness (Bhugra, 2004; George et al., 2015). Mental health is a state of well-being in which an individual can cope with the daily stressors of life and contribute to their community, whereas mental disorders are related to impairments in an individual's emotional and psychosocial interactions (World Health Organization, 2020). International research suggests that migrants are at higher risk of developing some mental disorders than non-migrants are, at least in part due to migration-related stress (Bhugra, 2004; Breslau et al., 2009). Although previous research has found that, on average, immigrants in Canada have better mental health than Canadian-born individuals, this effect is reduced with longer stay in Canada (Ali et al., 2004; Ng & Zhang, 2020). Moreover, the mental health advantage is less evident for immigrants with certain demographic characteristics, including younger people, women, and racialized groups (Ali et al., 2004; Islam et al., 2014; Islam, 2015; Patterson et al., 2013).

Although research has examined associations between individual characteristics and the mental health of immigrants, there is limited research in Canada on the social and economic contexts in which immigrants reside and their contribution to the reinforcement of disparities or reduction of inequities in immigrant mental health (Beiser et al., 2002; Emerson et al., 2021; O'Campo et al., 2015; Mahmood et al., 2011; Matheson et al., 2012). We address this gap in the research by examining aspects of household, neighbourhood, and community (HNC) contexts and their association with aspects of mental health among immigrants. This assessment can improve the understanding of housing- and neighbourhood-level needs of immigrants and contribute to social and mental health equity in Canada, in line with the priorities of the Mental Health Commission of Canada's *Mental Health Strategy for Canada* to improve mental health and support for the diverse Canadian population (Hansson et al., 2012).

Bronfenbrenner's Ecological Systems Theory (EST) provides us with a framework to consider immediate household and more distal neighbourhood and community settings and their relationships to the mental health of immigrants. At the core of the EST is the notion that the individual is at the centre of multiple nested contexts (Bronfenbrenner, 1979). These contexts include the social aspects and physical structures with which individuals interact (Bronfenbrenner, 1979). In this chapter, we first use the EST to discuss the contextual changes in the broader cultural and value systems that migrants experience. We then apply the EST to examine aspects of the HNC contexts, particularly those that reflect social and economic deprivation, and their associations with poor mental health among immigrants in Canada.

2.3 Background

The *Healthy Immigrant Effect* (HIE) is the most prominent explanation of immigrants' physical and mental health in the research literature, and it has been observed in countries with large immigrant populations, including Canada, the United Kingdom, the United States, and Australia (Emerson et al., 2021; Kennedy et al., 2015; Lou & Beaujot; 2005; Markides & Rote, 2019). The HIE describes how the health of immigrants upon arrival is, on average, better than that of the native-born population of the host country. In Canada, comparisons of the mental health of immigrants to that of non-immigrants have confirmed that immigrants have better self-perceived mental health and lower rates of clinical illnesses, including depression and substance abuse, than non-immigrants (Ali et al., 2004; Lou & Beaujot, 2005). Explanations for the HIE include selective immigration policies, which favour younger migrants and screen for various illnesses, and the self-selection of individuals who might be more likely to have better physical and mental health than either those who remain in the country of origin or those in the destination (Kennedy et al., 2015).

Research suggests that the health of immigrants—especially their mental health—deteriorates with long-term stay in Canada (Ali et al., 2004; Salami et al., 2017; Lou & Beaujot; 2005). There is evidence for a "years since immigration" effect, in which average levels of mental health among immigrants decline, and emotional and mental health problems emerge after approximately ten years of stay in Canada (Ali et al., 2004; DeMaio & Kemp; 2010; Lou & Beaujot, 2005).

Other demographic factors have been found to affect the mental health of immigrants, suggesting some groups of immigrants are at higher risk for poor mental health. This includes age, for which the pattern of higher risk of mental illness, such as major depressive disorder,

typically follows a U-shaped pattern over the life course, with worse outcomes during teenage and later years of life and a lower risk for illness in mid-adult ages (Islam, 2015; Patterson et al., 2013; Sutin et al., 2013; Xu & McDonald, 2010). Gender has also been found to be related to the mental health of immigrants. Immigrant women are susceptible to social risks, such as interpersonal violence, that can enhance their vulnerability to poor mental health, making biological sex and gender important determinants of immigrant health (Daoud et al., 2012; Delara; 2016).

Cultural, religious, or ethnic background might be related to the mental health of immigrants in Canada (Khanlou, 2012), and these factors can intersect, forming complex relationships that are difficult to parse out. Risks and trauma occurring in the country of origin, as well as challenges in acculturation to Canadian society and the Canadian economy could contribute to differences in mental health among immigrants (Kim et al., 2013). Experiences of discrimination in Canada might be especially relevant among racialized immigrants, who make up the majority of newcomers to Canada (Statistics Canada, 2011). Indeed, DeMaio and Kemp (2010) found that being a "visible minority" and experiencing discrimination were predictive of deterioration in mental health among immigrants.

2.3.1 Ecological Systems Theory and Immigrant Mental Health

As described previously, research in Canada has primarily focused on individual aspects of immigrant mental health. There remains a theoretical and empirical gap in the literature on immigrant mental health and the physical and social contexts in which immigrants live. One way to conceptualize the role of context in immigrants' mental health is Bronfenbrenner's EST

(Bronfenbrenner, 1979). Although originally developed in the 1970s to study child development, the EST has also been applied to research on the mental health of adults (Eriksson et al., 2018).

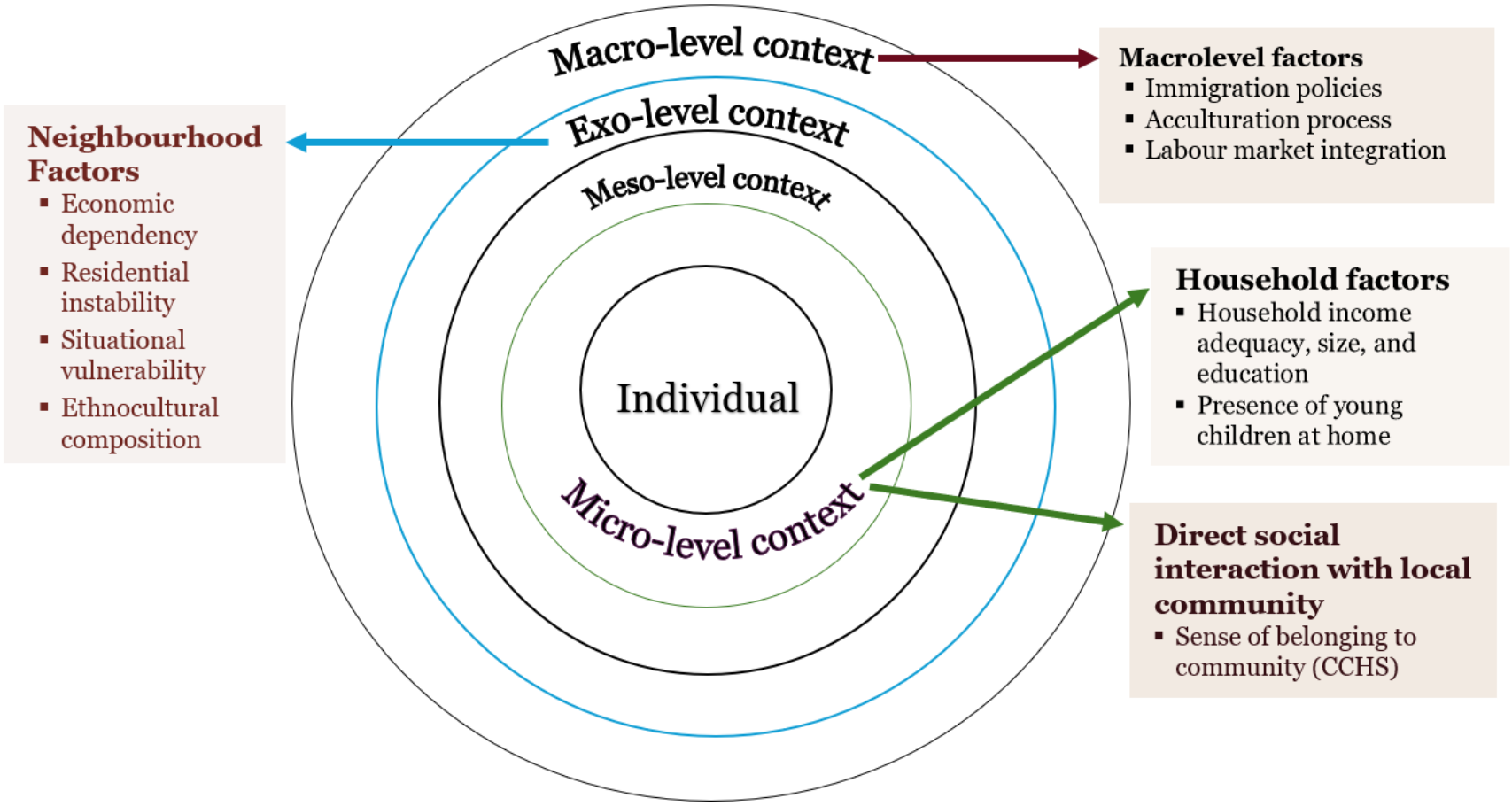
Bronfenbrenner postulated that individuals are situated in nested contexts; that is, each context lies within a broader one (Bronfenbrenner, 1979). As shown in Figure 1, in the most proximate level of context, an individual has direct interactions with social *microsystems* and with the physical and material aspects of the settings in which they spend the most time and have the closest social connections (Bronfenbrenner & Evans, 2000; Griffore & Phenice, 2016). The household context is constituted by the household's social microsystems, combined with the psychosocial aspects of the household setting (Rosa & Tudge, 2013). In addition, based on the EST, individuals could also be indirectly influenced by the more distal *exolevel* contexts they are exposed to, including aspects of neighbourhoods or communities (Bronfenbrenner & Evans, 2000). Lastly, in the EST, broader economic and political systems and cultural values form a context that encompasses all other contexts and is known as the *macrolevel* context (Bronfenbrenner, 1979; Rosa & Tudge, 2013).

The EST is a useful framework to conceptualize the potential relationships between physical and social aspects of context and the mental health of individuals. More recently, the EST has been used in social justice research to explore the relationship between broader social structures and the multiple contexts with which an individual interacts, as well as the consequences of contextual influences for the individual (King & Travers, 2017; Thurston & Vissandjée, 2005). For example, a study by Sterk et al. (2014) highlighted how the structural characteristics of the exolevel environment, such as a neighbourhood with social disorder and resource deficiency, facilitate substance use behaviour. Using the EST to frame research directs attention to the socioecological issues that perpetuate disparities instead of placing the

responsibility on an individual, and it also highlights the results of such disparities (King & Travers, 2017; Thurston & Visandjée, 2005).

In this chapter, we extend the application of the EST to the mental health of immigrant adults in Canada. We first use the EST to frame the broader societal forces that impact immigrants. We then use it to guide our empirical examination of the exposure of immigrants to specific contextual factors and to two negative mental health outcomes: having fair or poor self-rated mental health (PF-SRMH) and having been diagnosed with a mood disorder (MD).

Figure 2.1 Illustration of microlevel and exolevel contextual factors examined in relation to mental health and mood disorders in this study



2.3.2 Macro-Contextual Transitions and the Mental Health of Immigrants

Applying the EST to immigration suggests that transitions occur at multiple levels of ecological context when immigrants move from their countries of origin (Bronfenbrenner, 1979). The most prominent ecological transition occurs at the macrolevel, when immigrants are introduced to new social and cultural values and economic systems (Cuéllar, 2000). The continued effort of Canadian immigration policy to attract people from around the world means immigrants bring a variety of cultural values and life experiences (Marsella & Yamada, 2000). Since the 1970s, higher numbers of immigrants of non-European origins have led to higher proportions of visible minority populations in Canada (Bélanger & Malenfant, 2005). Ethnic minority immigrants to Canada might not have the same level of ethnocultural affinity to the predominantly European Canadian culture as previously arriving European immigrants did. The ecological transition to Canada might therefore be more challenging for ethnic minorities arriving to the country (Naeem et al., 2019). Individuals and families who originate from and have resided in places with strong non-Christian religious and non-European cultural influences on their life values and practices will most likely be inclined to continue those practices after moving to Canada. Therefore, migration places immigrants in a position of needing to adapt to a different cultural context, and the associated adjustment processes can be psychologically taxing (Talebi & Desjardins, 2012; Samuel, 2009).

Immigrants also have to navigate a new economic market system, which often poses a significant challenge to resettlement in Canada. Canada's immigration policy prioritizes its economic program, with the primary goal of strengthening Canada's labour force (Statistics Canada, 2022b). In 2021, 62% percent of permanent resident admissions to Canada were in the economic class (IRCC, 2022). Economic migration in Canada primarily uses a "point system" that

favours younger age, higher education, and proficiency in English or French (IRCC, 2022). Deterioration in the entry earnings and increased unemployment rates were observed in some cohorts of immigrants who arrived in the 1990s, relative to previous arrivals (Aydemir & Skuterud, 2005). Barriers to economic integration for migrants have been attributed to a deficiency in official language competence, lack of recognition of credentials, reduced value of foreign labour market experience, and the unmet demands for Canadian work experience by the Canadian labour market forces (Aycan & Berry, 1996; Aydemir & Skuterud, 2005).

2.3.3 HNC Contexts and Immigrant Mental Health

In addition to the potential effects of macrolevel context, factors in households and neighbourhoods could have an impact on mental health. Aspects of the household context that have been found to relate to mental health include household size and overcrowding (Dunn, 2002; Pierse et al., 2016; Ruiz-Tagle & Urria, 2022). Psychosocial aspects of households, such as family structure, including the number and ages of children, have also been found to be key determinants of mental health (Avison et al., 2007).

Along with psychosocial interactions among family members, socio-economic aspects of households, such as family income and the tenure of the dwelling, could determine mental health (Dunn et al., 2006; Robinson & Adams, 2008). Those living in low-income households have fewer material resources and less access to basic life necessities (Raphael, 2020). Living in a materially deprived household environment means a poorer quality of life in general, including barriers in access to proper nutrition, health care, and educational opportunities (Raphael, 2020). Exposure to deprivation, whether short- or long-term, also magnifies life stress and has harmful effects on mental health (Knifton & Inglis, 2020). In addition to household economic conditions,

household tenure in the form of ownership rather than renting has been suggested to be related to better mental health outcomes (Manturuk, 2012). Although those owning their homes might also face the stress of a mortgage, some research suggests that the poorer average mental health of those living in rental housing compared to those with ownership of their dwellings is mainly due to potential residential instability and the mediating effects of a sense of control that might be associated with home ownership (Acolin, 2022; Manturuk, 2012; Robinson & Adams, 2008). In a recent study, Acolin (2022) analysed data from 25 European countries and found that overall, owners compared with renters had higher life satisfaction and well-being. However, in countries where renters and owners had similar levels of residential stability, the outcomes appeared to be more similar.

In addition, the types of neighbourhoods that individuals or families live in are largely dependent on their socio-economic status (DeLuca et al., 2019). Those with lower financial means tend to reside in and move toward disadvantaged neighbourhoods, mostly due to external circumstances including urban renewal and eviction as well as barriers to affordability (Bartlett, 1997; DeLuca et al., 2019; DeLuca & Rosen, 2022). Those in lower socioeconomic positions are therefore more likely to be exposed to community stressors, neighbourhood hazards, and reduced access to green spaces (Bolte et al., 2011; Schüle et al., 2019). Exposure to poor quality neighbourhoods and barriers to living in a neighbourhood with adequate resources and infrastructure reflect socioeconomic inequalities (Bolte et al., 2011).

There is considerable evidence that neighbourhood- and community-level factors are related to health behaviours and mental health in the general population. This vein of research has examined various aspects of neighbourhood-level socio-economic context, including proportions of low-income residents, concentration of ethnic and racialized minorities,

residential stability, and perceptions of neighbourhood problems and safety, as well as aspects of the "built environment" and their relationships to mental health outcomes (e.g., Kawachi & Berkman, 2003; Sampson, 2003; O'Campo et al., 2009; Gong et al., 2016). In the case of depression, the findings regarding the importance of these community-level factors have been mixed, although most studies find at least some associations between aspects of the community context and depression (Mair et al., 2008).

In Canada, some survey research has examined specific aspects of HNC contexts and immigrant mental health (Beiser, 2002; Emerson et al., 2021; Glazier et al., 2004; Mahmood et al., 2011; Salami et al., 2017). Durbin et al. (2015) found that in urban Ontario, Canada, recent immigrants were more likely than long-term residents to live in areas with the highest levels of deprivation and that living in these areas was associated with slightly higher use of mental health services. O'Campo et al. (2015) estimated multilevel models of the relationship between neighbourhood measures—including neighbourhood disadvantage, perceived neighbourhood problems, and social cohesion—and several health outcomes, including depression and anxiety. However, immigrant status was used as a control variable in their study, and immigrants were not the focus of the analysis. Similarly, Matheson et al. (2012) examined the relationships between several aspects of neighbourhoods, including the proportion of recent immigrants, and found that Canadians living in neighbourhoods with higher proportions of recent immigrants tended to have worse outcomes than those living in neighbourhoods with relatively fewer immigrants. Similar results have been found in Australia, where higher ethnic diversity has been associated with several poorer mental health outcomes in the general population (Churchill et al., 2019).

Among immigrants and ethnic minorities, most studies on this topic have identified a buffering and protective effect of higher ethnocultural density on mental health, although the results have not been as clear for younger people (Emerson et al., 2021), and they have not been consistent across all racialized populations (Alegría et al., 2017). In a recent study, Canadian immigrant youth living in neighbourhoods with a higher density of immigrants had lower odds of having a physician-diagnosed mood or anxiety disorder than those living in neighbourhoods with relatively fewer immigrants (Emerson et al., 2023). The finding that immigrants tend to have better mental health if they live in a community with members of the same group has been interpreted as an indication that the resulting experiences of higher trust or social capital might act as buffers against acculturative stress and concentrated neighbourhood disadvantage—and lead to lower experiences of daily discrimination or racism (Alegría et al., 2017). On the other hand, immigrants living in a neighbourhood with lower immigrant density might have better social or economic integration into the host societies, a factor that potentially supports mental health (Brydsten et al., 2019).

2.4 Objectives and Research Questions

Using a nation-wide dataset, we examine the differential exposure to socio-economic and psychosocial factors in households and neighbourhoods among immigrants and non-immigrants and examine the association of these contextual factors with self-rated mental health and the presence of a mood disorder among immigrants. Based on the EST, we examine *microlevel* contextual factors in the household and exo-level factors in the neighbourhood and community contexts (Bronfenbrenner & Evans, 2000). We first ask whether immigrants and non-immigrants differ regarding their exposure to the various household factors (including household income

adequacy, household education level, crowding, presence of children, and dwelling ownership), neighbourhood factors (residential instability, economic dependency, situational vulnerability, and ethnocultural composition), and, lastly, the factor of a sense of belonging to the local community. We then ask whether aspects of these contexts are associated with mental health and mood disorder outcomes among immigrants.

2.5 Methods

2.5.1 Data and Variables

We used the 2015 and 2016 cycles of the Canadian Community Health Survey (CCHS) masterfile, provided by Statistics Canada through the Research Data Centres program[1]. The CCHS is a cross-sectional telephone survey of Canadians that asks an annual sample of approximately 60,000 people about their demographic characteristics and health status. The survey covers all provinces and territories in Canada, but it excludes those living on First Nations reserves and in institutions, as well as full-time members of the Canadian Armed Forces (Statistics Canada, 2016a).

Respondents' self-rated mental health status was collected on a five-point scale, which we dichotomized into "poor or fair" and "good, very good or excellent.". The survey also asked respondents, "Do you have a mood disorder such as depression, bipolar disorder, mania or

[1] This research was supported by funds to the Canadian Research Data Centre Network (CRDCN) from the Social Science and Humanities Research Council of Canada (SSHRC), the Canadian Institutes for Health Research (CIHR), the Canadian Foundation for Innovation (CFI), and Statistics Canada. Although the research and analysis are based on data from Statistics Canada, the opinions expressed do not represent the views of Statistics Canada or the CRDCN.

dysthymia?"[2] and provided the option of a binary "yes/no." Although mental health assessments are more reliable when captured using continuous and multidimensional measures (Lahey et al., 2022), the survey asked for a binary, self-reported response that could be based on a diagnosis obtained previously by the participant through a detailed psychological or psychiatric examination. The immigration concept was based on whether respondents reported "ever having been a landed immigrant or permanent resident to Canada."

We were able to include several variables that captured socio-economic and psychosocial aspects of the household context. Socio-economic factors included household income adequacy, education, and size and ownership of the dwelling. Low-, middle-, and high-income adequacy categories were based on total household income from all sources and the number of individuals in the household (Table 2.1). We followed a categorization for income adequacy similar to that created by Statistics Canada previously (Lee et al., 2009).

Table 2.1 Categorization of income adequacy

	Household Income in Canadian dollars ($) categorized by family size (i.e., number of people in household)		
Income adequacy category	**1 or 2 people**	**3 or 4 people**	**5 or more people**
Low	<$14,999	<$19,000	<$29,000
Middle	$15,000–29,999	$20,000 to 39,000	$30,000 to 59,000
High	>$30,000	>$40,000	>$60,000

Household education reflects the highest level of education among all members of the household. Household size indicates the total number of people living in the respondent's

[2] Clinical depression is the persistence of a depressed mood and loss of interest in activities for prolonged periods of time. Bipolar disorder is a mood disorder in which an individual fluctuates between episodes of low-mood states, including depression, and elevated mood presenting itself as higher psychosocial energy and hypomania or mania (abnormally happy or irritable mood). The complete diagnostic criteria for these disorders can be found in the American Psychiatric Association's (APA) Diagnostic and Statistical Manual of Mental Disorders (DSM) (APA, 2013).

household at the time of the survey, and we used this metric to derive an indicator of whether there were five or more people in the household (a proxy for household crowding). The presence of young children (under the age of 12) at home was based on the CCHS variables that capture the numbers and ages of children in the household.

The CCHS also directly asked respondents about their feelings of community connectedness using the question, "How would you describe your sense of belonging to your local community? Would you say it is: Very strong? Somewhat strong? Somewhat weak? Very weak?" This indicator has previously been found to predict well-being among Canadians (Statistics Canada, 2016b).

Measures of neighbourhood context were taken from the 2016 Canadian Index of Multiple Deprivation (CIMD) dataset (Statistics Canada, 2019a). The CIMD is derived by Statistics Canada from census data, and the 2016 version was the most recent at the time of writing, aligned with the 2015–16 CCHS data. The CIMD variables are calculated for each dissemination area (DA) in Canada, which is the smallest geography available in the census—an area the size of a few blocks and with a population of between 400 and 700 individuals (Statistics Canada, 2019b). The CIMD variables were merged with the CCHS dataset using the detailed geography provided for each CCHS respondent record.

The CIMD includes four area-level dimensions of deprivation with a focus on psychosocial aspects of the neighbourhood (Matheson et al., 2012). Residential instability is calculated from the proportion of the DA population that had moved in the previous five years, the proportion that lives in apartment buildings, the proportion that owned their dwellings, the proportion living alone, and the proportion married or in a common-law partnership. The economic dependency dimension is calculated from the proportion aged 65 or older, local labour

force participation among those 15 years and older, the ratio of employed people to the population, the demographic dependency ratio, and the proportion receiving government transfers, such as employment insurance, retirement benefits, or social assistance. The ethnocultural composition dimension is derived from the proportion identifying as visible minorities, the proportion that were foreign-born, the proportion knowing neither official language, and the proportion that were recent immigrants (measured by the proportion who had arrived within five years of the 2016 census). The situational vulnerability dimension is calculated using the proportion identifying as Aboriginal (Indigenous), the proportion of dwellings needing major repairs, and the proportion without a high school diploma (Statistics Canada, 2019a). For each of these dimensions, we used the quintile of the DA in which the respondent lived as the index measure.

A small proportion of cases were missing responses for one or more of the CCHS variables. Moreover, less than 2% of CCHS respondents were not matched to 2016 CIMD variables. For the household education variable, these were retained in a "not stated/no response" category. Other cases were handled through listwise deletion. The final weighted sample, including the immigrants and non-immigrants used for data analysis after deletion of cases with missing responses on the CCHS, was 83,007, of which 13,173 were immigrants.

2.5.2 Analyses

First, we estimated the percentages of immigrants and non-immigrants for each HNC factor to understand whether immigrants were more likely than other Canadians to experience exposures in these contexts. We then used a sequence of binary multivariable logistic regression models to examine the relative odds of an immigrant having fair or poor self-rated mental health

and of having a mood disorder by categories of HNC context factors. We also controlled for variables that potentially affect the odds of poor mental health, including socio-demographic variables (age, sex/gender, marital status, visible minority status, and occupation), geographic residence, and length of time in Canada. Bootstrap weights provided by Statistics Canada and resampling estimation procedures were used to account for the complex (clustered and stratified) sampling plan (Gagné et al., 2014). Analyses used SAS v9.4 (SAS Institute, Cary, N.C.).

2.6 Results

As shown in Table 2.2, immigrants were slightly more likely than non-immigrants to live in a household with low income adequacy, have five or more individuals in the household, live in a rented dwelling, and have a child at home under the age of 12 years. Non-immigrants were more likely to live in high-income adequacy households, have one to two people in the household, and own their dwellings. Non-immigrants had higher exposure than immigrants to households with less than secondary school education.

Table 2.2 Exposure to household contextual factors by immigration status

	Immigrant		Non-immigrant	
	%	95% CI	%	95% CI
Household income adequacy**				
Low	6.22	5.51–6.94	4.13	3.88–4.39
Middle	15.01	14.00–16.02	10.81	10.45–11.18
High	78.77	77.58–79.96	85.05	84.58–85.52
Household Education**				
Less than secondary school	3.72	3.26–4.18	6.16	5.90–6.41
Secondary school	10.22	9.46–10.98	14.51	14.10–14.92
Post-secondary certificate or degree	81.51	80.47–82.65	75.55	75.03–76.01
Not stated/no response	4.55	3.86–5.24	3.77	3.52–4.02
Household size**				
One to two	41.25	39.57–42.94	55.28	54.63–56.20
Three to four	40.53	39.08–41.98	35.82	35.04–36.60
Five or more	18.21	16.76–19.66	8.90	8.45–9.34
Dwelling ownership**				
Owned	68.91	67.31–70.50	75.95	75.34–76.60
Rented	31.09	29.50–32.68	24.05	23.43–24.66
Children under 12**				
None	71.58	70.30–72.84	80.45	79.96–80.93
One or more	28.42	27.15–29.70	19.56	19.07–20.04

Note: 2015–16 CCHS data.
*: χ^2 significant at $P \leq 0.05$, **: χ^2 significant at $P \leq 0.01$

Immigrants were more likely than non-immigrants to live in DAs that were in the highest quintile of residential instability (immigrants: 29.69% [95% CI: 27.84–31.55]; non-immigrants: 20.50% [95% CI: 19.69–21.31]) and considerably more likely than non-immigrants to live in DAs with higher proportions of immigrants and visible minorities. More than 50% of immigrants (53.5%, 95% CI: 51.6–55.41) lived in DAs in the highest ethnocultural composition quintile, compared to 13.4% (95% CI: 12.59–14.14) of non-immigrants. However, non-immigrants were more likely than immigrants to live in DAs with the highest quintile of economic dependence. Lastly, immigrants and non-immigrants were equally likely to report having a "very weak" sense

of belonging to community, but immigrants were more likely to report a "very strong" sense of belonging.

Table 2.3 Sense of belonging to local community and exposure to neighbourhood context measures by immigration status

	Immigrant		Non-immigrant	
	%	95% CI	%	95% CI
Residential instability**				
Q1 (lowest)	15.69	14.24–17.15	19.54	18.67–20.40
Q2	17.75	15.65–19.55	19.76	18.84–20.67
Q3	17.10	15.50–18.70	20.93	19.91–21.95
Q4	19.77	17.92–21.61	19.28	18.30–20.26
Q5 (highest)	29.69	27.84–31.55	20.50	19.69–21.31
Economic dependence**				
Q1 (lowest)	24.15	22.42–25.88	23.99	22.95–25.04
Q2	23.64	21.51–25.77	20.43	19.38–21.48
Q3	20.52	18.50–22.54	19.44	18.42–20.46
Q4	18.24	16.29–20.18	17.84	16.95–18.74
Q5 (highest)	13.46	11.82–15.09	18.30	17.48–19.12
Situational vulnerability**				
Q1 (lowest)	29.76	27.78–31.74	25.69	24.55–26.84
Q2	22.25	20.24–24.27	21.05	20.00–22.10
Q3	17.86	16.02–19.75	20.03	18.99–21.07
Q4	15.92	14.13–17.71	17.79	16.91–18.66
Q5 (highest)	14.18	12.52–15.84	15.44	14.72–16.16
Ethnocultural composition**				
Q1 (lowest)	3.23	2.89–3.57	20.66	19.92–21.40
Q2	6.02	5.52–6.53	21.37	20.50–22.25
Q3	12.92	11.90–13.94	22.77	21.73–23.81
Q4	24.28	22.53–26.03	21.83	20.78–22.88
Q5 (highest)	53.55	51.68–55.41	13.37	12.59–14.14
Sense of belonging to community**				
Very strong	20.97	19.73–22.12	16.86	16.42–17.30
Somewhat strong	48.19	46.75–49.63	49.93	49.32–50.54
Somewhat weak	23.25	22.08–4.43	25.68	25.12–26.23
Very weak	7.58	6.88–8.28	7.53	7.20–7.86

Note: 2015–16 CCHS data and Canadian Index of Multiple Deprivation indicators.
*: χ^2 significant at P < 0.05, **: χ^2 significant at P < 0.01

Table 2.4 presents the results of a series of logistic regression models that examined the associations between household context factors and the two indicators of mental health: poor or fair self-rated mental health and the presence of a MD. Income adequacy was a significant predictor for both mental health outcomes; immigrants in low income adequacy households had higher odds of having PF-SRMH (OR: 1.66, 95% CI: 1.04–2.63) and nearly twice the odds of having an MD (OR: 1.90, 95% CI: 1.20–2.91) compared to those in middle income adequacy households. Although not significantly different than the reference categories, the odds of having a mood disorder were higher for immigrants living in a rental dwelling, those living in a crowded household, and with one or more children under the age of 12 years at home.

Table 2.4 Adjusted associations between household context factors and mental health outcomes among immigrants in Canada 2015–16

	Poor or fair self-rated mental health (PF-SRMH)		Mood disorders (MDs)	
	Immigrant		Immigrant	
	OR	95% CI	OR	95% CI
Household income adequacy				
Low	1.656	1.044–2.626*	1.868	1.201–2.904*
Middle (ref)	1.000		1.000	
High	0.964	0.701–1.326	0.687	0.483–0.977*
Household Education				
Less than secondary school	0.897	0.571–1.410	1.000	0.620–1.615
Secondary school (ref)	1.000		1.000	
Post-secondary	0.625	0.435–0.898	1.044	0.747–1.461
Not stated/no response	0.487	0.228–1.042	0.693	0.341–1.409
Household size				
One to two (ref)	1.000		1.000	
Three to four	1.277	0.918–1.778	0.884	0.640–1.222
Five or more	0.947	0.617–1.454	1.018	0.661–1.568
Dwelling ownership				
Owned (ref)	1.000		1.000	
Rented	1.056	0.779–1.432	1.310	0.976–1.758
Children under 12				
One or more	1.257	0.902–1.752	1.253	0.889–1.766
None (ref)	1.000		1.000	

Notes: * = significant at P < .05, **= significant at P < 0.01.
Models adjusted for age, gender, province, occupation, visible minority status, time in Canada.

In Table 2.5, we summarize the results of a series of logistic regression models examining the associations between neighbourhood- and community-level contextual factors and the two mental health variables among immigrants. Immigrants' odds of poor or fair self-rated mental health appeared to generally increase for quintiles representing higher situational vulnerability and ethnocultural composition, although most categories were not significantly different than the lowest reference quintile. Immigrants living in DAs with the highest situational vulnerability had significantly higher odds of reporting PF-SRMH (OR 1.6, 95% CI: 1.08–2.37), and, although

statistically insignificant, the other categories' odds ratios suggest that higher situational vulnerability might be associated with higher odds of PF-SRMH (Table 2.5). Similarly, immigrants in DAs with the highest quintile of ethnocultural composition scores had the highest relative odds of poor self-rated mental health, compared to those in DAs with the lowest ethnocultural composition (OR: 2.12, 95% CI: 1.34–3.46). Neighbourhood residential instability and economic dependency were not significantly associated with PF-SRMH.

We did not find significant associations between higher deprivation measures in the neighbourhood context and the presence of mood disorders, after adjustment for individual socio-economic factors.

Table 2.5 Adjusted associations between neighbourhood and community context factors and mental health outcomes among immigrants in Canada 2015–16

	Fair or poor self-rated mental health		Mood disorder	
	OR	**95% CI**	**OR**	**95% CI**
Residential instability				
Q1 (ref)	1.000		1.000	
Q2	0.710	0.429–1.174	1.020	0.680–1.531
Q3	0.859	0.570–1.295	0.761	0.496–1.167
Q4	0.859	0.560–1.317	0.916	0.614–1.367
Q5	1.057	0.718–1.556	0.964	0.657–1.416
Economic dependency				
Q1 (ref)	1.000		1.000	
Q2	1.245	0.867–1.787	1.202	0.853–1.696
Q3	1.264	0.894–1.788	1.145	0.803–1.633
Q4	1.419	0.944–2.134	1.166	0.789–1.724
Q5	1.189	0.774–1.829	0.872	0.588–1.295
Situational vulnerability				
Q1 (ref)	1.000		1.000	
Q2	0.989	0.671–1.457	0.975	0.690–1.377
Q3	1.013	0.696–1.476	0.876	0.605–1.268
Q4	1.209	0.811–1.803	1.143	0.794–1.644
Q5	1.594	1.077–2.361*	1.182	0.785–1.781
Ethnocultural composition				
Q1 (ref)	1.000		1.000	
Q2	1.315	0.793–2.179	1.200	0.678–2.123
Q3	1.568	0.928–2.651	1.255	0.714–2.206
Q4	1.550	0.958–2.510	1.094	0.634–1.888
Q5	2.155	1.344–3.455**	0.916	0.537–1.563
Sense of belonging to community				
Very strong	0.734	0.477–1.130	0.830	0.557–1.236
Somewhat strong (ref)	1.000		1.000	
Somewhat weak	2.500	1.830–3.415**	1.434	1.066–1.929*
Very weak	3.968	2.775–5.672**	2.559	1.782–3.673**

Notes: * = significant at P < .05, **= significant at P < 0.01
Models adjusted for age, gender, province, occupation, visible minority status, time in Canada.

Lastly, the sense of belonging to the local community factor was clearly related to both dependent variables. After adjustment for the individual socio-demographic factors, immigrants reporting a "very weak" sense of belonging had nearly four times the odds of having PF-SRMH

(OR: 3.97, 95% CI: 2.78–5.67) and two and a half times the odds of having an MD (OR: 2.56, 95% CI: 1.78–3.67), compared to those with a "somewhat strong" sense of belonging.

2.7 Discussion

We found evidence of slightly higher exposure among immigrants to potentially unfavourable social and economic contexts. At the household level, these included living in households with low income adequacy, potential crowding, and living in rented dwellings. Immigrants were more likely to live in households with higher education levels, however. At the neighbourhood level, immigrants were more likely to live in neighbourhoods with high residential instability and higher proportions of residents who identify as a visible or ethnic minority. Immigrants were somewhat less likely to live in neighbourhoods (dissemination areas) characterized by the highest levels of economic dependence and situational vulnerability than non-immigrants were.

When we examined the associations between these contextual factors and our two mental health outcomes, we found few strong predictors of either poor or fair self-rated mental health or mood disorders among immigrants. A notable finding was that low household income adequacy was a significant predictor of both fair or poor self-rated mental health and of having a mood disorder. The other measures of household-level context were not associated with either mental health outcome, however.

Two neighbourhood-level contextual factors were found to have significant associations with at least one of our mental health measures. Living in a neighbourhood with high situational vulnerability and living in a neighbourhood in the highest quintile of the CIMD ethnocultural composition measure were associated with higher odds of poor or fair self-rated mental health for immigrants, compared to those in the lowest quintiles. "situational vulnerability" in the

CIMD includes the proportion living in dwellings in major need of repairs, which might reflect the physical conditions of the neighbourhood; the proportion without a high school diploma; and the proportion identifying as Indigenous.

The CIMD ethno-cultural composition measure includes the proportion of the population with no knowledge of either official language, as well as the proportion of recent immigrants in the neighbourhood. Its positive association with poor mental health might initially appear contrary to expectations because previous studies have found higher ethnic density and the presence of one's own ethnic group in the neighbourhood or local community to be protective for mental health (Emerson et al., 2021). However, the CIMD ethnocultural composition measure is intended to capture marginalization and social segregation from "mainstream" society, higher levels of which of are potentially detrimental to mental health (Emerson et al., 2021; Matheson et al., 2012). In the development of the Canadian Marginalization Index, Matheson et al. (2012) also found a similar association between the ethnocultural composition factor and the self-rated mental health of Canadians in general.

Research has demonstrated that aspects of neighbourhood disadvantage pose a risk for psychiatric disorders (e.g., Faris & Dunham, 1965; Rudolph et al., 2014). However, the importance of neighbourhood factors in determining mental health have been somewhat inconsistent, likely due in part to the different conceptualization and measures of "deprivation," and the varying definitions of neighbourhoods or communities (Mair et al., 2008). Our findings indicate that some aspects of neighbourhoods and community context are indeed potentially important for the mental health of immigrants in Canada, although more research is required to understand the mechanisms of these effects.

The strong association between a low sense of belonging to local community and poor mental health might be explained using "acculturation theory." According to Berry and Hou (2016), acculturation is a "set of cultural and psychological changes that follow contact between two cultural groups and their members." Successfully "integrated" migrants are those who have developed a high sense of belonging to their host communities while maintaining connections to values and cultural practices of their countries of origin (Berry & Hou, 2016). This is contrasted with a situation in which there are discrepancies between the expectations of the host country and the migrants arriving to it, resulting in either assimilation or marginalization, both of which could lead to acculturative stress (Berry & Annis, 1974; Berry & Hou, 2016). A weak sense of belonging to community could therefore reflect acculturative stress. Aspects such as access to social resources and networks are beneficial and have a buffering effect on acculturative stress, whereas living in areas with social disorganization has a detrimental effect on well-being and mental health (Faris & Dunham, 1965; Sampson, 2003).

Recent research has suggested that multiple dimensions of connectedness could be considered part of a single construct of "social integration." From this perspective, the development of strong social networks and sources of social support, experience of discrimination, conflicts within the family, employment, and labour market connectedness are all different types of social integration, each of which has potential implications for mental health. In Sweden, low levels of social activity, trust in others, and social and practical support were important variables explaining the lower mental health among immigrants, compared to the native-born population (Brydsten et al., 2019). A study in Australia found that feelings of loneliness, reflecting one aspect of social integration, were related to poorer mental and general health among humanitarian migrants (Chen et al., 2019). A study among immigrants to Norway

found social integration to be generally positively related to mental health, although some gender differences were noted (Dalgard & Thapa, 2007). In the Netherlands, it was found that more social integration among Somali refugees might have had an unanticipated negative effect of increasing perceived discrimination through more exposure to Dutch natives (Kuppens & Broek, 2022).

2.8 Strengths and Limitations

This study has several strengths. The CCHS is a large and nationally representative sample, and the CIMD is a useful index in Canadian social research. However, there were variables that we were not able to include in the analysis. Immigration program, or whether immigrants arrived as economic migrants, refugees or asylum seekers, or family members, is an aspect that might be related to both socio-economic conditions in Canada and mental well-being.

Furthermore, although the CIMD includes useful area-level measures of social context, some research has suggested that aspects of the "built" or physical environment, such as traffic, noise, and access to green spaces, might be equally significant predictors of mental health (Mair et al, 2008). Additionally, the dissemination area geography used does not necessarily correspond to people's own definitions of their neighbourhoods.

A limitation of this study is its cross-sectional nature, due to which we cannot infer that certain HNC factors cause a risk for poor mental health. Although we found positive associations between some categories of HNC context factors and mental health outcomes, reverse causation should also be considered. It is possible that, instead of social and economic factors in the HNC that might be unfavourable and pose risks to mental health, individuals living with poor mental health are more likely to dwell in unfavourable HNC contexts.

Lastly, this study uses self-rated mental health (SRMH) as one of the outcome variables. The association between SRMH and other mental health measures might differ for by other characteristics (Mawani & Gilmour, 2010), including age, which we control for in our analyses. Moreover, the immigrant population in Canada is not homogenous, and different interpretations of survey questions on mental health might pose a limitation. However, the use of self-rated health as a measure has been validated across ethnic groups in other contexts (Chandola and Jenkinson, 2000).

2.9 Conclusions and Implications

In conclusion, we found evidence for the role of household income adequacy and for some of the more distal exolevel neighbourhood contextual factors in relation to immigrant mental health and especially a sense of belonging to one's local community but also local ethnocultural composition and neighbourhood situational vulnerability. We did not find evidence that household or family composition, neighbourhood economic dependency, or residential instability were significant predictors of mental health among immigrants. Returning to Bronfenbrenner's framework, our results support the general conclusion that factors at the immediate household and distal neighbourhood, and community levels are important in determining immigrant mental health. Further research is required to better understand the mechanisms underlying these associations and whether other aspects of the neighbourhood or community environment, such as feelings of trust or density of social networks, can explain our findings. Longitudinal research that can help unpack the causal direction, as well as research that can disaggregate the experiences of different subgroups of newcomers, might be especially helpful.

Regarding policy implications, the finding that low income adequacy was the sole household-level predictor of poor mental health indicates that immigrants living in low-income households are a priority for programming related to immigrant mental health. We also found that a strong sense of belonging to the local community is protective of poor mental health among immigrants, which suggests that programs and social policies that foster the social integration of immigrants at the neighbourhood and community level might be as beneficial as economic integration in promoting well-being among immigrants (Brydsten et al., 2019). Our finding that those in neighbourhoods with a high ethnocultural composition have poor self-rated mental health is further evidence of the potential role of low social integration in the poor mental health of immigrants. Lastly, further research is needed to understand the possible relationships between immigrant mental health and the "situational vulnerability" measure.

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Chapter 3. Family Structure, Dwelling and Household Factors, and the Mental Health of Immigrant and Canadian-born Mothers

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3.1 Overview

Aims

To investigate the association between household contextual factors and the mental health of immigrant and Canadian-born mothers.

Methods

Guided by Bronfenbrenner's Ecological Systems Theory, we used the General Social Survey 2016, 2017 and 2018 to examine the differences in family and dwelling characteristics of immigrant and Canadian-born mothers. We then used multivariable binary logistic regression models to estimate associations between family structure, income, marital status, household size, and dwelling type and ownership, and the odds of having poor or fair self-rated mental health or a diagnosed mental health condition.

Results

Immigrant mothers were more likely than Canadian-born mothers to have larger sized households, lower family income and to live in rental dwellings. Not being in a marital relationship was associated with both mental health outcomes among immigrant mothers. Having a low family income associated with poor mental health conditions among Canadian-born mothers.

Conclusions

Immigrant mothers are more likely to live in contexts that could be potentially harmful to mental health. The findings on low-income and larger families being associated with mental health highlight the importance of community-based interventions to support families and mothers.

Keywords: Household context, immigration and mental health, ecological systems theory, anxiety and depression, motherhood, and psychological health

Family Structure, Dwelling and Household Factors, and the Mental Health of Immigrant and Canadian-born Mothers

3.2 Introduction

Social and economic aspects of households and families have been associated with their members' mental health (Barrett & Turner, 2005; Lawrence et al., 2019). Previous literature suggests that household income level, exposure to deprivation, and characteristics of family and household structure such as larger family size, might both be related to mental health outcomes (Barrett & Turner, 2005; Raphael, 2020; Pierse et al., 2016).

Immigrant mothers are a group for whom contextual factors might be particularly important. Canada is a major immigrant-receiving country and, by the year 2036, immigrants are expected to account for thirty percent of the Canadian population (Immigration, Refugees and Citizenship Canada, 2023). In 2021, more than one quarter (27.1 %) of all women in Canada were immigrants (Statistics Canada, 2022).

Motherhood is a central role in the lives of many immigrant women, and the role of motherhood can interact with household and family structures to affect women's mental health. Immigrant women who are lone parents, those who have more or younger children, or who live in households with lower socioeconomic status might be exposed to greater psychological stressors (Sperlich et al., 2011; Avison et al. 2007). Gender and motherhood roles within immigrant families might also differ from those in the mainstream Canadian culture. For instance, one of the strategies within immigrant families in managing work and caregiving is *mother-centredness,* whereby immigrant mothers are voluntarily or of necessity stay at-home

mothers and primary caregivers while the fathers contribute to financial needs of the family (Wall & José, 2004).

Examining the contexts in which demographic subgroups including immigrant mothers live, and the relationships between contextual factors and mental health, can be useful for understanding health disparities and their drivers and aspects that can be protective of mental health for targeting programming interventions. At this point, however, there has been no research aimed at identifying the differences in the family or household contexts in which immigrant and Canadian-born mothers live, nor how these might be associated with mental health in these two groups. In this paper we attempt to fill this gap by using national-level survey data to compare these two groups of women in terms of household and family characteristics and then use these characteristics to model self-rated mental health and the presence of diagnosed mental health conditions.

3.3 Background

We used Bronfenbrenner's Ecological Systems Theory (EST) to identify factors across contextual levels particularly the household context that might influence the mental health of immigrant mothers (Bronfenbrenner, 1979). The EST was intended to explain the role of various contexts in individual development, from those closest to the individual's daily interaction, such as the family, to broad political and cultural systems. Although created in relation to child development, the EST is a useful framework for identifying the levels of context and the factors that are potentially significant in each of them, in relation to mothers' mental health.

According to Bronfenbrenner, the context closest to an individual is the *microlevel* and includes characteristics of the individual's household and dwelling, as well as psychosocial

interactions between individuals in the family (Bronfenbrenner, 1979; Bronfenbrenner & Evans, 2000). Although there is considerable research on the role of family and household configuration in relation to children's mental health (e.g., Yang, 2022), there is relatively little research outside the perinatal period (O'Mahony et al., 2023), and none using national estimates to examine household factors and the mental health of mothers in Canada.

One of the potentially salient aspects of microlevel family structure is the ages and number of children in the household context. Although having children and being a mother can be a source of joy (Benza & Liamputtong, 2014), it is also a potential source of psychological load, mediated by the extent to which a mother must invest in the physical, social and emotional development of her children as they move through age-graded stages (Bronfenbrenner, 1979; Dean et al., 2022; Milkie & Warner, 2014). Benza & Liamputtong (2014) also noted that mothers report hardship when workload is heavy and living conditions are unstable. Parenting older children might be associated with increased emotional demands, as parents typically try to ensure their academic and economic success (Milkie & Warner, 2014). Having multiple children potentially causes constraints because of the higher workload and due to difficulty of synchronizing the schedules of children of different ages, such as day-care and school-aged children (Hewitt et al., 2022; Ruppanner et al. 2019).

A long-term, supportive marital relationship is a type of family structure that is protective of mental health (Lawrence et al, 2019; Avison et al., 2007). Having a partner offers interpersonal support and social assets that facilitate better psychological health (Lawrence et al., 2019). Single, and never-partnered mothers are more likely than partnered mothers to be exposed to social risks such as financial strain, food insecurity and have lower neighbourhood trust (Colton et al., 2015).

Another aspect of family structure that could be beneficial or detrimental to the mental health of immigrant mothers is the presence of additional family members in the household (Barrett & Turner, 2005; Shah & Sonuga-Barke, 1995; Sonuga-Barke & Mistry, 2000). On the one hand, having extended family members in the household means a larger household size, and previous research has confirmed an association between residential crowding and psychological distress (Ruiz-Taggle & Urria, 2022). On the other hand, a larger household size with extended family members might mean more social and instrumental support and better mental health Sempungu et al. (2023). Living in a multi-generational family might provide additional supports for mothers in the form of grandparents, promoting mothers' mental health (Riem & Strateen, et al., 2024). Multigenerational arrangements offer opportunities for cultural information exchange between children and their grandparents, which benefits the children's development (Vanier Institute of the Family, 2025). Nevertheless, among immigrant mothers, depending on the type of multigenerational arrangement, potential interpersonal and family values conflicts with in-laws might be a source of stress. Differences in parenting practices might cause relational strain between a mother and her in-laws (Fischer, 1983). Among immigrant mothers, living with in-laws might result in added pressures to adhere to gender, or parenting norms associated with the country of origin and balance traditional parenting practices with those of the host country potentially increasing stress (Bhopal, 1998; Sonuga-Barke & Mistry, 2000).

Dwelling type and tenure and family income are characteristics of households that typically reflect their financial circumstances, which might also impact the mental health of immigrant mothers (Acolin et al., 2022; Kearns et al., 2011; Robinson & Adams, 2008). In North America, owning a home often reflects financial well-being and residential stability, which might provide a sense of control and be advantageous to mental health (Manturuk, 2012; Acolin, 2022).

Living in single, detached housing might also reflect the financial well-being of a family (Manturuk, 2012). Family income can reflect access to material resources in the household, quality of life and the choice of residential location (Raphael, 2020; DeLuca et al. 2019). Those with low financial resources and income are also more prone to living in cheaper yet lower quality housing and neighbourhoods (DeLuca et al., 2019; O'Hare & Mather, 2003) Dwelling type could also reflect housing quality and the location of the dwelling. For instance, high-rise rental apartment buildings in low socioeconomic neighbourhoods might be more prone to maintenance and repair issues and be situated in a neglected local physical environment with reduced access to a safe local environment and have implications for mental health (Larcombe et al., 2019; Ucci et al., 2022).

More distal *macrolevel* factors, such as gender norms and cultural values might further compound the effect of unfavourable household factors on the mental health of mothers (Berry, 2006; Munkejord, 2017; Vaillancourt et al., 2024). Immigrants, including immigrant mothers, experience changes in the macro-level social and cultural values on arrival (Berry, 2006; Liamputtong, 2010). Immigrant mothers might hold different understandings of gender roles and parenting practices than mothers in the host country (Liamputtong, 2006; 2010). Culture and gender-role conflicts might also arise when immigrant women are expected to navigate the mainstream Canadian culture while also being expected by their community or wishing freely to continue performing the traditional gender-specific roles, including those related to motherhood (Liamputtong, 2010; Salami et al., 2020a). Conflicts in value systems and post-migration adjustment challenges could have implications for the well-being of immigrants, predominantly ethnic minority women (Talbani & Hasanali, 2000).

The post-migration phase is challenging for all immigrants due to resettlement challenges and could enhance stressors that might be present for immigrant mothers (Rashid et al., 2013). Immigrants experience challenges integrating into a new host society, both socially and in the work environment due to language barriers as well as potential social discrimination (Oreopoulos, 2011; Reitz, 2001). Difficulty in adjusting to a new cultural context could lead to acculturation stress (Berry, 2012). Along with integration-specific challenges, immigrant mothers might experience a reduced interpersonal network and access to support from family and community members in raising children in a new environment (Benza & Liamputtong, 2014). The combined effects of migration and resettlement stress related to potential socioeconomic disadvantage and motherhood might heighten the vulnerability to poor mental health for immigrant mothers compared to Canadian-born mothers (Kirkbride et al., 2024; Miszkurka et al., 2012, Munkejord, 2017).

Household living arrangements and dwelling circumstances might be different for immigrant mothers than for Canadian-born mothers (Lee & Edmonston, 2013; Mahmood et al., 2011; Thurston, 2023). Many immigrants arrive in Canada through family sponsorships or as family units (Immigration, Refugees & Citizenship Canada, 2025). At least initially, new immigrants might reside with extended family members to pool resources (Thomas, 2001) and compared to Canadian-born individuals, immigrants have been more likely to live in households with multiple families (Lee & Edmonston, 2013). Based on the 2021 Census data, recent immigrant renters also live in crowded conditions at a higher rate than the general population (immigrants: 37.8%, total population: 18.9%) (Thurston, 2023). The proportions of immigrants living in households with low family income and living in rented dwellings are higher than native-born Canadians (Lee & Edmonston, 2013; Picot & Lu, 2017; Thurston, 2023). Between

2014 and 2018, the median income of immigrants increased from fifty-five percent of Canadian median income in 2014 to seventy-eight percent in 2018, but it still remains lower (Bagnoli et al., 2024).

As we have described, the household and family contexts in which mothers live can have implications for their mental health, either positive or negative. As well, there is reason to believe that immigrant women in Canada might live in contexts that are, on average, different from those in which non-immigrant mothers live. Moreover, it may be that the exposure to particular household and family factors has different implications for the well-being of immigrant and Canadian born mothers, in part due to the different macro-level contexts of acculturation and potentially conflicting values and norms, as well as possible economic marginalization and discrimination. To this point, however, there has been no research that directly addresses the question of whether the mental health of immigrant mothers in Canada is associated with the family and household contexts in which they live.

To fill this gap, we asked the following questions. First, we examined whether immigrant mothers are more likely than Canadian-born mothers to be exposed to various family and household factors that are potentially associated with mental health outcomes. These include family factors such as the numbers and ages of children, living as a single parent, living in a multigenerational family, and household factors such as having low income, dwelling type and tenure, and household size. Second, we asked whether these factors were associated with the mental health outcomes, including mental health conditions, among immigrant mothers, controlling for length of time in Canada, and whether these associations were different for immigrant and Canadian-born mothers.

3.4 Methods

We used Statistics Canada's annual cross-sectional General Social Survey (GSS). The GSS is a national annual survey of approximately 20,000 Canadians, collecting individual and family characteristics, social conditions and well-being. It is structured around common core content and rotating annual "theme" content. The GSS sample includes individuals 15 years or older across all Canadian provinces excluding residents of the Northwest Territories, Yukon, and Nunavut and those who are institutionalized (Statistics Canada, 2019a). We combined data from three cycles of the GSS Cycle 30 (2017), Cycle 31 (2018), and Cycle 32 (2019) for a larger analysis sample.

The sampling frame for the survey uses Statistics Canada's common telephone frame, which combines landline and cellular telephone numbers from the Address Register[1], the Census of Population and various administrative sources, integrated with Statistics Canada's common dwelling frame (Statistics Canada, 2019a). A single eligible member of each sampled household was randomly selected to complete the questionnaire (Statistics Canada, 2019b). Data were collected directly from respondents using the computer-assisted telephone interviewing method (Statistics Canada, 2019b).

Our study sample included only mothers who identified as women with either a biological or non-biological child under the age of nineteen. Immigrants were identified by a binary, categorical variable based on the "landed immigrant" concept in the GSS. Landed immigrants were individuals who indicated that their country of birth was not Canada and that they were currently or had been permanent residents (i.e., not in Canada on a visa). To avoid the potentially confounding effect of Indigeneity on the mental health comparisons of Canadian-born and immigrants, individuals identifying as First Nations, Métis, or Inuit were removed from our

study sample. The final sample for our study was 6,570 respondents, with 5,115 Canadian and 1,455 immigrant mothers.

The two mental health outcomes we studied were self-reported mental health (SRMH) and self-report of a clinically diagnosed mental health condition (MHC). The latter is based on a question asking whether the respondent "has any emotional, psychological, or mental health conditions?". Examples of these conditions provided to respondents were anxiety, depression, bipolar disorder, substance abuse, and anorexia. Both variables were coded into binary categories for the analysis: a dichotomous yes/no for MHC and "poor-fair" and "good-excellent" SRMH. Our use of binary measures of mental health outcomes aligned with methods used in public health, and survey research. Large-scale public health studies and Statistics Canada surveys allow the use of categorical and binary measures, to communicate findings in an accessible way (Mawani & Gilmour, 2010; Okafor et al., 2025). A binary self-rated approach has also been found to have merit in studying mental health and also been associated with clinical measures of mental health (Ahmad et al., 2014).

Family structure factors were categorized as follows. We created three categories for the age of the youngest child at home: "0 to 3", "4 to 12" and "13 to 19" years of age. The number of children at home variable had two categories: "one to two children" and "three or more" children. The marital status variable captured whether a respondent had a spouse or partner and was categorized as "married, not separated, living common-law" versus "widowed, separated, divorced, single". Factors related to extended family included living in a multigenerational household, and household size. Living in households with multiple generations present was coded as "yes/no". Household size was divided into categories of "one to two people", 'three to four people" and "more than five people". Our measure of household size might indicate

potential household crowding or increased support due to the presence of more family members. In Canada, household crowding is typically assessed using the number of bedrooms per household member, following the National Occupancy Standard (Canada Mortgage and Housing Corporation, 2025). Nevertheless, a family size of more than five persons may still indicate potential crowding, particularly when total dwelling size is considered. Given that the above average dwelling size in Canada ranges from approximately 1,050 square feet in Nova Scotia to 1,520 square feet in Ontario (Statistics Canada, 2019c), a household of five or more people could have less than 300 square feet per person, which may be considered crowded.

Dwelling and household factors studied were dwelling type, and ownership and family income. Dwelling type was categorized as living in a single-detached house versus those living in an attached house, mobile home, or apartment building. Lastly, a "yes/no" variable captured whether a respondent or a member of their household had ownership of the dwelling.

Individual-level control variables were age in its continuous form, education, whether a respondent worked last week, provincial geography, was from a racialized group, and length of time in Canada (where applicable). Education was categorized dichotomously into those with "less than or equal to secondary school," or "post-secondary" education. Provincial geography variables included Ontario, Quebec, and British Columbia and the Atlantic and Prairie provinces, grouped together due to small cell counts. We controlled for racialized status to ensure that the association between the household contextual factors mental health outcomes was attributable to immigration rather than racialized status and our measure was based on Statistics Canada's classification referring to individuals of non-white origins[3] (Statistics Canada, 2009).

For the demographic variables, the reference categories were as follows: having post-secondary education, not having worked last week and living in Ontario. Reference categories

for the household variables included a household family income of $40,000 to $79,999, being married or living common-law and not separated, having a child at home between the age of four to twelve years, having one to two children at home, living in a detached housing type, and not living multigenerational household.

3.5 Analyses

To examine the family and household characteristics of immigrant and Canadian-born mothers, we calculated the weighted percentages of immigrant and Canadian-born mothers across the categories of household factors. We report both 95% confidence intervals around the estimates and chi-square tests of independence. Reported percentages were rounded to conform to Statistics Canada's confidentiality guidelines.

To test the association between each household factor and the two mental health outcomes, we estimated a series of binary multivariable logistic regression models. Our main point of interest was in understanding the household contexts that were associated with mental health among immigrant mothers, and whether these associations were different among Canadian-born mothers. Our intention was to identify family and household characteristics that might be useful from the perspective of health promotion or interventions, rather than isolating the independent association of each factor with the outcome variables, controlling for all others. We therefore constructed separate regression models for each main family or household status predictor, with the same set of individual control variables. These included mothers' age, whether they were racialized, provincial geography, education, work status, household income, and length of time in Canada. This approach helped us avoid over-adjustment that can occur with including all socioeconomic variables in the same model (Zwieten et al, 2022). Furthermore,

separate regression models reduced the risk of multicollinearity, and issues related to redundant variance and enhanced the interpretability for conceptually related household variables. Bootstrap weights provided by Statistics Canada were used for all analyses, to account for the complex sampling plan (Statistics Canada, 2019a). All analyses were conducted using SAS v. 9.4 (SAS Institute Inc., 2013).

3.6 Results

There were some significant differences in the family and household characteristics of immigrant and Canadian-born mothers (Table 3.1). Immigrant mothers were significantly more likely than Canadian-born mothers to live in households with five or more individuals and in extended family structures such as multigenerational households. Immigrant and Canadian-born mothers were almost equally likely to be in a long-term relationship or to be married. Immigrant mothers were not significantly more likely than Canadian-born mothers to have younger children nor to have more children in their households. When we compared the proportion of immigrant and Canadian-born mothers across the types of dwellings that they resided in, we found higher proportions of immigrant mothers living in low-family income households, in attached and rented dwellings.

Table 3.1 Exposures to factors in the household context for immigrant and Canadian-born mothers. Data source: GSS 2016–18

	Immigrant		Canadian-born	
	%	95% CI	%	95% CI
Age of youngest child at				
0 to 3 years	27.5	24.9–30.2	30.0	28.5–31.5
4 to 12 years (ref)	43.3	40.4–46.2	41.4	39.6–43.2
13 to 19 years	29.1	26.4–31.9	28.6	27–30.3
Number of children at home				
One to two children	77.7	75.0–80.4	77.7	76.1–79.3
Three or more children	22.3	19.6–25.0	22.3	20.7–23.9
Marital status*				
Married, common-law	85.9	83.9–87.9	82.9	81.7–84.2
Widowed, separated,	14.1	12.1–16.1	17.1	15.8–18.3
Multigenerational household**				
Yes	13.1	10.5–15.7	4.8	3.8–5.8
No (ref)	86.9	84.3–89.5	95.2	94.2–96.2
Household size**				
One to two people	5.5	4.4–6.6	5.4	4.8–6.0
Three to four people	60.4	57.1–63.7	69.6	67.9–71.2
Five or more people	34.1	30.7–37.4	25.0	23.3–26.8
Family income**				
≤ $39,999	15.3	13.2–17.5	10.0	9.0–11.1
$40,000 to $79,999	29.6	26.6–32.7	22.5	21.0–24.0
$80,000 to $119,000	25.2	22.6–27.8	24.6	23.1–26.1
$120,000 or more	29.9	27.3–32.5	42.9	41.1–44.6
Dwelling type**				
Attached or Mobile housing[1]	52.4	49.3–55.5	24.0	22.6–25.5
Single-detached house	47.6	44.5–50.7	76.0	74.5–77.4
Dwelling ownership**				
Yes[2]	72.1	69.5–74.8	83.1	81.8–84.5
No	27.9	25.2–30.5	16.9	15.5–18.2

Notes: * = χ^2 significant at P < .05, **= χ^2 significant at P < 0.01.
[1]Attached housing included housing that was semi-detached including a duplex, low- or high-rise apartment, or a mobile home
[2]Ownership by respondent or member of the household

Table 3.2 presents the results of the models estimating the associations between family, household and dwelling factors and the odds of reporting poor or fair SRMH. Among immigrant mothers, most of these factors were not significantly associated with this measure of mental health. Among both groups, mothers without a partner (married, divorced, separated or single)

were significantly more likely to have fair or poor SRMH than those who were with a spouse or common-law partner (Immigrant OR: 3.34, 95% CI: 1.78–6.47; Canadian-born OR: 1.93, 95% CI: 1.41–2.65), controlling for age, racialized status, region, education, work status and income.

Contextual factors were more predictive of fair or poor SRMH among Canadian-born mothers (Table 3.2). Those living in larger families had lower odds of fair or poor SRMH; mothers living in households with three or four people had an odds ratio of 0.57 (95% CI: 0.39–0.83) and those in households with five to 15 people had an odds ratio of 0.60 (95% CI: 0.37–0.9), relative to those in households of one to two people. Canadian-born mothers with family incomes below $40,000 were significantly more likely to report fair-poor SRMH than those with incomes from $40,000 to $79,999 (OR: 1.52, 95% CI: 1.06–2.18), and those with incomes of $120,000 or more had significantly lower odds (OR: 0.61, 95% CI: 0.43–0.89). Aspects of the dwelling were also associated with higher odds of fair or poor SRMH among Canadian-born mothers. This included living in an attached or mobile home (OR: 1.43; 95% CI: 1.07–1.91) and living in a rented home (OR: 1.98, 95% CI: 1.43–2.72).

Table 3.2 Associations between family structure and dwelling characteristics, and poor self-rated mental health among immigrant and Canadian-born mothers, controlling for individual factors, Canada 2016, 2017 and 18

	Poor-Fair Self-Rated Mental Health (PF-SRMH)			
	Immigrant (n=1,455)		Canadian-born (n=5,115)	
	OR	95% CI	OR	95% CI
Age of youngest child at home				
0 to 3 years	0.73	0.35–1.51	0.86	0.60–1.23
4 to 12 years (ref)	1.00		1.00	
13 to 19 years	0.84	0.41–1.72	1.40	0.99–1.99
Number of children at home				
One to two children	1.00		1.00	
Three or more children (ref)	0.61	0.27–1.41	1.11	0.79–1.57
Marital status				
Widowed, separated, divorced, single	3.34	1.78–6.47**	1.93	1.41–2.65**
Married, not separated, living common-law (ref)	1.00		1.00	
Household size				
One to two people (ref)	1.00		1.00	
Three to four people	1.04	0.34–2.76	0.57	0.39–0.83**
Five to fifteen	0.80	0.28–2.28	0.60	0.37–0.96*
Multigenerational household				
One to two generations (ref)	1.00		1.00	
Three or more generations	1.98	0.89–4.34	0.75	0.29–1.96
Family Income				
≤ $39,999	1.22	0.56–2.68	1.52*	1.06–2.18*
$40,000 to $79,999 (ref)	1.00		1.00	
$80,000 to $119,999	0.62	0.27–1.40	0.72	0.50–1.06
$120,000 or more	0.74	0.35–1.57	0.61**	0.43–0.89**
Dwelling type				
Attached or mobile home	0.97	0.56–1.69	1.43	1.07–1.91*
Single-detached house (ref)	1.00		1.00	
Dwelling ownership				
Owned (ref)	1.00		1.00	
Rented	0.78	0.39–1.55	1.98	1.43–2.72**

Notes: * = significant at P < .05, **= significant at P < 0.01.

Odds ratios and 95% CIs for each factor estimated using individual multivariable logistic regression models, estimated separately for immigrants and Canadian-born mothers. Each model adjusted for individual factors, i.e., age, belonging to a racialized group, provincial geography, education, work status, log of family income, and length of time in Canada (in models with immigrant mothers only).

Table 3.3 presents regression models predicting the odds of a diagnosed mental health condition (MHC). As with SRMH, having neither young children nor more children were significantly associated with the odds of MHC. This was true for both immigrant mothers and Canadian-born mothers. For both groups, those with teenaged children were not significantly more likely to have a mental health condition than those with children between the ages of four and twelve years (immigrant OR: 1.22, CI: 0.72–2.05; Canadian-born: 1.18, CI: 0.93–1.50). For both groups of mothers, being widowed, separated, or divorced was associated with significantly higher risk, compared to those with partners. As with fair-to-poor SRMH, the association was stronger among immigrant mothers (OR: 2.96, 95% CI: 1.83–4.76) than Canadian-born mothers (OR: 1.79, 95% CI: 1.41–2.28). For both groups, those living in larger households had lower odds of having an MHC than those who lived in households of one or two people, while living in multigenerational households was not significantly associated with the odds of an MHC.

As with SRMH, family income was not significantly associated with a MHC among immigrant mothers. Among Canadian-born mothers, those with family incomes of $39,999 or lower were more likely to have reported a MHC (OR: 1.39, 95% CI: 1.05–184), and those with incomes of $120,000 or higher were significantly less likely (OR: 0.74, 95% CI: 0.59–0.92) to have reported a MHC than those with income from $40,000 to $79,999. Like the models for SRMH, Canadian-born women living in attached or mobile homes (OR: 1.33, 95% CI: 1.01–1.62) or rented dwellings (OR: 1.56, 95% CI: 1.25–1.93) were more likely to report having a MHC.

Table 3.3 Associations between family structure and dwelling characteristics, and the presence of a mental health condition among immigrant and Canadian-born mothers, controlling for individual factors, Canada 2016, 2017 and 18

	Mental Health Conditions (MHCs)			
	Immigrant (n=1,455)		Canadian-born (n=5,115)	
	OR	95% CI	OR	95% CI
Age of youngest child at home				
0 to 3 years	1.00	0.63–1.61	0.76	0.61–0.96*
4 to 12 years (ref)	1.00		1.00	
13 to 19 years	1.22	0.72–2.05	1.18	0.93–1.50
Number of children at home				
One to two children (ref)	1.00		1.00	
Three or more children	0.66	0.38–1.17	0.89	0.72–1.09
Marital status				
Married, not separated, living common-law (ref)	1.00		1.00	
Widowed, separated, divorced, single	2.96	1.83–4.76**	1.79	1.41–2.28*
Household size				
One to two people (ref)	1.00		1.00	
Three to four people	0.52	0.28–0.95*	0.65	0.48–0.86**
Five to fifteen	0.37	0.19–0.72*	0.59	0.42–0.82**
Multigenerational household				
One to two generations (ref)	1.00		1.00	
Three or more generations	0.99	0.46–2.10	0.94	0.56–1.60
Family income				
≤ $39,999	1.77	1.01–3.09*	1.39	1.05–1.84*
$40,000 to $79,999 (ref)	1.00		1.00	
$80,000 to $119,999	1.19	0.71–2.01	0.85	0.67–1.07
$120,000 or more	1.17	0.69–1.97	0.74	0.59–0.92**
Dwelling type				
Single-detached house (ref)	1.00		1.00	
Attached or mobile home	0.88	0.61–1.28	1.33	1.01–1.62*
Dwelling ownership				
Owned (ref)	1.00		1.00	
Rented	1.17	0.73–1.89	1.56	1.25–1.93**

Notes: * = significant at P < .05, **= significant at P < 0.01.

Odds ratios and 95% CIs for each factor estimated using individual multivariable logistic regression models, estimated separately for immigrants and Canadian-born mothers. Each model adjusted for individual factors, i.e., age, belonging to a racialized group, provincial geography, education, work status, log of family income, and length of time in Canada (in models with immigrant mothers only).

3.7 Discussion

In comparison to Canadian-born mothers, immigrant mothers were more likely to have low family income, to live in multigenerational households, and to live in rented dwellings. We did not find these microlevel factors to be associated with poor mental health or having a mental health condition among immigrant mothers. Not being in a couple relationship (being widowed, divorced separated or single) was associated with poorer mental health on both indicators, more strongly among immigrant mothers than Canadian-born mothers. Living in a larger household was protective of mental health conditions for both immigrant and Canadian-born mothers. This finding might be explained by the provision of material and economic and caregiving support from family members, including those who are extended family (Kim et al, 2016).

The mental health of mothers with more children was not worse compared to mothers with fewer children. This result suggests the potentially moderating effect of the age of the children on the relationship between the number of children and mental health. Time pressures and psychological load are higher if children are younger and closer in age. Time constraints also rise, especially around the time of the second birth (Ruppanner et al., 2019). Hence, the effect of having more children on mental health might be dependent on the combined effect of the ages and numbers of children. Our finding that having more children is not associated with poor mental health might be more in line with the literature citing potential psychological benefits of childrearing than literature supporting the hypothesis that psychological load increases with parenting responsibilities (Benza & Liamputtong, 2014). Parenting can bring purpose to one's life and a sense of meaning, and achievement when children achieve major social and psychological milestones (Nelson et al., 2014). Benza and Liamputtong (2014) report that immigrant mothers express pride in their role as parents and a sense of security about the future.

It is also possible that mothers with more emotional and economic resources and support as a result of a larger network are the ones who choose to have larger families and also to have more positive mental health (Bougma & Rossier, 2022).

Age of the youngest child at home was not related to mental health. Although intergenerational conflict among teenaged children and immigrant parents could be a source of stress in some immigrant families (Salami et al., 2020b), research also suggests that strong interpersonal family relationships could help mitigate this stress (Kwak et al., 2003). In families where a high value is placed on maintaining intergenerational relationships constructively and family members help shape life decisions, teenaged children might delay self-autonomy (Kwak et al., 2003). In these households, stress related to intergenerational conflict might not be present.

Immigrant mothers were more likely to live in larger households and multigenerational set-ups, and a larger household size was associated with lower odds of a mental health condition among both groups of mothers. Assistance from family of origin with finances, childcare and day-to-day tasks among single mothers might be of value to some single mothers (Ypeij & Steenbeek, 2001). Among immigrants, having existing family members in the host country might also help with integrating into the country (Bauder et al., 2019). Although not always the case, when available, immigrant mothers have reported reliance on emotional and instrumental support from extended family (Benza & Liamputtong, 2014; Molina & Alcántara, 2013). Extended family networks might also offer strong family ties, support, and assistance in mitigating the adverse effects of economic adversity in some immigrant families (Kwak et al., 2003). The lack of a relationship between living in a multigenerational family and mental health suggests that, although a larger family might be protective of mental health in general, the degree of protection might depend on the composition of that family and one's role within it.

The association between marital status and mental health clearly aligned with the notion that potential stress related to immigrant status might have a compounding negative effect on the mental health of divorced, single, separated or widowed mothers (Dion & Dion, 2000; Liamputtong, 2006).

We observed a clear relationship between rental households and adverse mental health outcomes for Canadian-born mothers, even after controlling for household income. For renters, added stress might come from tenure concerns, difficulty in access to repairs and less control over social interactions including those with property owners (Robinson & Adams, 2008; Evans, 2003). Homeowners, on the other hand, are more likely to have more control over their living situation, more residential stability, and trust in their neighbours (Manturuk, 2012).

The absence of a significant relationship between living in non-owned or attached housing with poor mental health for immigrant mothers might explained by the expectation of working toward home ownership with longer stay in Canada among immigrants (Yu & Haan, 2012). Another potential reason for the lack of relationship between dwelling tenure and mental health is that both, immigrant renters, and owners are exposed to stress related to housing costs and affordability (Singh, 2017). Our findings on dwelling tenure among immigrant mothers are similar to an analysis by Khan & Cooke (2024), which found no association between tenure type and poor mental outcomes among immigrants in Canada.

There might be heterogeneity in the presence and reporting of poor mental health among immigrants arriving through different immigrant programs, countries of origin and the length of time immigrants have lived in Canada (Grace et al., 2016; Hansson et al., 2012; Miszkurka et al., 2012). Refugee migrants are exposed to stressors and trauma pre-migration making the likelihood of poor mental health higher among this group compared to immigrants arriving

through family sponsorship and economic migration channels (Hansson et al., 2012). The length of time in Canada might also determine the type of household contexts immigrant mothers live in (Miszkurka et al. 2012). Immigrants might be more likely to establish social support with a longer stay in Canada. On the other hand, with longer stay, potential acculturative stress and increase in marital strain for those living in unfavourable contexts might mean a loss of the health benefit that immigrants initially arrive with (Miszkurka et al., 2012). Reduced reporting of poor mental health and mental illness due to stigma and cultural differences among immigrant groups might also suggest that the estimates of poor mental health might have been lower than actually present among immigrant mothers (Chen et al., 2013).

3.7.1 Implications

Based on this study, there are some implications for programming and interventions at the community *exolevel* context. Our findings that larger families are associated with better mental health, and that single mothers, especially immigrant single mothers, have significantly poorer mental health compared to partnered mothers underscores the protective role of interpersonal relationships and social support. These findings suggest the importance of community interventions that build and strengthen social support, and services which could in turn improve mental health.

Programs in which community workers connect with immigrant families to provide social and emotional support have been shown to strengthen resilience within immigrant family systems (Aubé et al., 2019). An example of such an initiative is La Maison Bleue in Montreal, which provides holistic care and addresses both the medical and psychosocial needs of families and mothers living in vulnerable contexts related to poverty, immigration status, and mental

health (Aubé et al., 2019). The programs offered by La Maison Bleue have been shown to be a buffer against stress and promote mental well-being in resource-limited contexts (Aubé et al., 2019).

Culturally appropriate and targeted programming for mothers in vulnerable groups could also be useful. Culturally appropriate resettlement and integration initiatives that help immigrant mothers navigate the social, economic, and cultural context, provide information including that related to childcare arrangements and language assistance could help alleviate stress (Daou, 2022). Similarly, community-based programs offering social support and education to low-income single mothers have been found to improve well-being and have positive short-term effects on mood (Lipman & Boyle, 2005)

Another vital resource at the community level that could help prevent poor mental health among single and low-income mothers is the availability of affordable childcare. Low-income and single mothers are more likely to participate in the workforce when affordable childcare is available (Gu, 2022). Community level child-care options such as after school childcare have also been found to promote positive coping mechanisms among low-income mothers facing stress (Habarth et al., 2009). However, there are barriers to accessible childcare for immigrant parents including long waitlists, restrictive eligibility, and limited availability (Vesley, 2013). Low-income parents are suggested to have additional barriers to accessing childcare such as high costs and non-standard working schedules (Findlay et al., 2021). Addressing these barriers through subsidized childcare, flexible eligibility, and language support could promote well-being and participation in work and community life.

Broader *macrolevel* structural housing and income support strategies also need attention. The poorer mental health observed among Canadian-born mothers with low income, and those

living in attached or rental housing, underscores that available affordable, family-oriented housing and targeted income support are essential (Berger et al., 2008). Availability of affordable housing is a resource known to reduce household hardship such as rent burden among low-income single mothers (Berger et al., 2008). Financial and housing support could reduce stress and promote positive mental health among single and low-income immigrant and Canadian-born mothers (Dweik & Woodhall-Melnik, 2023).

3.7.2 Future Directions

To our knowledge, this is the first nationally representative study on immigrant mothers' exposure to family structure and dwelling factors and the examination of differences in mental health by these factors for immigrant and Canadian-born mothers. One of the limitations of the GSS survey is that it is a cross-sectional survey and does not allow for studying causal relationships (Taris et al., 2021). Furthermore, although the GSS allowed us to study the family life of immigrant and Canadian-born mothers, information about the household context that is not present on the GSS might also be explored in future studies.

Material aspects of housing such as indoor noise pollution have previously been found to relate to psychological distress (Firdaus, 2018; Kearns et al., 2011; Ruiz-Taggle & Urria, 2022). Along with studying family structure, an understanding of the material aspects and housing suitability such as crowding measures can further our knowledge on contextual disparities among immigrant mothers (Dunn et al., 2006). The GSS primarily focuses on family and social life and does not include information on material aspects of the household, which could be explored in future research.

The use of scales on marital and child–parent relationships can help us understand the quality, strain and support present in these relationships and their potential impacts on mental health (Fitzgerald & Morgan, Foran et al., 2020). Although the GSS allowed us to study meaningful associations related to family structure, age and number of children, future research on the nature of these relationships might also help explain our findings on family structure, multigenerational households, and mental health.

Although the GSS also did not allow for disaggregation by race/ethnicity, region of origin, length of time in Canada for immigrant mothers and disaggregation across some categories of contextual factors to study their associations with the mental health of immigrant fathers, future studies might be able to explore the mental health of immigrant subgroups in relation to contextual factors in more detail. One of the strengths of the GSS is that it captures a national sample, however, its sample size can pose challenges when analysing multiple individual characteristics simultaneously. There might be differences in family living arrangements and dwelling contexts among immigrant mothers arriving from different world regions and by immigration programs. For instance, immigrants from Sri Lanka and Pakistan have been found to have a high degree of housing unaffordability as measured by the average shelter cost to income ratio (Singh, 2017). Differences in affordability and cultural practices related to family arrangements across racialized groups might be associated with varying mental health outcomes. Parenting and gender-related stressors for immigrant mothers and fathers could also be explored.

3.8 Conclusions

We found that immigrant mothers in Canada had more exposure to living in low-income families, larger family structures and in rented dwellings than did Canadian-born mothers. Immigrant mothers were somewhat less likely to be widowed, divorced, separated or single than were non-immigrant mothers, and living without a partner was associated with higher odds of poor mental health among both groups of mothers. We found living in low-income, being single and living in larger households to be associated mental health and illness outcomes among mothers. Strategies and community programs that provide resources could promote the mental health of single and low-income mothers and strengthen resilience among families.

NOTES

[1] The Address Register is Statistics Canada's internally used database that provides the civic and mailing addresses of residential dwellings (and their related geographic coding) that are required to build statistical and sampling frames from the Census Population and main social surveys and social statistics programs (Statistics Canada, 2019a).

[2] Family income is the sum of all members of the family before taxes and deductions, including wages and salaries, self-employment income, government transfers, investment income, private retirement pensions and any other income. (Statistics Canada, 2018).

[3] Statistics Canada defines visible minorities as "persons, other than Aboriginal peoples, who are non-Caucasian in race or non-white in colour". The visible minority population consists mainly of the following groups: Chinese, South Asian, Black, Arab, West Asian, Filipino, Southeast Asian, Latin American, Japanese and Korean (Statistics Canada, 2009).

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Chapter 4. Neighbourhood and Community Factors and Mental Health and Disorder Outcomes among Immigrant, Racialized and Ethnic Minority Mothers: A Scoping Review

Status: *In preparation for PLOS One*

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Tasneem khan is the primary author of the paper. Tasneem designed the study, carried out the database search, abstract and full-text reviews, extracted information from articles and wrote the paper. Martin Cooke provided direction for the study design and database search, carried out editorial revisions and was the second reviewer on the full-text articles. Farooq Naeem and Zahid Butt provided editorial comments.

4.1 Overview

Aspects of the neighbourhood and community contexts have been found to be related to mental health. The United States and Canada have a large racialized and immigrant population. However, the extent and scope of research on neighbourhood and community factors and their relationship with the mental health of immigrant and racialized mothers has not been reviewed. We conducted a scoping review of physical, structural, socio-economic, and social factors in the neighbourhood and community contexts and their relationship with mental health and illness outcomes among immigrant, racialized and ethnic minority mothers in the United States and Canada. Abstracts for 1564 articles and full texts of 275 articles from PsycINFO, Scopus, CINHAL, PubMed and Google Scholar databases were screened, and 26 articles met the criteria for our study. Results of our review show that research exists on the relationship between mental health outcomes such as depression and anxiety among racialized and ethnic minority mothers, mainly in the United States. Three main themes emerged in the literature on the relationship between mental health and illness and the following neighbourhood and community factors: i) infrastructure, ii) socio-economic, and iii) social factors (including neighbourhood violence and stress, racial segregation, and ethnic composition, social support and community cohesion). Lastly, there is limited research available on this topic in Canada.

Neighbourhood and Community Factors and Mental Health and Disorder Outcomes among Immigrant, Racialized and Ethnic Minority Mothers: A Scoping Review

4.2 Introduction

Mental illness is devasting to individuals living with it, and costly to society, both in social and economic terms (Lin et al., 2023). Individuals living with mental health challenges and mental illness experience loss of productivity at work, lower quality of life and strained interpersonal relationships (Baker & Procter, 2015; De Oliveira et al., 2023). Mental disorders account for an increasing health burden globally (Piao et al., 2022).

The burden of mental health disorders is significant in North America, which has one of the highest estimates of disability adjusted life years attributed to mental disorders compared to other countries and regions globally (Arias et al., 2022). In the United States, the economic burden of major depressive disorder has increased in the recent years and in 2020 the cost was 326.2 billion (Greenberg et al., 2021). The cost of mental illness in Canada is at least fifty billion dollars per year, and it is mainly related to psychiatric hospitalizations, health care services in the community and public health promotion (Canadian Institute for Health Information, 2019; Eaton, 2022). The burden of mental health, neurological and substance use disorders is similar for the United States and Canada. In 2017, these disorders accounted for 25% of disability adjusted life years in the United States and 24% in Canada (Vigo et al., 2020).

Along with similar profiles for mental health disease burden, both the United States and Canada are major immigrant receiving countries with a large proportion of immigrant and

racialized and ethnic minority[1] women (Statistics Canada 2009; Statistics Canada, 2022; Statistics Canada, 2023; United States Census Bureau, 2024). According to the 2021 census, of the 18.4 million women in Canada, 23 percent were immigrants and over a quarter were racialized women (Statistics Canada, 2023). In the United States, 14 percent of all women are immigrants, mainly from non-European countries (American Immigration Council, 2023). Since the 1990s, the number of immigrants to Canada, especially ethnic and racialized minorities arriving from non-European countries have been a growing population (Statistics Canada, 2021; Statistics Canada, 2022; Hou et al., 2023). Racialization refers to the socially constructed categories among people based on their phenotype, names, beliefs and practices and such categorization could also affect access to opportunities in economic, political and social life (Ontario Human Rights Commission, 2024). Within the immigrant population, women—particularly mothers—face unique social and structural stressors, including caregiving responsibilities, employment challenges, and social isolation, which may amplify the effects of individual and contextual disadvantage on mental health (Anglin et al., 2021; Dastjerdi & Mardukhi; Ganann et al., 2020).

4.2.1 The Mental Health of Immigrants, Immigrant and Racialized Mothers

The migration process is an important dimension of risk for mental health (Bhugra, 2004; George et al., 2015). In general, immigrants experience challenges in economic and social resettlement and stress due to potential discrimination and challenges in credential recognition

[1] In this paper, Statistics Canada (2009) and the National Institutes of Health (2015) conceptualizations of visible minority, racialized, and ethnic minority were used, which refer broadly to groups settling in immigrant- receiving majority English speaking countries and include groups such as Asian, South Asian, Black, African American, Hispanic, Latin American, and Arab.

(Karki et al., 2023; Premji & Shakya, 2017). Being racialized is also an independent determinant of stress for first-generation racialized immigrants as well as racialized people born in North America (Figuereo & Calvo, 2022; Kiang et al., 2022). For ethnic minority immigrants arriving from non-European regions settling in North America, there might be challenges in acculturation, transitioning to a new job, and linguistic and cultural barriers (Berry & Annis, 1974; Liu & Guo, 2022). Stress due to experiences of discrimination in social settings is also suggested to be higher for racialized individuals (Bhatia & Ram, 2018).

Immigrant and racialized women, and mothers are susceptible to social inequities and mental health risks. In Canada, racialized immigrant women have lower wages than their Canadian-born counterparts and disproportionately experience professional and social discrimination, and underemployment, despite being qualified (Ferrer & Dhatt, 2024). Immigrant and racialized women who are mothers might also face greater stress due to responsibilities related to the motherhood role and in managing caregiving duties, especially in situations where they are expected to conform to traditional gender roles along with managing work duties (Frank & Hou, 2013; Kim et al., 2006; Liamputtong, 2006). Literature on immigrant women's health in Canada is largely situated on individual and post-partum health (Ganann et al, 2020; Urquia et al., 2012; Vang et al., 2015), although previous research has found contextual factors to be influential in determining mental health in the general population (e.g. Gong et al., 2016; Mair et al., 2008).

4.2.2 Neighbourhood and Community Contexts and Mental Health

Studies, especially in the United States, have found physical and structural aspects of the neighbourhood, such as access to green space, industry activity, and traffic volume to relate with

mental health (Gong et al., 2016). Physical disorder (e.g. graffiti, litter, broken glass, abandoned cars) and physical decay (deterioration and abandonment of residential, commercial, and recreational buildings on a block) have also been found to be related to depressive symptoms after adjusting for individual factors (Mair et al., 2008). Poor housing quality and limited amenities in the living environment, household crowding, and lack of maintenance in old housing complexes, and "budget" high-rise buildings could also be detrimental to mental health (Larcombe et al., 2019). On the other hand, advantages and resources such as public transport, access to health services, greenspace and healthy food establishments in a neighbourhood could benefit mental health (Durbin et al., 2015; Park et al., 2021).

Social aspects of the neighbourhood and community contexts could act as risks and protective factors for mental health. The relationship between social aspects of the contexts and mental health can be explained using the social organization and disorganization concepts first introduced by Shaw & McKay in their study on "Juvenile Delinquency and Urban Areas" in Chicago (1942). Social disorganization, according to Shaw & McKay (1942) is a "community's inability to realize common values and to solve the problems of its residents, resulting in breakdown of effective social control within that community". Neighbourhood stress, crime, social disorder, and lack of community cohesion are all aspects of social disorganization (Cantillon et al., 2003; Shaw & McKay, 1942). On the other hand, social and community cohesion, social capital, trust in neighbours, availability of community resources and instrumental support are aspects of social organization (Cantillon et al., 2003; Veenstra, 2005).

4.2.3 Neighbourhood Context and the Mental Health of Immigrants, Immigrant and Racialized Mothers

Factors in the neighbourhoods and community contexts could also be related to the mental health of immigrants. Immigrant and racialized people might be more likely to reside in neighbourhoods with a tendency of certain social and economic marginalization characteristics and lower resources (Khan & Cooke, 2024). A study by Khan & Cooke (2024) reported that immigrants in Canada living in neighbourhoods with higher situational vulnerability (e.g., higher proportions of people without high school diploma, more dwellings in need of repairs) were more likely to have poor self-rated mental health. Neighbourhood deprivation is suggested to relate with higher service use for mental health conditions (Durbin et al., 2015), whereas higher neighbourhood density of immigrants is suggested to be protective for the mental health of immigrants (Emerson et al., 2023).

It is also likely that factors in the neighbourhood context interact with individual characteristics such as immigration, racialization, ethnicity, and motherhood to impact the mental health of mothers (Anglin et al., 2021). For instance, disparities in access to better economic and social opportunities (discrimination in the housing market, limited access to mortgage credit, higher costs, and financial barriers) among racialized families might reduce access to high quality neighbourhood and community environments (Sampson & Sharkey, 2008). At the same time, residential location could also determine economic circumstances, for example, immigrant women with limited spatial, and social accessibility to jobs have higher unemployment (Parks, 2004). Furthermore, among parents and mothers, the physical and emotional safety mechanisms (collective efficacy, influence of peers, institutional resources) related to their children in the neighbourhood environment might be psychologically salient (Galster & Santiago, 2006).

Nevertheless, the importance of neighbourhood and community contexts and their relationship with the mental health of immigrant and racialized mothers in the United States and Canada in unclear and warrants a review.

4.3 Gap & Objective

Although research on neighbourhood and community contexts and mental health is common, less is known about the factors in these contexts in relation to the mental health of immigrant, racialized and ethnic minority mothers in the United States and Canada. Therefore, our primary objective for this scoping review was to summarize the extent and type of literature on social and economic disadvantage or advantage factors and whether they undermine or protect mental health in this population. Doing so contributed to a deeper understanding of the living environments across the diverse immigrant, racialized and ethnic minority groups among North American mothers. By identifying disparities, the findings of this review also have implications for strategies for mental health equity[2], and could inform neighbourhood and community-based interventions for mothers (Mental Health America, 2025).

4.4 Research Questions

Our research questions were as follows,

1. What physical, structural, socio-economic, and social aspects of the neighbourhood and community ecological contexts are found to be associated with mental health and disorder outcomes among immigrant, racialized and ethnic minority mothers?

[2] The aim of health equity is to reduce differences that are unfair and unjust and to provide similar opportunities and conditions for individuals to reach their fullest potential (Public Health Ontario, 2024).

2. Which of these factors act as risks for mental health and protect against mental disorders among immigrant, racialized and ethnic minority mothers?

4.5 Methods

We used Arksey & O'Malley's methodological framework to conduct this scoping review (Arksey & O'Malley, 2005). According to Arksey & O'Malley (2005), scoping reviews aim to "map'" relevant literature in the field of interest and chart key concepts and types of evidence available on a topic in four stages. Based on this framework, we followed the four stages: i) identifying the research questions, ii) identifying relevant studies, iii) study selection, iv) charting the data, and v) collating, summarizing, and reporting the results (Arksey & O'Malley (2005).

After identifying our research questions, we ran multiple preliminary searches to select terms for each database and to formulate our final search strategy based on the main concepts with the help of a librarian in public health sciences at the University of Waterloo. These main concepts were individual characteristics, neighbourhood and community level characteristics, health outcomes, population(s) of interest. A list of the search terms used for each of these concepts is presented in Table 4.1. Terms that were too specific to each concept such as "pregnant or expecting mother" in the motherhood concept category were excluded as they were limiting the search and not capturing additional sources. Search terms were altered as needed for Scopus, PsychInfo, Cumulative Index to Nursing and Allied Health Literature (CINHAL) and Google Scholar. Medical Subject Headings were also identified and included for searches in PubMed. Along with journal articles and books, grey literature government publications, working papers, major non-profit organization reports, and policy reports were also searched in

the databases and Google Scholar. Separate searches were conducted in each database for articles in English language from years 2000 to 2022.

Sources returned from the database searches were uploaded to Covidence literature review management software. Articles were reviewed separately by the first author TK and other reviewers using a double-blind method and in two stages: title and abstract screening and full-text review. YG served as the second reviewer for the title and abstract screening and MC served as the second reviewer for the full-text screening. The inclusion and exclusion criteria were applied during both the abstract and full-text screening. These criteria are presented in Table 4.2. Conflicts about whether articles were to be included or excluded during each screening stage were identified by Covidence and resolved through discussion among reviewers. A PRISMA flow chart shows the visual representation of this process in Figure 1. A total of 26 articles were selected to be included in the scoping review after the abstract and full-text screenings were completed.

We used Excel to chart and categorize the data extracted from each article to include basic information (i.e. name of the author, year of publication, journal of publication), as well as information that was relevant to our research questions: context, i.e. neighbourhood or community, location of study (country and city), community or neighbourhood factor(s), mental health outcome(s), methods used (i.e. qualitative or quantitative), population (immigrant, racialized or ethnic minority women), and brief results of the study.

Table 4.1 Concepts and terms used to search databases[1]

Concepts	**Individual Characteristic: Motherhood**	**Exo-level Characteristic: Neighbourhood/Community**	**Health Outcome: Mental Health**	**Population of Interest: Immigrant or non-Indigenous ethno-racial minority**
Keywords:	Mother OR motherhood OR gender OR parent OR Maternal	Neighbourhood Neighborhood Community	Depression Anxiety Stress Stress disorder Mental disorder Mental health Mental illness Mental disorder Well-being Mental well-being Post-traumatic stress disorder PTSD	Immigrant Migrant Foreign Newcomer Ethnic Immigration Emigration Minority group Refugee Asian Black African American Hispanic Latino Arab South Asian

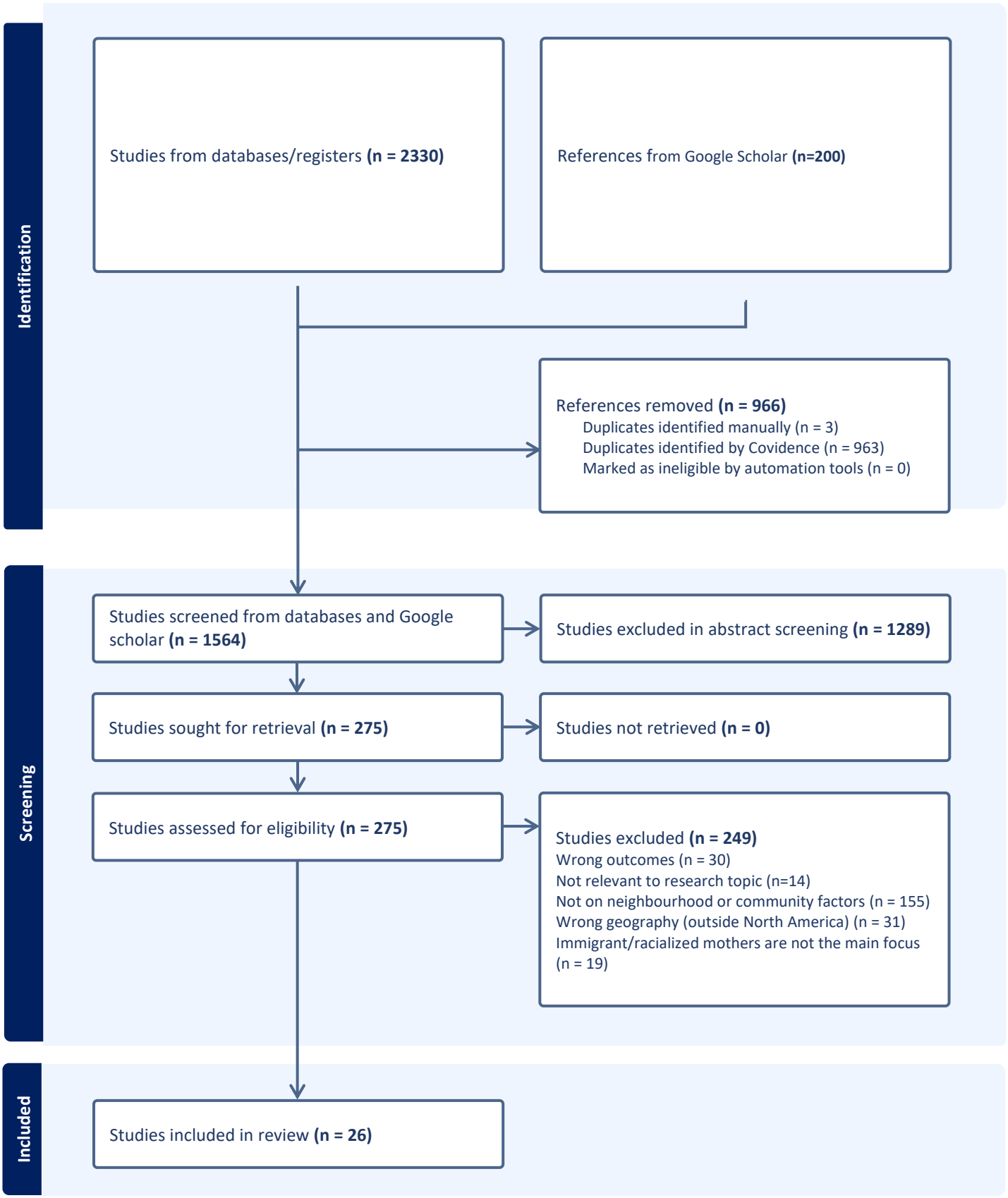
[1]Search terms were also used in plural and alternate forms as necessary for the respective database.

Table 4.2 Details on the inclusion and exclusion criteria applied to each study concept for the selection of articles

1. Motherhood
The motherhood concept aimed to capture studies on immigrant, racialized and ethnic minority mothers of child-bearing ages (less than 50) with young, dependent, and non-adult children (<18 years). The term maternal was included the search terms, however, studies in the pre- and post-natal phases only focusing on the biological and physiological aspects of maternal physical health were excluded. Nevertheless, studies conducted during the pre- and post-natal period on the social risks and/or protective factors in the neighbourhood and community for the mental health of immigrant, racialized and ethnic minority mothers were included even if the outcome was post-partum depression. This group of mothers was also kept in the search as it was expected that there would not be too many studies on neighbourhood/community in relation to mothers beyond post-partum depression. Separating maternal depression from post-partum depression as concepts was also problematic.
2. Neighbourhood or Community
The emphasis was on urban neighbourhood and community residence contexts that generally share similarities in structure and social functioning in majority English speaking countries including Canada and the United States. Articles that studied structural, physical, and social-communal factors in the neighbourhood and community context in relation to mental health were included. Examples of factors studied in relation to mental health included neighbourhood crowding, disorder, segregation, deprivation and built environment. Social attributes of the neighbourhood and community context interest included neighbourhood social deprivation, cohesion, segregation, capital, and ethnic composition. Research on factors that are not related to the social, physical, and structural environment of the neighbourhood and community contexts was excluded, and examples of such broader factors were geopolitical aspects and natural events such as natural disasters that could have an acute effect on the conditions in the neighbourhood or community living context. Studies specifically on immigration related social and economic conditions such as participants' country of origin, acculturative stress, and parenting related aspects such as role strain as the main predictors were not included unless the study was primarily on neighbourhood and community context. In addition, articles that defined communities as online spaces were excluded. So were articles on rural contexts. Studies that were conducted in mental health care and service settings were included if they were focusing on neighbourhood and community factors and examining immigrant and racialized and ethnic minority mothers' mental health or illness as an outcome. Otherwise, studies on health care use and access were excluded. Similarly, studies which referred to community as the entire city and did not study a specific neighbourhood or specific community and did not include neighbourhood indicators were excluded.

3. Mental Health
The mental health concept covered the individual level mental health and well-being experiences of immigrant, racialized and ethnic minority mothers. This concept also included illnesses such as anxiety and mood disorder. Moreover, stress was also an outcome of interest, as it might arise from mental overload as a result of discrimination or racism in the neighbourhood and community context. Studies that use a biological marker of mental health and stress levels such as cortisol were also included. Protective factors in the neighbourhood and community context could promote mental health, hence we included resilience and mental well-being in this concept too. Studies on mental health outcomes at the group level were only considered for inclusion if the group was defined as either immigrant, racialized or ethnic minority mothers and not the general community. As the primary focus was on the mental health and illness outcomes of mothers, papers mainly on children's mental health and internalizing and externalizing disorders were excluded. Studies in which the outcome was primarily substance use or abuse and included mental health or illness as a secondary outcome were also excluded. Studies on community availability of health care as a social predictor in relation to its impact on mental health outcomes were considered during screening to check whether they included any social contextual factors, however, studies on mental health interventions alone were not included. Studies where the main focus were participants with already present mental health conditions or problems were generally excluded as the focus was on identifying social risks and protective factors for mental health and illness.
4. Immigrant, racialized or ethnic minority
The population of interest for this scoping review was immigrant, racialized and ethnic minority mothers. Indigenous was excluded as an ethnic category, as the broader socio-political risks along with the history and living conditions for Indigenous mothers, specifically those residing on reserves are different than immigrant and racialized mothers who reside primarily in urban city settings. Refugee migrants were included under the category of immigrants and as the scoping review is on urban environments, studies on refugees residing in camps were excluded. Categories of racialized and ethnic minority mothers that are settling in immigrant receiving majority English speaking countries included in the search were Asian (including West Asian, Chinese, Filipino, Southeast Asian, Japanese and Korean), South Asian, Black, African American, Hispanic, Latin American and Arabs (National Institutes of Health, 2015; Statistics Canada, 2009). Papers that characterized other aspects of vulnerability for women such as being low-income, single, or disabled were included only if they are mainly on immigrant, racialized and ethnic minority mothers and neighbourhood and, community factors.

Figure 4.1 PRISMA flow chart for a visual representation of the study selection process



covidence

4.6 Results

Our search resulted in a total of 2,330 sources from library databases and 200 from Google Scholar. After the removal of 966 duplicates, the abstracts for 1,564 articles were screened independently by the first author, TK and a second reviewer; of these, 275 full-text articles were selected. In a second round of independent screening of the full-text articles by the first author and a second reviewer, a total of 26 articles were selected. Information from these 26 articles were extracted, of which only two were from Canada and the remaining were from the United States. A majority of the studies that were excluded did not examine any neighbourhood or community level factors although most of these studies were "community-based" meaning that the studies mentioned being conducted in a community setting. Some other studies that were excluded were on post-birth conditions and practices including breast feeding and or had children's mental health, rather than mothers', as the main outcome.

Characteristics of the articles reviewed are presented in Table 4.3. Based on the selected articles reviewed, we identified the following themes in the literature on neighbourhood and community contexts in relation to the mental health of immigrant and racialized mothers in Canada and the United States. The results of the information extracted from these articles are in Table 4.4.

Table 4.3 Characteristics of studies[2]

Characteristic		Number of studies
Mental Health Outcome(s)	Clinical depression	14
	Mood, and anxiety disorders	3
	Other mental health outcomes i.e. biological outcomes, stress, hostility, resilience, general mental well-being	15
Household factors	Financial hardship	1
	Household factors i.e. food security, home hardship	1
Ethnic or racialized population	African American	13
	Latino, Mexican, Hispanic	4
	Black	6
	Middle Eastern, unidentified ethnic minority	3
Immigrant specific		2

[2] Number of studies might not add up to the total number of studies reviewed (26) as there might be an overlap of outcomes or populations for some studies**.**

Table 4.4 Summary of studies on the mental health of immigrant and racialized mothers

Author & publication year	Objective	Location	Participants		Motherhood Characteristics		Mental health outcome	Neighbourhood/ Community factor and finding
			n	Population	Stage	Age of mother		
1. Borders et al., 2015	To identify racial and ethnic differences in self-reported external stress (using the Home Hardships Scale, the United States Department of Agriculture's Household Food Security Scale and Neighbourhood Satisfaction Scale) and biologic stress during pregnancy	Two prenatal clinics associated with university hospital in Chicago	112	55 non-Hispanic Black and 57 non-Hispanic White	Prior to 23 weeks of gestation	At least 18 years of age	Biologic measures of stress were used: C-Reactive Protein (CRP) indicator of inflammation, Corticotropin-Releasing Hormone (CRH) Adrenocorticotropic hormone, ACTH	Results of the Neighbourhood Satisfaction Scale showed Non-Hispanic White women had higher neighbourhood satisfaction and Non-Hispanic Black women had higher CRP, CRH, and ACTH
2. Lewin et al, 2011	To explore whether human and social capital (community cohesion and social support)	Community based programs in southeast Washington DC	230	Self-identified African American, non-immigrant women	Had a child between 3 to 5 years	On average, 22 years old	Centre for Epidemiological Studies Depression Inventory (CES-D)	Lower community cohesion was associated with witnessed violence and increased depressive symptoms

	acts as a in the association buffer between contextual stressors (victimization, witnessed violence, ethnic discrimination) and maternal depression.							Community cohesion was associated with stronger ethnic identity and decreased depressive symptoms
3. Kotchick et al., 2005	To determine the relation between mother's perceived environmental stress, psychological functioning, and engagement in positive parenting	Inner-city New Orleans, Louisiana	141	African American single mother families	Had a child between 7 and 15 years of age	Average age of participants was about 36 years	Depression, Anxiety and Hostility subscales from the Brief Symptom Inventory	Higher levels of neighbourhood stress were related to greater psychological distress in the form of depression, anxiety and hostility which led to less positive parenting practices within 15 months Social support moderated the relationship between neighbourhood stress and mental health

4. Shannon et al., 2020	To determine whether neighbourhood violent crime incidents were associated with perceived stress	Philadelphia residents	1309	Largely minority cohort	16 to 20 weeks of gestation	Age not specified	Cohen's Perceived Stress Scale (PSS-14)	Women in highest quartile of neighbourhood violent crimes compared with lower crime had higher odds of stress even after adjusting for age, race, neighbourhood poverty, foreign-born rates Among Black women, high neighbourhood violent crime was associated with high perceived stress
5. Nowak et al., 2020	To examine whether low level of social disorder in the neighbourhood during pregnancy buffered the association of high social disorder during childhood and depressive symptoms during pregnancy	Detroit, Michigan	1383	African American women giving birth to a singleton baby	24 to 72 hours after birth	Mean age was 27 $\pm$ 6.2 years	CES-D	Social disorder in the neighbourhood during childhood and during pregnancy was correlated with depression. Scores of CES-D were higher for women with higher level of social disorder Regardless of the levels of social disorder in childhood, high social disorder in

								pregnancy was related to higher CES-D scores
6. Aubé et al., 2019	To explore and document perspectives of migrant families on the support provided by a community social and health centre called La Maison Bleue	Montreal, Quebec	9	Ethnic minority migrant mothers including refugees, asylum seekers, undocumented migrants	Had a child between 0 to 15 years	26 to 37 years	Resilience	Women developed resilience because of human and social capital achieved through venturing into community and accessing programs like La Maison Bleue
7. Tung et al., 2021	To examine connectedness of adolescent mothers with their own mothers and family's perception of neighbourhood support (collective efficacy) as a reflection of community collectivism	Pittsburgh, Pennsylvania	135	Almost all identified as Black or Black with another race (10%)	Two interviews, once during pregnancy and another when infant was 3 months of age	Adolescent mothers (14 to 21 years of age)	Changes in well-being from two years pre-pregnancy to year of pregnancy	Perceived trust and attachment with caregiver were related to positive mood during pregnancy and reduced risk of preterm birth Neighbourhood support predicted lower prenatal depressed mood

8. Mendez et al., 2013	1) To examine the racial/ethnic differences in residential redlining, segregation, and self-reported stress among pregnant women and 2) to examine whether residential redlining and segregation are associated with self-reported stress	Philadelphia, Pennsylvania	4652	Majority Black (3081), Latina/Hispanic (1001), White (421) and other (136)	Less than 20 weeks	The mean age of participants was 24.18 years	Cohen's Perceived Stress Scale	In multivariable models for all women, redlining was not associated with stress after controlling for individual factors Higher percentage of Black people in neighbourhood was inversely related to stress. Redlining and residential segregation had a positive and higher correlation with stress for all women without controlling for individual factors.

9. Habarth et al., 2009	To investigate relationships between recent stressful events, coping styles (active versus emotion focused and avoidant) and if positive environmental qualities such as institutional community resources and residential natural resources moderate relationship between coping and stress	Michigan (Ann Arbour)	133	Low-income women African American/ Biracial (n=40) European American (n=87)	Had between 1 and 7 children	The mean age of participants was 24.48	Stress as measured by the African American Women's Stress Scale, Coping Resources Inventory (Active, and Avoidant Strategies Subscale) and Emotion-Focused Coping Subscale	Availability of community resources predicted the use of emotion-focused coping strategies which include free expression of emotions during stress Access to community resources such as police protection, and childcare were significantly associated with the use of active approaches (such as making a plan) and less reliance on avoidant tactics
10. Volk, 2009	To learn about challenges of women in diaspora and difficulties young women faced living in the poor, crime ridden Tenderloin neighbourhood. Stressors such	San Francisco	15	Yemini women living in the United State for less than five years	Majority with young children, only three with children in middle school	22 to 36 years old	Feeling of isolation and depression	Women reported feeling out of place and stressed due to lack of language skills and remained out of public spaces to avoid being targets of hate crimes Limited living space prevented

	as language, dress, apartment, neighbourhood were studied							socialization and increased feelings of stress and depression
11. Giurgescu et al., 2012	One of the objectives of this study was to determine if neighbourhood environment and racial discrimination predicted psychological distress	Chicago, Illinois	72	African American women	33 women with preterm birth, and 39 women with full-term birth	At least 18 years of age, with a mean age of 23 years	Psychological Distress as measured by the Psychological General Well-Being Index	Perceived crime predicted psychological distress Objective social disorder (the annual number of prostitution- and drug-related incidents) based on 2007 data from the Chicago Police Department also predicted psychological distress
12. Dove-Medows et al. 2020	Examining pregnant African American women's perceptions of neighbourhood disorder, racial discrimination, and psychological distress and whether these concepts were	Prenatal clinic in the Midwest	38	African American. Of the total, 7 women were recruited for qualitative interviews	Singleton pregnancy, 8 to 18 weeks of gestation	At least 18 years of age	Psychological distress as measured by the CES-D and the Psychological General Well-Being Index	Women reported concern about neighbourhood conditions on questionnaires and in interviews They study's main finding was that qualitative interviews added information to what was observed on questionnaires

	viewed as influences on birth outcomes							
13. Cutrona et al., 2000	Direct and moderating effects of different neighbourhood characteristics on distress were tested	Block Group Areas sampled in Iowa and Georgia	709	African American women from a large-scale study called Family and Community Health Study	Children aged 10- to 12-year-old	The mean age of participants was 36.8 years	Mini-Mood and Anxiety Symptom Questionnaire sub-scales: General Distress, Anxious Arousal Scale, outlook on life and relationship quality	Higher levels of community disorder were associated with higher levels of distress The Census based measure of economic disadvantage did not correlate with distress A cohesive neighbourhood intensified protective effects of a positive personal outlook on mental health. Living in a disordered neighbourhood made the effect of personal attributes such as low positive outlook on life worse as well
14. Tse et al., 2012	Factors including community violence, racial discrimination, interpersonal	Urban Boston	997	Mainly minority women enrolled in Asthma Coalition on	Prenatal stage	18 years or older	Corticotropin-Releasing Hormone	Community violence, racism, and higher levels of cumulative stress (interpersonal violence, negative

	violence, negative life events, and their association with Corticotropin-Releasing Hormone levels			Community, Environment, and Social Stress (ACCESS) Project. Hispanic (63%, Black 26%)				life events and community violence combined) was associated with CRH levels in Black, but not in Hispanic women in stratified analyses
15. Curci et al., 2021	To test whether higher neighbourhood Latinx concentration predicted fewer PPD symptoms, and less culture-specific stress during pregnancy which subsequently predicted fewer child behaviour problems and maternal depressive symptoms at 4.5 years age of child	Arizona, United States	322	Mexican American mothers and their children. Mother-child dyads from the Las Madres Nuevas study	Prenatal stage until age of children was 4.5 years	Between 18 and 42 years of age	Maternal depression calculated over multiple time points	Higher Latinx concentration predicted fewer maternal depressive symptoms and child behaviour problems Neighbourhoods with higher Latinx concentrations were associated with positive mental health outcomes in adolescence to adulthood
16. Giurgescu et al., 2013	To examine the nature of women's experiences with stress and resources	Chicago, United States	19	Self-identified 11 African American pregnant women and 8 significant others	Prenatal stage with a singleton pregnancy	18 to 35 years of age	Depression measured by CES-D, Psychological General Well-Being Index, State-Trait Anxiety Inventory	Sources of stress reported by women related to neighbourhood included living in a neighbourhood with

	during pregnancy			recruited at an urban medical centre				violence and social disorder
17. Giurgescu et al., 2015(a)	Examined whether social support and avoidance coping mediated associations between neighbourhood environment and depressive symptoms	Chicago, Illinois	95	African American women recruited from a medical centre	Women completed the instruments twice, between 15 and 25 weeks (second trimester) and 25 and 37 weeks (third trimester)	The average age of participant was 24 years	Depressive symptoms were measured using the CES-D	Perceived physical, and social disorder and crime were related to depressive symptoms at two time points during pregnancy. Objective neighbourhood environment measures for physical (proportion of vacant housing, vandalism incidents), social disorder (annual number of prostitution and drug related incidents), crime (aggravated crime and assault) were not related to depressive symptoms
18. Hill & Herman-Stahl, 2002	Examined neighbourhood safety and its relationship with parenting practices such	Southeastern semiurban city (not named)	103	African American (*n*=54) and Euro-American (*n*=49)	Mothers of children interviewed during second year of	African American mean age=36.2; European Americans: 34.76	CES-D was used to measure depression among mothers	Maternal depression mediated the relationship between reduced neighbourhood safety and inconsistent

	as affection and discipline and social involvement and the mediating role of maternal depression				kindergarten			disciplining of children
19. Saasa et al., 2021	To test the effects of economic hardship and neighbourhood cohesion on maternal mental health and whether maternal mental health in turn affects parenting, and child behaviours over time	Cities with populations of 200,000 or greater	831	Black=111, Hispanic=549 Other=117 and white=51 Mothers recruited from the Fragile Families and Child Wellbeing Study	Mothers were interviewed at baseline, when children were aged 1, 3, 5, and 9	The average age of mothers was 27 years	Depression measured using World Health Organization's Composite International Diagnostic Interview-Short Form (CIDI-SF)	Financial hardship and neighbourhood cohesion were directly related to maternal depression. Financial hardship increased depression by 36 percent. Neighbourhood cohesion was associated with a 35 percent decrease in major depression among mothers using the CIDI-SF criteria
20. Lee et. al., 2021	The objective was to compare the level of stress as measured by inflammatory markers in relation to neighbourhood violence and stress	Chicago, Illinois	68	Unmarried, low-income Black mothers. Data was obtained from a larger study called The South Chicago Black Mothers' Resiliency Project	Children were under the age of 18, but older than being breastfed	18 to 62 years. Several grandmothers were included who were raising children under 18	PTSD-17 Checklist and the Patient Health Questionnaire 9 items for a quick screening of depression	Subjective neighbourhood stress was found to be significantly associated with the activation of anti-inflammatory stress pathways such as increased expression of genes by the gluco-corticoid receptor

								Neighbourhood subjective stress was also related to the down regulation of gene expression that relates to a sympathetic nervous system response representing a "defeat" or "withdrawal" response.
21. Giurgescu et al., 2015 (b)	To test a model for the mediational effects of perceived stress and social support on the relationship between neighbourhood quality and depressive symptoms during pregnancy	Detroit Metropolitan area	1383	African American women	Mothers who had just given birth to a singleton baby	18 to 45 years	20 item CES-D scale	Lower neighbourhood quality (disorder, safety, walking environment) was associated with higher mean of depressive symptoms, higher perceived stress, and lower social support The indirect effect of neighbourhood quality on depressive symptoms through social support is very small. However, social support mediated the association between neighbourhood

								quality and perceived stress
22. Franco et al., 2010	Examined the impact of neighbourhood social disorder and social cohesion on parental stress and tested whether maternal race–ethnicity moderated this effect	20 large cities from the United States	2865	Half of the sample was non-Hispanic Black. Almost one quarter was Hispanic (26%) and 23% was non-Hispanic White, 3 percent were	Birth cohort followed up to 3 years with data for analysis collected at year 3	The mean age of mothers was 25 years	Main mental health outcome in related to neighbourhood factors was parenting stress, along with additional analysis on maternal depression	Interaction between social cohesion and being from "other races" was significant and positive (0.22) illustrating that being in the category of less cohesive neighbourhoods is associated with higher parenting stress among racialized mothers compared to White mothers
23. Ajrouch et al., 2010	Investigated the role of social support for African women living in a high-poverty socio-economic context and the stress process	Detroit	736	African American	Mothers with children under six years of age	30 years	Psychological distress using the CES-D	High levels of food insufficiency and neighbourhood disorganization in the community were related to depressive symptoms Lower levels of food insufficiency interacted with consistent instrumental support (transportation and childcare) to reduce depression, however, for those with high levels of food

								insufficiency, the score of depression was not reduced with the presence of instrumental support Consistent financial support reduced depression among those with both low and high levels of neighbourhood disorder
24. Young & Montazer, 2018	Tested the negative impact of neighbourhood disadvantage and perceived disorder on mental health mediated through work-family conflict and whether it differed among native and foreign-born respondents	Toronto, Canada	2412	Foreign and Canadian born 367 participants were mothers and 427 were fathers	Married individuals with children	Mean age of native-born participants = 48.29 and foreign-born participants =49.67	Psychological distress using CES-D	Work-family conflict levels were similar for both foreign-born and native-born individuals although foreign-born residents were more likely to live in more disadvantage neighbourhoods The effect of work-family conflict on psychological distress varied across neighbourhoods. With the increase in neighbourhood disadvantage, work-family conflict decreased for foreign-born fathers

								compared to other groups. This might be explained by the already present stressors of individual immigrant status and neighbourhood disadvantage, reducing the impact of work-family conflict for foreign-born fathers However, work-family conflict leads to greater distress for foreign born fathers
25. Tiako et al., 2021	Urban residential tree canopy and perceived stress among pregnant women	Philadelphia	1943	70.6% were Black, 4.7% Hispanic, 6.0% other race and 18.8% were White	Expecting mothers with single gestations	The mean age of participants was 27.5	Cohen's Perceived Stress Scale (PSS-14)	Increase in the size of the tree canopy from 100 metre to 500 metre was not associated with a change or reduction in stress scores. In a separate analysis, participants with greater than 30% tree residential canopy and a history of anxiety or depression had lower odds of a high perceived stress score compared to those with less than 10% tree canopy

26. Abdou et al., 2017	Aimed to document stressors and resilience resources in communities	Los Angeles	54	53% of the study participants identified as African American 23% identified as Latino and the remainder as European American, Asian, or Middle Eastern	47 females and 7 males of child-bearing age	Ages between 18 and 50 years	Stress and aspects of resilience	Gang related violence was reported as a source of stress Participants reported teens, parents, and children to be under the most stress in their community

4.6.1 Infrastructure Factors and Mental Health

Perceived physical disorder was measured using physical quality and the structural characteristics of the housing and neighbourhood areas in the studies. In a study on inner city neighbourhoods in New Orleans, Kotchick et al., (2005) measured housing quality such as substandard housing (e.g. broken pipes), unsanitary living conditions (e.g. insect infestation) as part of their neighbourhood stress measure. Similarly, Nowak et al. (2020) explored whether vacant or deserted houses and storefronts, litter, broken glass or trash on the sidewalks and streets are problematic. The perceived physical disorder in Giurgescu et al.'s (2015a) study was based on the Neighbourhood Physical Environment Scale and included similar measures to other studies such as lower maintenance, heavy car or truck traffic, vacant lots, sidewalks, and presence of litter.

Poor infrastructure and physical disorder were also studied in relation to their negative effect on mental health. Kotchick et. al (2005) found higher levels of substandard housing and neighbourhood infrastructure characteristics to be related with anxiety, hostility and depression and clinical depression among single African mothers who had recently given birth (Kotchick et al., 2005). Giurgescu et al., (2015a) also negative perceptions of the neighbourhood environment in Chicago with depressive symptoms among pregnant African American women.

Characteristics such as neighbourhood greenspace and walkability were found to be buffers for the mental health of individuals with a history of mental health concerns. Tiako et al., (2021) studied urban residential tree canopy within 100- and 500-meter radii around the homes of expecting mothers using data from Philadelphia's Park and Recreation database and stress outcomes using Cohen's Perceived Stress Scale (PSS-14). Increase in residential tree canopy size generally did not reduce stress among participants; however, for women with a history of anxiety

and depression, a greater canopy size resulted in reduced stress scores (Tiako et al., 2021). Habarth et al. (2009) used a natural resource checklist including ratings of the greenness of yards; the presence or absence of front yards, grass, trees and landscaping, including flowers, and found that these positive environmental qualities reduced the use of avoidant coping strategies for participants who had gone through recent stressful life events. Along with greenspace, walkability was also related to mental health and included in a study as an aspect of neighbourhood (Giurgescu et al., 2015 (b)). Giurgescu et al., 2015 (b) found lower quality of the neighbourhood (including low walkability) to relate with higher depressive symptoms, stress, and lower social support, in addition to reduced safety and disorder.

4.6.2 Socioeconomic Aspects and Mental Health

Two studies focused on socioeconomic aspects of the housing and neighbourhood environments such as crowding, economic disadvantage and the relationship of socioeconomic factors with the mental health of racialized mothers. Volk (2009) conducted interviews with Yemini mothers in the poverty ridden Tenderloin neighbourhood in San Francisco. Women in this study provided accounts of living in poverty and crowded high rise apartment buildings in a San Franciso neighbourhood (Volk, 2009). They also expressed feelings of isolation due to limited space, as well as the stress due to a lack of language skills and limiting their public interaction to avoid being targets of hate crimes (Volk, 2009).

Contrary to our expectations, neighbourhood level economic disadvantage as studied in Cutrona et al.'s (2000) was not correlated with psychological distress, although it was related to a low positive outlook on life and low relationship quality. The authors created an economic disadvantage index based on the percentage of people in the neighbourhood (Block Group Area)

who were living below the poverty line, receiving public assistance, single mothers, unemployed and male, as well as the mean per capita income.

4.6.3 Social Aspects and Mental Health

4.6.3.1 Neighbourhood Disorder, Violence, Stress and Mental Health. Various characteristics were used in the studies to measure the subjective experiences of disorder and violence in the neighbourhood and community. These characteristics included the presence of gangs in the neighbourhood, high rates of homicides, aggravated assault or robbery with and without a firearm, sexual assault and low safety while walking alone at night (Giurgescu et al., 2012; Kotchick et al., 2005; Shannon et al., 2020). Subjective stress measures included items such as the presence of memorials of children and adults who were victims of homicide in the neighbourhood, the presence of drug houses and living in high traffic areas.

Subjective experiences of violence and disorder in the neighbourhood were found to be profound risks for mental illness among racialized and ethnic minority mothers. Kotchick et al. (2005) found neighbourhood violence to relate with anxiety, depression and hostility and less positive parenting practices in the following year for single, African American mothers. Shannon et al. (2020) found Black women to be four times more likely than non-Black women to reside in Philadelphia neighbourhoods with higher levels of crime and to report higher stress levels. Biological measures also confirmed the presence of mental illness in relation to neighbourhood violence (Lee et al., 2021). Lee et al. (2021) used data from a larger study called The South Chicago Black Mothers' Resiliency Project and found subjective stress to relate with the expression of inflammatory genes, reflecting higher levels of cortisol (known as the "stress hormone") among low-income, unmarried Black women.

4.6.3.2 Racial Segregation and Ethnic Composition. We found two studies in the literature that focused on redlining and exposure to other co-ethnics for Black and Mexican people and mental health outcomes in relation to these factors among racialized mothers i.e. Curci et al. (2021) and Mendez et al. (2013). Using the Home Mortgage Disclosure Act data, Mendez et al. (2013) studied loan denial for Black versus White applicants in census tracts, while controlling for applicant's income, loan amount and sex. These neighbourhood-level racial inequities in mortgage lending were defined by Mendez et al. (2013) as redlining. Similarly, Curci et al. (2021) studied the concentration of Latinx people in 152 census tracts in Arizona using the American Community Survey and the relationship of ethnocultural context on the mental health of mothers and children in low-income Mexican American families.

After controlling for individual factors, Mendez et al. (2013) did not find redlining and ethnic concentration to be associated with higher stress levels among pregnant women from all racial backgrounds (White, Black, Latina/Hispanic). Furthermore, Mendez et al.'s (2013) study indicated that a higher percentage of Black people in the neighbourhood was inversely related to stress. Curci et al. (2021) also found a higher Latin concentration to predict fewer maternal depressive symptoms among Mexican American mothers.

4.6.3.3 Social Support, Community Cohesion, and Mental Health. Social support and community cohesion in the neighbourhood and community were found to be protective of mental health. Kotchick et al. (2005) found that social support from friends and family moderated the relationship between neighbourhood violence and unsanitary living conditions, and maternal depression among African American women. Lewin et al. (2011) similarly found community cohesion measured by trust in neighbours and willingness to help neighbours to associate with decreased maternal depression. The beneficial effect of higher community cohesion persisted

even for participants reporting high levels of ethnic discrimination and those who witnessed violence (Lewin et al., 2011).

Two studies examined the role of community resources and services and found these to be beneficial for mental health (Habarth et al., 2009; Aubé et al., 2019). Habarth et al. (2009) studied stress, coping and community resources in the form of childcare services, medical and mental health care, safe playgrounds, transportation, and police protection. Habarth et al., (2009) found community resources to enhance coping mechanisms among individuals who had experienced stressful life events related to racism and financial, and relationship issues. Enhanced coping mechanisms were defined as the use of active and action-oriented coping strategies as opposed to avoidant and withdrawing behaviours (Habarth et al., 2009). Lastly, Aubé et al. (2019) interviewed immigrant and ethnic minority women accessing a community centre, La Maison Bleue, in Montreal, Canada. The centre was suggested to provide "holistic care" in the form of social workers, healthcare providers and support in navigating systems that are new to immigrant mothers, such as the legal and housing systems. Interview informants in Aubé et al.'s (2019) study reported becoming empowered through the use of the services provided by La Maison Bleue, through gaining knowledge and resilience.

4.7 Discussion & Conclusions

This scoping review contributes to the growing body of literature in the area of mental health by examining the neighbourhood and community contexts and the interplay between these contexts and the mental health of immigrant, racialized and ethnic minority mothers. Using the Arksey and O'Malley (2003) framework, we reviewed and examined the extent, range, and

nature of literature to address a gap in the understanding of contextual risks and protective factors for mental health.

In addition to ecological factors, we considered the intersection of immigrant and racialized status with motherhood, recognizing that some social positions can exacerbate existing disadvantages and influence access to resources across contexts (Deluca et al., 2019; Cutrona et al., 2005). Social identities such as racialized and immigrant status are not experienced in isolation but instead, could intersect to produce unique forms of disadvantage or privilege (Crenshaw, 1989). For instance, immigrant and racialized mothers may experience additive stressors due to exposure to negative contexts or gendered caregiving role expectations (Liamputtong, 2006). Women in less stable housing and contextual conditions can also face challenges in employment security, access to public services, and have reduced social supports (Letiecq et al., 2012; National Women's Law Centre, 2021).

Our review of the literature suggests that there is a strong relationship between physical and structural aspects of housing and neighbourhoods and the mental health of immigrant, racialized and ethnic minority mothers, echoing findings from studies on this topic in the general population (Larcombe et al., 2019; Mair et al., 2008). For example, Maas et al (2006) used data from a Dutch survey and found that a higher percentage of green space in close proximity to individuals was related to better general health, and this is similar to the findings in our review on mental health by Habarth et al. (2009) and Girugescu et al. (2015). Additionally, the findings from papers in this review on poor infrastructure, such as unsanitary living conditions, urban decay and lack of maintenance e.g. Kotchick et al. (2005); Nowak et al. (2020); Giurgescu et al. (2015a) are similar to findings in the studies reviewed by Mair et al. (2008), which suggest that

the quality of housing areas and poor built environment are associated with depressive symptoms.

Infrastructure factors such as access to various modes of transportation, healthy food establishments and childcare facilities remain underexplored in this literature. A study by Bostock (2021) has found that access to public transport might mitigate potential stress related to walking long distances for errands among mothers with low-income. Given that immigrant women in metropolitan areas are more likely to use alternative modes than driving to work, including taking the transit, biking and walking, especially where the distance between residence and workplace is greater (Preston et al., 2022), further investigation into how modes of transport influence mental health outcomes among immigrant mothers might provide valuable insights. Similarly, the proximity of workplaces, ethnic markets, and childcare facilities might play a critical role in mitigating stress among immigrant and racialized mothers (Ebneshahidi, 2021), yet these factors have not been adequately studied.

Contrary to our expectations, we did not find much research on socioeconomic disadvantage and neighbourhood geographic segregation and mental illness among immigrant and racialized mothers. We found Cutrona et al.'s (2000) to be the only study that used a census-based measure of economic disadvantage and found this measure to correlate with community disorder, and with a low positive outlook for individuals (measures of sense of control and optimism) and low relationship quality (social support and conflict imposed by members in network). Neighbourhood level economic disadvantage in this study did not correlate with psychological distress in this study. Although not studied extensively in this population, higher neighbourhood economic status might provide amenities and provisions such as green space

which is known to have a positive impact on mental health and outcomes such as higher birthweight among mothers (Dadvand et al., 2014).

Reduced accessibility and affordability for immigrant and racialized status and motherhood to neighbourhoods with better provisions and geographic segregation could also be further explored. A study from Montréal has found that low-income and visible minority populations inhabit blocks with lower greenness values (Pham et al., 2012). Generally, recent immigrants and racialized individuals are more likely to reside in neighbourhoods with higher levels of poverty and social challenges (e.g. higher juvenile detention rates and teenage fertility) (Sampson & Wilson, 1995; Ananat, 2011; Rosenbaum & Friedman, 2001). Indicators of area level marginalization such as higher proportion of newcomers, including those with lack of knowledge of official languages have been associated with poor mental health outcomes (Khan & Cooke, 2024). However, in our review, only one study used a neighbourhood geographic segregation measure in relation to reports of stress among African American mothers (Mendez, et al., 2013).

There was strong emphasis in the literature on social factors in the neighbourhood and community contexts and their relationship with mental health. Studies in the review suggested that communities with high levels of social cohesion, support and community resources were associated with improved mental health outcomes, as they promote an orderly environment and enable residents to promote social organization (Kotchick et al., 2005; Lewin et al., 2011; Vega et al., 2011). Studies on neighbourhood violence and stress suggested that higher levels of these factors contribute to anxiety and depression among mothers. These studies provide evidence for the relevance of social organization and social disorganization concepts by Shaw & McKay (1942), emphasizing that neighbourhoods with strong social ties and community engagement are

more likely to foster positive social outcomes, while disorganized communities can contribute to adverse outcomes.

The finding by Mendez et al. (2013), that a higher percentage of black people in the neighbourhood is inversely related to stress aligns with previous literature on the positive effects of higher immigrant and ethnic density (Bécares et al., 2018; Emerson et al., 2021; Emerson et al., 2023). Neighbourhood environments with a higher density of people with the same ethnicity are suggested to benefit mental health by fostering social cohesion, support, and lower exposure to racial-ethnic discrimination (Bécares et al., 2018). Among mothers, living in an ethnically similar community is said to provide emotional support for culture-specific stressors such as discrimination and deportation fears due to the presence of shared values and mutual trust among neighbourhoods and community members (Curci et al., 2021).

4.8 Implications and Future Research

This review comprehensively examined the literature on physical, infrastructure and socioeconomic factors in relation to the mental health of immigrant, racialized, ethnic minority mothers in the United States and Canada. We found that infrastructure, physical and social factors to impact the mental health of racialized mothers. Some risk and protective factors including neighbourhood greenspace, physical social disorder appear to have a similar association with mental health and illness among mothers and the general population. Social support and cohesion appear to be moderators and serve as buffers for the mental health of racialized mothers. These findings underscore the importance of neighbourhood-level interventions and programs aimed at strengthening social ties and community structures. This could include programs addressing physical and social disorganization in marginalized

neighbourhoods, particularly for immigrant populations facing structural inequalities in these contexts.

This review highlights the following directions for future research. Aspects such as neighbourhood level socioeconomic disadvantage and access to services in the neighbourhood could be examined further. Future research could also focus on the experiences of immigrant mothers in navigating social and economic marginalization in their communities, as understanding their navigation of such environments could inform targeted interventions

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Chapter 5. Discussion

5.1 Gaps and Overall Objective

The primary objective of this dissertation was to address gaps in the literature on contextual factors and the mental health of immigrants in Canada. Aspects of one's social position, including gender, immigration status and motherhood, might determine the types of contexts one is situated in or decides to reside in. Furthermore, some factors in these contexts might serve as stressors, while others might act as resources. In Canada, some studies have examined contextual factors and mental illness among immigrants (Glazier et al., 2004; O'Campo et al., 2015; Matheson et al., 2012). However, more research remains necessary to identify the relationship between social and economic contextual factors and the mental health of immigrants in Canada. Therefore, this dissertation contributes to the literature in the area of social and economic contextual factors and mental health, anxiety and mood disorders among immigrants and immigrant mothers.

We used Bronfenbrenner's Ecological Systems theory to conduct three studies for this dissertation. Along with the overall application of Bronfenbrenner's EST to study the household, neighbourhood, and community contexts, we also used Bronfenbrenner's *person-context* model, which considers the social position of the person (Bronfenbrenner, 1986). The three studies focused on contextual factors and mental health among immigrants, immigrant mothers, and racialized immigrant mothers. Chapter 2 in this dissertation was the first empirical study, in which we examined factors in the *microlevel* household setting, *exolevel* neighbourhood and community level factors and their association with self-rated mental health and mood disorders among immigrants. Chapter 3 in this dissertation was the second empirical chapter, in which we investigated family structure, dwelling and household factors and mental health, and mental

health conditions among immigrant and Canadian-born mothers. Along with attention to contextual factors, in this chapter, we also considered the compounding effects of immigration status and motherhood on mental health. Lastly, Chapter 4 in this dissertation was a scoping review in which I summarized the literature present on the distal, exo-level neighbourhood and community contexts and mental health and illness outcomes among immigrant, racialized and ethnic minority mothers.

5.2 Summary of Key Findings

This section includes summaries of the empirical chapters and the scoping review and presents the overarching connections of each of the three studies to broader literature.

5.2.1 Summary of Chapter 2

In Chapter 2, we examined the differential exposure of immigrants and non-immigrants to potentially unfavourable social and economic factors in the household, neighbourhood, and community contexts. Also, we tested the association between contextual factors and two outcomes, self-rated mental health and the presence of a mood disorder. The factors that we studied in the household context were household income adequacy, household education level, crowding, presence of children, and dwelling ownership. In the neighbourhood context, we studied the following factors: residential instability, economic dependency, situational vulnerability and ethnocultural composition.

The research questions for this chapter were as follows:

1) Do immigrants and non-immigrants differ in their exposure to household, neighbourhood, and community factors?

2) Are factors in these contexts associated with mental health and mood disorders among immigrants?

We used the Canadian Community Health Survey 2015–2016 and the Canadian Index of Multiple Deprivation 2016 for this study (Statistics Canada, 2019). To answer question one, we examined the percentage of immigrants to non-immigrants in each contextual factor and tested whether the association between each factor was significantly different (p-value <0.05) for the two groups using a chi-squared test. To answer question two, we conducted a series of logistic regression models to test the association between each contextual factor and the self-rated mental health of immigrants, and the presence of a mood disorder, while controlling for demographic and socioeconomic characteristics and length of time in Canada.

Results from this study indicated that immigrants' exposure to some household and neighbourhood factors was different than non-immigrants. This included living in a household with low-income, having young children at home and a larger household size and living in a home that is not owned. Living in low-income, a rental versus an owned home, time pressures due to having young children, and living have previously been found to be associated with lower mental well-being in the general population (Acolin, 2022; Hewitt et al., 2022; Manturuk, 2012; Ruppanner et al., 2019; Thomson et al., 2022). We also found immigrants to be more likely than non-immigrants to live in the Dissemination Areas (DAs) with the highest quintile of residential instability and considerably more likely than non-immigrants to live in DAs with higher proportions of visible minorities, foreign-born, and proportion not knowing either official language (higher on the ethno-cultural composition measure). Nevertheless, we found non-immigrants to be more likely than immigrants to live in the highest quintile of economic dependency. Both immigrants and non-immigrants were more likely to live in areas with low

compared to high situational vulnerability, and immigrants were also more likely than non-immigrants to live in DAs with the lowest situational vulnerability.

Household factors were associated with immigrant mental health in the following manner. We found low household income adequacy to associate with poor-self rated mental health. Among immigrants in low-income adequacy compared to those living in middle income adequacy households, the odds ratio for poor-self rated mental health was 1.66, 95% CI: 1.04–2.63, and for the presence of a mood disorder, the odds ratio was 1.87, 95% CI: 1.20–2.90. Household education, size and dwelling ownership and having children under the age of 12 did not have any significant association with either mental health outcome.

When we examined neighbourhood level deprivation, we found a somewhat increasing pattern of the estimates for odds ratios for immigrants living in DAs with higher levels of deprivation (i.e. economic dependency, situational vulnerability, and ethno-cultural marginalization) compared to the lowest level of deprivation. Nevertheless, the association between these deprivation measures and poor self-mental health were only significant for those living in the highest quintile of situational vulnerability (OR: 1.59, 1.08–2.36) and the ethnocultural composition dimension (OR: 2.16, CI: 1.34–3.46), which was based on the proportion identifying as visible minorities, the proportion that were foreign-born, the proportion knowing neither official language, and the proportion that were recent immigrants, those had arrived within five years of the 2016 census. Neighbourhood level deprivation at higher levels did not have a pattern of increasing odds or a significant association with the presence of a mood disorder.

Having a weak sense of belonging to the local community was associated significantly with both, poor self-rated mental health and the presence of mood disorders among immigrants.

The odds ratio for poor-self rated mental health was 3.97 (2.78–5.67) and the presence of a mood disorder was 2.56 (1.78–3.67).

5.2.2 Summary of Chapter 3

Immigrant status and gender norms could structure family structure, dwelling and household contexts differently for immigrants and Canadian-born individuals (Lee & Edmonston, 2013; Talbani & Hasanali, 2000). Previous literature also suggests that household size, crowding (Ruiz-Tagle & Urria, 2022; Sempungu et al., 2022) and marital status (Avison et al., 2007; Colton et al., 2015; Lawrence et al., 2019) can impact mental health. As there is limited research on household contextual factors and immigrant mothers, we examined whether there is a difference in household contexts and family structure and whether factors in the household context associate differently with the mental health of immigrant and Canadian-born mothers. In Chapter 3, our first empirical objective was to compare the percentage of immigrant and Canadian-born mothers across categories of household contextual factors. Along with being exposed to immigration related macro-level factors such as integration related stress, immigrant mothers also have to navigate potential work life balance with caregiving duties (Munkejord, 2017). Thus, we hypothesized that factors such as age and number of children, household crowding, and living in a multi-generational family might have different associations with the mental health of immigrant compared to non-immigrant mothers. Our second objective was to examine the association between the mental health of immigrant mothers and household contextual factors while controlling for individual factors and to compare differences in these associations for immigrant and Canadian-born mothers. The mental health outcomes that we

examined in the Chapter were self-rated mental health (SRMH) and a self-report of the presence of mental health condition (MHCs).

We asked the following questions:

1. Are immigrant mothers more likely than Canadian-born mothers to be exposed to different family structure and dwelling factors?

2. Are these family structure and dwelling factors associated with mental health outcomes, including mental health conditions, among immigrant mothers after controlling for age, geography, and time in Canada, income, education, and employment and are these associations different for immigrant and Canadian-born mothers?

We pooled the General Social Survey Cycles 30, 31 and 32 for this study. We first examined the percentage of immigrant and non-immigrant mothers across household contextual factors and tested whether a significant difference exists among immigrant and non-immigrant mothers. A chi-squared test at a significance level of 0.05 was used to compare both sub-groups. We then conducted a series of logistic regression models for each household factor and mental health outcomes, while controlling for demographic and socioeconomic characteristics.

We found some differences in the percentages of some family structure and household factors for immigrant and Canadian-born mothers. Immigrant mothers were more likely than Canadian-born mothers to be married or in a long-term relationship, live in larger sized households, and in a multigenerational household. Contrary to our expectations, we found no difference in the ages and number of children for mothers in both groups. Both immigrant and Canadian-born mothers were highest in the categories of having children aged four to twelve (younger children) and having one to two children (smaller number of children). Immigrant

mothers were also more likely than Canadian-born mothers to live in attached or mobile housing, in a rental dwelling and households with lower family income.

Results of a sequence of multivariable logistic regression models showed that having more children did not have a relationship with the mental health of mothers. The number of generations in the household did not have a negative or positive association with poor mental health and mental health conditions. Among mothers in both groups, having a teenaged child was associated with higher odds of having a mental health condition; however, these odds were not significantly different from those of mothers with a child aged four to twelve years. On the other hand, having a larger family was associated with lower odds of poor mental health.

A notable finding was that not being in a long-term relationship was significantly associated with poor self-rated mental health and the presence of a mental health condition for both immigrant and Canadian-born mothers. The odds of poor outcomes were higher for immigrant mothers compared to Canadian-born mothers.

Low family income, dwelling type and ownership was associated with the presence of poor mental health conditions among Canadian-born mothers. Living in a rental, attached or mobile household had a significantly negative effect on mental health and mental health conditions for non-immigrant mothers. We did not find these factors to have a negative association with the mental health of immigrant mothers.

5.2.3 Summary of Chapter 4

Building on the first two studies in this dissertation, we conducted a scoping review in Chapter 4. This scoping review was on the distal neighbourhood and community level contextual factors and their impact on the mental health of immigrant, racialized, and ethnic minority

mothers in the United States and Canada. The objectives of the review were to summarize information, and further our knowledge on physical, structural, socio-economic, and social factors in the neighbourhood and community contexts. We searched for papers investigating connections between contextual factors and mental health, post-traumatic stress and mental disorders such as anxiety and depression.

Our research questions for Chapter 4 were as follows:

1. What physical, structural, socio-economic, and social aspects of the neighbourhood and community ecological contexts are found to be associated with mental health and disorder outcomes among immigrant, racialized and ethnic minority mothers?

2. Which of these factors act as risks and for mental health and protect against mental disorders among immigrant, racialized, and ethnic minority mothers?

We used PubMed, Scopus, PsychInfo, CINHAL, and Google scholar and screened the abstracts of 1564 articles published between 2000 to 2022 and selected 275 articles for full-text screening. We identified the following themes that were covered in the literature in relation to mental health and illness: i) infrastructure, ii) socio-economic, and iii) social factors including neighbourhood violence and stress, racial segregation, ethnic composition, social support, and community cohesion.

Neighbourhood-level risk and protective factors for mental health were identified in the studies we reviewed. Physical deterioration, inadequate infrastructure, and noise pollution were suggested to be associated with depression among African American mothers (Kotchick et al., 2005; Nowak et al., 2020). Conversely, neighbourhood features such as access to green space and higher walkability levels were identified as protective factors for mental health (Giurgescu et al., 2015; Tiako et al., 2021). Social aspects that were present in the literature as precursors for

poor mental health were neighbourhood social disorder and violence (Kotchick et al., 2005; Nowak et al., 2020). Higher ethnic concentration was found to inversely relate with stress (Mendez et al., 2013) and support from a community service organization was found to be beneficial for mental health (Aubé et al., 2019).

5.3 Overall Findings and Connection to Literature

In this section, we present the overall findings from all three studies and situate these findings in the broader literature.

5.3.1 Exposures Within Contexts

There were some differences in the types of households and neighbourhoods in which Canadian and immigrant born individuals lived. Based on the first two empirical studies we found immigrants and immigrant mothers to be exposed to some socioeconomic, family structure, and community factors that have previously been suggested to negatively affect well-being in the general population (Bentley et al., 2016; Dearing et al., 2004; Evans, 2003; Gifford, 2007; Solari & Mare, 2012; Thomson et al., 2022). At the household *microlevel* level, we found a higher percentage of immigrants compared to non-immigrants to be living in low income adequacy and rented dwellings and a higher percentage of immigrant mothers compared to Canadian-born mothers with low family income, living in an attached housing type, or rental housing. Immigrants were more likely to be exposed to some factors in the household that could be protective of mental health, such as having higher education levels and living in larger households. The percentages of immigrant mothers compared to Canadian-born mothers were also higher for having larger households and having a partner.

There were also some differences between immigrants and Canadian-born individuals in the exposures at the neighbourhood and community level. At the neighbourhood *exolevel*, immigrants were more likely to reside in areas with higher levels of ethno-cultural composition. Immigrants were also more likely to live in areas with the lowest situational vulnerability and have a very strong sense of belonging to the local community. Immigrants in our study were also less likely than Canadian-born individuals to reside in areas of high economic dependency.

5.3.2 Contextual Factors and Mental Health

Some household and distal neighbourhood and community level social and economic factors were related to mental health. There were also some differences in the association between immigrants and non-immigrants as well as immigrant and Canadian-born-immigrant mothers, discussed below.

5.3.2.1 Socioeconomic Disadvantage in the Micro- and Exo-level Contexts. Findings from the two empirical studies suggest that socioeconomic disadvantage was a key contributor to poor mental health and illness in the *microlevel* household context. An example of such a contributor was low-income adequacy in the household context for immigrants, as well as low family income in the household context for Canadian-born mothers. Findings from Volk's (2009) study included in our scoping review also confirmed the importance of low income as a contributor to poor mental health. Volk (2009) interviewed Yemini immigrant mothers, who according to the author were likely arriving from small and poor towns in Yemin and living in a poverty ridden neighbourhood in San Francisco with crowding in high-rise buildings and reported feelings of distress among this group.

Our findings are also in line with the longstanding and well-established literature on the effects on socioeconomic disadvantage resulting in poor health and illness (Dearing et al., 2004; Santiago et al., 2011; Sareen et al., 2011; Thomson et al., 2022). The lack of basic resources and necessities such as food, clothing and shelter could possibly explain the effect of low income on mental health. Family income is a key aspect of the affordability of shelter, living and basic necessities (DeLuca et al., 2019; Raphael, 2020). These resources and necessities ensure safety, sustenance and a foundation for psychological wellness (Raphael, 2020).

We did not find similar findings for the role of socioeconomic disadvantage at the neighbourhood *exolevel* context, however. The neighbourhood area level measure of *economic dependency*, that we used in Chapter 2, was not significantly associated with poor mental health, although there was some suggestion of a non-significant association for this factor with higher odds of poor mental health. Neighbourhood area-level economic dependency includes the proportion of people aged 15 and older that are not participating in the labour force, the number of people aged 65 and older and dependency on external sources of income such as receiving government transfers. These findings are contrary to the previous research on socioeconomic disadvantage (Ross, 2000). However, individual-level disadvantage related to age, ethnicity, race, income and employment also contributed to poor mental health in Ross's (2000) study.

Our findings on socioeconomic disadvantage at the area level aligned with a paper in our scoping review. In Cutrona et al.'s (2000) study, economic disadvantage was measured using a census-based index and it did not correlate with psychological distress among African American women identifying as caregivers for young children. Cutrona et al. (2000) explained that socioeconomic disadvantage might lead to poor mental health when it is combined with area level deterioration, dilapidation or crime. Specific to our study on immigrants, it might also be

that areas with more elderly people might signal multigenerational households and family sponsorships, factors that might signal social safety net and support (The Vanier Institute of Family, 2024).

5.3.2.2 Neighbourhood Infrastructure and Mental Health. At the neighbourhood *exolevel* context, high situational vulnerability (area level quality of housing combined with area level disadvantage due to reduced education levels) was associated with poor mental health. The proportion of dwellings needing major repairs was included in this measure and major repairs could reflect deteriorated conditions including broken water pipes, peeling paint, pests and rodents, mould and maintenance issues (Canada Mortgage and Housing Corporation, 2025; Kotchick et al., 2005). Exposure to poor conditions and reduced amenities can have an impact on physical health as well as increasing stress (Kotchick et al., 2005). The proportion of residents with lower education levels, which could imply overall economic precarity, limited employment opportunities (Papadakis et al., 2022) and reduced employment security could also lead to poor health (Virtanen et al., 2002).

5.3.2.3 Exo-level Social and Psychosocial Factors. We observed some notable findings related to social and psychosocial aspects of the neighbourhood and community level contexts and mental health. We found evidence of some psychosocial and social factors to be risks and others to be protective of mental health.

In the neighbourhood context, area level social marginalization represented by the ethnocultural composition dimension was related to poor self-rated mental health among immigrants. The CIMD ethnocultural composition dimension we used in Chapter 2 included the proportion of people identifying as visible minorities and also the proportion of recent foreign-born immigrants and those who could not speak an official language. This measure reflects the

propensity for isolation and marginalization, rather than ethnic homogeneity and density in the neighbourhood (Statistics Canada, 2019) and is similar to indices used in earlier research such as the *Index of Dissimilarity* which measures the unevenness in the distribution of racialized and non-racialized people in an area and the *Isolation Index* which measures the extent to which members of a minority group are only exposed to each other (Massey & Denton, 1988). Although not commonly used as a risk measure, one of the studies in our scoping review tested higher ethnic concentration as a segregation indicator (Mendez et al., 2013). This study however found that the concentration of Black people in neighbourhoods was inversely related to stress (Mendez et al., 2013). The findings from Mendez et al. (2013) are similar to other studies in the area of ethnic composition, which suggest that communities and neighbourhoods with higher ethnic density generally have protective effects for the mental health of immigrant and racialized people (Emerson et al., 2021).

Another psychosocial factor we studied was belongingness to one's local community and found it to have a significant relationship with mental health. A lower sense of belonging to one's local community relating to poor mental health could be explained by the following. One's local community and social network is the core context for informational and emotional support from friends, neighbours, service organizations, and a foundation for finding employment opportunities (Bourdieu, 1986; Unger & Wandersman, 1985). A weaker sense of belonging could also indicate a lack of support, social isolation, reduced integration and perceived lack of resources (Lindsay, 2010). In fact, Hou et al., 2016 have found that immigrants with weak sense of belongingness were more likely to have economic difficulties and less likely to be in a familial relationship. Furthermore, negative experiences such as being discriminated against could lead to acculturation strategies such as marginalization or separation and a lower sense of belongingness

(Hou et al., 2016). Our findings also echo other studies on lower sense of belonginess being associated with poor mental health among immigrants in Canada (Chireh et al., 2022; Salami et al., 2017).

Findings from our scoping review also highlight the community factors such as community cohesion, social support in the community and community programs are vital for mental well-being. These factors were found to be beneficial for the mental health of immigrant and racialized mothers. Community cohesiveness and social support point to the role of healthy communities with efficacy and the capacity to build its members (Cutrona et al., 2000; Saasa et al., 2021). Higher social support reflects satisfaction with emotional & informational support from main contacts including neighbours, and their willingness to offer help (Lewin et al., 2011). Additionally, access to community resources such as police protection, and childcare have been found to be associated with the use of active approaches (such as active life planning) and less reliance on avoidant tactics among racialized mothers who had experienced stressful life events related to racism and financial, and relationship issues (Habarth et al., 2009). Access to community resources, services, and programs provide buffering against poor mental health outcomes, particularly among mothers facing intersecting stressors such as discrimination, exposure to violence, and economic hardship. These findings align with literature on the positive role of social network, formal and informal social supports (Bourdieu, 1986; Unger & Wandersman, 1985).

5.3.2.4 Microlevel Parenting, Family & Household Factors. Larger households were protective of mental illness outcomes both immigrant and Canadian mothers, supporting the literature that larger families can be beneficial for health and well-being (You et al., 2018; You & Henneberg, 2022). More individuals, including extended family members in a household

might lead to more social interaction and family members might remind each other to seek healthcare especially for serious illnesses. Larger families might also mean more family ties and community support (Kim et al., 2016). We did not find a relationship between living in a multigenerational family structure and mental health. This finding points to the notion that mental health might be related to family size depending on the generational and relational composition of the household, and there may be variance in these associations by immigrant subgroups. For instance, some studies have found that among South Asian immigrant families, a mother-in law living at home might provide help with childcare, but could also be a cause of stress for mothers as there might be conflicts in parenting norms and values (Bhopal, 1998; Sonuga-Barke & Mistry, 2000).

Parenting related factors, such as the age and number of children, were not associated with mental health. This finding is in line with literature that being a parent could bring a sense of purpose (Nelson et al., 2014), but also does not discount previous literature on the cognitive load and the caregiving duties that accompany parenthood (Hewitt et al., 2022). Rather, these findings suggest that across age and the number of children, the relationship with mental health is similar. Potential differences in the relationship between family composition, parenting factors, gender roles and mental health outcomes might also exist, which could be explored further for immigrant men and women.

Although immigrant mothers were less likely to be widowed or divorced compared to Canadian-born mothers, they had significantly worse health than those who were married and the effect was greater compared to Canadian-born mothers. This pattern aligns with literature showing the protective benefits of having a spouse and being married (Horwitz et al., 1996;

Lillard & Waite, 1995). The benefits of being married and having a partner are suggested to be to be greater even in comparison to alternative larger household structures (Lillard & Waite, 1995).

Martial disruption can have significant impacts on health. It can contribute to health challenges due to of loss of social support, increased financial strain and increased stress (Trivedi et al., 2009; Umberson & Williams, 1999). While selection effects may partially account for these findings, as individuals with pre-existing conditions may be more likely to be divorced or to remain unmarried (Wade & Pevalin, 2004), marriage disruption can independently lead to worse mental health (Rotermann, 2007). Disruption to marital life can lead to distress, loss of companionship and economic hardship (Rotermann, 2007; Trivedi et al., 2009).

5.3.2.5 Micro- and Exo-level Dwelling factors. Among immigrants, dwelling tenure and type were not related to poor mental health. We did not find immigrants with ownership and living in detached housing to have better mental health than those who lived in rental and attached housing. Nevertheless, Canadian-born mothers in attached and rental housing had poor mental health and mood disorders, and the findings for Canadian-born mothers were more line with previous literature such as the benefit of advantages of home ownership for mental health (Manturuk, 2012). Among immigrant mothers, the lack of a relationship between these factors and mental health might be explained by migrants' anticipation of temporary residential arrangements and navigating housing challenges during the resettlement period, with potential plans to seek more permanent accommodations (Teixeira & Lopez, 2024; Thomas, 2001). Moreover, ownership itself may introduce stressors such as mortgage debt, maintenance burden, or pressure to maintain housing stability under financial strain (Cairney & Boyle, 2004) and such stress might be more probable in immigrant households with limited financial resources or unfamiliarity with housing systems. Among immigrants, both ownership and rental

accommodations are found to be related to affordability challenges, with renters generally facing more affordability pressures (Singh, 2021).

Similarly, residential instability at the neighbourhood *exolevel* was not related to mental health and as residential movement and turnover might be expected among immigrants, especially closer to the post-migration period.

5.4 Implications

A priority for improved mental health at the population level is to reduce or eliminate social and economic disparities in mental health (WHO, 2022). The studies in this dissertation identified social and economic factors that could contribute to such disparities, and ones that could help protect mental health. Reducing inequalities and investing in the mental health of immigrants and at-risk mothers including those who are immigrants, low-income, single and racialized would benefit the Canadian society overall and contribute to human capital through increased efficacy, functioning and contribution of individuals (Lee et al., 2007). In this section, we present implications of the findings from our study for the *exo-level* community and neighbourhood contexts as well as broader implications for the *macrolevel* context.

5.4.1 Community Level Programming Implications

Our findings that living in a larger family and having social support from the one's network have benefits for the mental health of immigrants underscore the significance of programming that focuses on interpersonal relations and social support. Such programs and resources for families and immigrant mothers could promote active coping strategies and positive mental health (Habarth et al., 2009). Living in larger families might mean relying on kin

and community support, and programs that support larger family systems, such as the provision and availability of information related to Canadian systems for individuals in various family roles, might be beneficial for mental health. This includes information about financial responsibilities, managing finances, caregiving, household duties and social responsibilities. (Aubé et al., 2019; Daou, 2022).

Community-based educational and social programs in the neighbourhood setting could protect mental health. Such programs can enhance resilience by building trust among residents, strengthening informal support networks, and reduce social isolation. For example, both Kotchick et al., 2005 and Lewin et al. (2011) in our scoping review suggest that family- and neighbour-based social support can mitigate the effects of environmental stressors like unsanitary conditions or exposure to violence on maternal depression. Similarly, studies by Habarth et al. (2009) and Aubé et al. (2019) show that community-based services tailored to families, such as childcare, healthcare, and legal navigation can foster action-oriented coping, empowerment, and psychosocial resilience. Daou (2022) likewise endorses community-based interventions that prioritize safe spaces for self-expression, community building, and advocacy for mothers, and acknowledges the structural and interpersonal sources of stress and support for mental health. Such approaches could be expanded to include other family members such as grandparents and fathers as well.

5.4.2 Neighbourhood Level Implications

Our findings on neighbourhood level factors highlight the importance of housing quality, neighbourhood infrastructure, and safety. High situational vulnerability or lower housing quality and education levels based on the Canadian Index of Multiple Deprivation (CIMD) measure was

associated with poor mental health. Findings from our scoping review also show that neighbourhood disorder and violence in urban areas (e.g. unsafe streets, high rates of homicides, vandalism, drug use, gang activity) undermine well-being and are associated with anxiety and depression among immigrant, racialized, and ethnic minority mothers.

Addressing neighbourhood level housing quality could include upholding municipal by-laws that promote liveable and functional conditions, especially in urban areas (Hirsch & Margolis, 1977). This could include effective systems that encourage the management of structural aspects of properties, especially in high-rise rental apartment buildings in low-income areas. Suitable housing conditions require routine maintenance of amenities (electrical, heat, water) and attention to deteriorating building structure. For rental housing, landlords are legally responsible for pest control, repairs, and maintaining health standards under provincial housing law (e.g. Government of Ontario, 2006). However, for instance, enforcement of housing standards when conditions are deteriorating and properties are neglected is often complaint-driven, placing the responsibility on tenants (Smith, 2025). Proactive municipal inspections or property management reports could reduce the burden on tenants. An example of such a project is *Projet Montréal*, in which proactive inspections target dwellings and buildings with a high degree of vulnerability (Projet Montréal, 2023). In addition, to avoid rental increase as a result of tenant protections related to repair and maintenance, government subsidies could also support large-scale structural upgrades especially in low-income housing where landlords might have limited profit margins (Hirsch & Margolis, 1977). Social housing could also offset low quality housing by encouraging housing suppliers to maintain quality (Suttor, 2015).

Neighbourhood level interventions that mitigate the effects of neighbourhood disorder include educational skills development, infrastructure management and promotion of green

space. This could include interventions that go beyond policing and structured programs for youth including art and sport activities and skills and educational training (Ceballo et al., 2021; Development Services Group, 2010). Such interventions target the root causes of social disorder and could promote life skills, awareness, empathy and conflict resolution (Development Services Group, 2010; Harden et al., 2015). In addition, based on the results of the scoping review, the presence of green space and walkable environments were found to be beneficial for mental health (Tiako et al., 2019; Giurgescu et al., 2015). Urban planning and design that incorporates green spaces is therefore also an essential consideration. These interventions could have sustainable effects by being integrated across neighbourhoods with disorder and situational vulnerability (Schroeder et al., 2021).

5.4.3 Macro-Level Implications

Findings from our studies have macro-level implications for strategies and policies that are responsive to the needs of immigrant sub-groups. Macrolevel policies and strategies encompass those that affect broad structural conditions and services which in turn shape social and mental well-being. These include initiatives that promote social and economic integration among immigrants, offer targeted support for low-income and single mothers, and ensure accessible healthcare for immigrants and immigrant mothers.

Macro-level strategies for immigrant resettlement and integration could help mitigate the effects of marginalization. Ethnocultural isolation and a low sense of belonginess at the community level, both of which were found to be negatively associated with the mental health of immigrants, could be indicative of marginalization. Policies and initiatives that help with job security and integration in areas where ethnic density and sense of belongingness might be lower

might be beneficial for the mental health of immigrants. Strategies that help with economic integration include continued efforts through federal programs such as official language training, credential recognition and translation of skills, targeted employment, and funding for settlement programs (Brosseau, 2020). Research indicates that immigrants integrate better into the labour market when their migration is in response to employment opportunities and this might provide them a better chance at integration, particularly when moving to smaller urban centres, compared to living in densely concentrated neighbourhoods where resources might be limited (Crea-Arsenio et al., 2022; Derwing & Krahn, 2008). In addition to economic integration, social policies that foster community building, civic engagement, volunteering and participation among immigrants may be just as useful as economic integration for the mental wellness of immigrants (Brydsten et al., 2019).

Policies that address income insecurity at the household level could be useful in protecting the mental health of low-income Canadian-born and single immigrant mothers, as we found that low income was related to poor mental health among these sub-groups (Baker et al., 2021; Schmidt et al., 2023). Income and food-related benefits have previously been found to protect and support disadvantaged single mothers and reduce psychological distress (Baker et al., 2021; Schmidt et al., 2023). Examples of such government income support programs include the Canada Workers Benefit, a refundable tax credit for low- to modest-income workers that reduces taxes owed and Ontario Works programs for low-income and unemployed individuals (Canada Revenue Agency, 2025; Ministry of Children, Community and Social Services, 2025). Our findings indicate the need for the continued delivery of these programs and ones that could be tailored toward single mothers. However, income support programs are not sufficient alone. Cooke (2009) found that prolonged use of social assistance reduces the likelihood of lone

mothers quitting receipt. Programs that promote self-actualization and labour market participation are also needed. This includes employment supports such as workshops and job counselling offered by Ontario Works (Ministry of Children, Community and Social Services, 2025). Affordable childcare, particularly for low-income and single mothers could also help sustain workforce participation (Gu, 2022). The presence of childcare arrangements is essential, as both the demand and the number of parents on waitlists is increasing (Statistics Canada, 2023). Recent initiatives driven by the Canada-Wide Early Learning and Child Care framework have increased publicly funded childcare spaces across provinces, and the $10 a day for childcare could allow for low-income and single mothers to take part in the workforce (Government of Canada, 2025; Employment and Social Development Canada, 2025).

Household related factors such as tenure and dwelling type were significant in determining Canadian-born mothers' mental health. Our findings suggest that Canadian-born mothers living in rental or attached housing, such as apartments or semi-detached units report poorer mental health than those in owned or detached dwellings, possibly due to greater financial strain and limited control over their living conditions. Policies that target affordable housing supports and expand access to stable, quality housing for low-income mothers and families can reduce rent burden and potentially improve mental health outcomes (Berger et al., 2008). Federal and provincial programs that enhance the quality and maintenance of rental and attached housing and improve access to essential neighbourhood amenities might mitigate the effects of living in these settings (e.g. Projet Montreal, 2023). In particular, financial and subsidised housing support could also promote positive mental health (Dweik & Woodhall-Melnik, 2023), and this might also be applicable to Canadian-born mothers.

The findings that immigrants have larger families and live in neighbourhoods with higher levels of ethnocultural and new-comer populations underscores the need for policies that ensure accessible and culturally responsive social and healthcare programs. Such policies could support diverse family systems and those living in high density immigrant areas. Although our study used the CIMD-based neighbourhood ethnocultural composition dimension, higher ethnocultural concentration along with a high proportion of newcomers who cannot speak an official language reflect social and structural barriers linked to language, service accessibility, and integration opportunities. Providing informational resources that help immigrants navigate provincial or federal systems, including healthcare, in areas with high new-comer populations and low levels of official language proficiency could be beneficial for mental health. A study by Ratnayake et al. (2022) reports that non-medical service organizations offering educational programming and connecting immigrants to health services can support immigrant wellbeing.

Beyond informational support, accessible and responsive healthcare that adapts to and recognizes differences in culture, family structure and settlement contexts is also necessary. Evidence from Europe suggests that policies that ensure the availability of public healthcare that is accessible and responsive to the needs of immigrants can promote better health (Dourgnon et al., 2023). Culturally adapted clinical interventions have been shown to improve mental health outcomes among racialized populations (Naeem et al., 2024), while cultural awareness and equity training for providers can reduce systemic discrimination and implicit bias (Kirmayer & Jarvis, 2019) and could enhance the quality of care for immigrants and immigrant mothers. Such measures are particularly relevant to communities with concentrated immigrant and ethnocultural populations, where gaps in access and responsiveness gaps might exist.

Our finding that a low sense of belonging to community negatively impacts mental health suggests that policies that support multilingual and low-barrier access to mental health support services, including through Community Health Care Centres (CHCs) and agencies could be useful (Ontario Ministry of Health, 2025). An example of an agency providing culturally responsive mental health support is Access Alliance Multicultural Health and Community Services in Toronto. Access Alliance provides integrated mental health care, interpretation services and community outreach, offering trauma-informed and anti-oppressive care models for newcomers and racialized populations (Access Alliance, 2025). The Hong Fook Mental Health Association, also in the Greater Toronto Area, is another example of an ethno-cultural mental health agency, offering services in Southeast Asian languages and focuses on holistic, culturally informed care (Hong Fook Mental Health Association, 2025). Previous research shows that community centres providing "holistic care", including information related to legal and housing systems, and the services of social workers and healthcare providers could promote resilience and knowledge among immigrants (Aubé et al., 2019).

The findings from this dissertation on the risk and protective factors for the mental health of immigrants and mothers in Canada can also be used to inform the frameworks that guide mental health policies and strategies. Canada does not have a single national mental health policy. Instead, mental health governance occurs through a patchwork of federal legislation and provincial or territorial mental health acts (Government of Canada, 2017; Government of Ontario, 2025). In Ontario, mental health service planning and delivery is currently guided by the *Roadmap to Wellness* plan, which addresses long wait times, poor fragmentation and limited understanding of the availability and location of services among people. This plan also highlights the needs of vulnerable sub-populations including youth, however, it does not have any

information tailored toward mothers, immigrants or trauma-informed and gender responsive care (Government of Ontario, 2024). Risk and protective factors that may differ for immigrants and mothers—particularly regarding family structure, dwelling characteristics, and ethnic isolation—need to be addressed in provincial and federal frameworks. Lastly, health and social services fall under provincial jurisdiction but are guided by federal frameworks, therefore effective coordination between levels of government remains critical.

5.5 Overall Limitations, Strengths, and Directions for Future Research

This dissertation has several strengths. First, the two empirical chapters in this dissertation drew on Statistics Canada's survey data and had large sample sizes; Chapter 2 used the CCHS 2015/16, which had 83,700 observations and Chapter 3 used the GSS survey, comprising of 6,570 observations. The Canadian Community Health Survey and the General Social Survey are nationally representative data and allowed for studying immigrant mental health in Canada, along with comparisons across population sub-groups such as immigrants and non-immigrants and immigrant mothers and Canadian-born mothers. These comparisons helped us understand the population needs by sub-groups and focus on mothers, a group often underrepresented in population-based mental health research. Second, the dissertation explored the role of contexts and identified key contextual determinants of mental health across two contexts, i.e. households as well as neighbourhoods that individuals have consistently interact with and can influence mental health. Lastly, by making immigration, motherhood, and mental health the central focus, this dissertation offers important insights into how social location shapes experiences related to mental health and aspects of contexts that could contribute to disadvantage and ones that could encourage resilience.

Based on our studies, there are some suggestions for future research, particularly related to measurement and methods. Future studies could consider alternative approaches in capturing mental health outcomes. In our empirical studies, dichotomization of outcome variables was necessary to ensure interpretation and analytic clarity and maintain an adequate sample size by contextual factors in each subgroup. Future studies could model mental health outcomes in ordinal form to better capture subtle gradients between contextual factors and mental health outcomes. Studies on immigrant mental health could also benefit from using validated, culturally sensitive psychometric tools that might reduce variability in responses. As self-rated mental health can be shaped by cultural norms and expectations, qualitative interview methods could provide insight into subjective experiences of mental health and allow for exploring the experiences of racialized sub-groups. To overcome the issue of potential response bias and social desirability, administrative or clinical data, particularly in culturally diverse samples, could also be used to study rates and risk for mental health conditions, including anxiety and mood disorders.

Both of the empirical studies were cross-sectional, which means we could not infer causal associations between contextual factors and mental health outcomes. We considered the possibility that the direction of association between income, family size and mental health might be reversed. For instance, while studies on socioeconomic factors and mental health support the social causation hypothesis, according to which adverse conditions contribute to mental distress (Wheaton, 1978), there is also support for social selection effects (Turner & Wagenfeld, 1967), whereby existing mental health disorders may lead to downward socioeconomic mobility (Johnson et al., 1999). However, social selection might be likely for those with mental illnesses that have a greater genetic component, including schizophrenia, compared to disorders such as

depression as well as self-rated mental health (Turner & Wagenfeld, 1967 Johnson et al., 1999). Our results, therefore, appear to be more in line with the notion that living in adverse economic conditions in the immediate household context could lead to poor mental health. We found a larger family size to be associated with lower odds of poor mental health, and we considered the possibility that better mental health could lead to a larger family size; however, larger families have not always been associated with positive mental health. For example, in a Finnish study, it was found that adolescents from larger families were more likely to have higher risk for being hospitalized for schizophrenia (Eskelinen, 2024).

In Chapter 3, the mental health of fathers in relation to household factors was not examined, which can be an area for future inquiry in the study of family structure and mental health. Expanding the sample to include racialized fathers along with mothers, as well as exploring gendered patterns of care, support, and mental health within immigrant families, would deepen our understanding of intersecting identities and roles.

There are some analytic design suggestions for future studies. First, the use of multilevel models can simultaneously examine household-level influences (differences among households within neighbourhoods) and neighbourhood-level influences (differences between neighbourhoods). While our study could not incorporate multilevel modelling, the use of the CIMD accounted for some compositional effects, as its neighbourhood dimensions were based on aggregate measures at the household level. For example, the situational vulnerability dimension included the proportion of people living in dwellings with need for repairs. Nevertheless, future work could use pooled CCHS data across multiple years for an even larger sample size and the latest CIMD to account for variation across households within neighbourhoods.

Second, while structural equation modelling was not used in this dissertation due to data limitations, future research could examine whether socioeconomic status affects household factors (e.g. household size, housing conditions) that in turn shape mental health outcomes. This would be similar to previous research on the mediating effect of the built environment on socioeconomic status and mental health (Xiaohua & Fuqin, 2023). If data with good indicators of housing conditions become available in the future, latent factor analysis could also be used to create constructs for similar household variables (e.g. family size, housing conditions) to examine complex pathways between contextual factors and the mental health of immigrant mothers.

Longitudinal analyses could also provide insight into potential processes and changes in household (family structure) and neighbourhood (for example, change in neighbourhood socioeconomic status) and their relationship with the mental health status of immigrants and immigrant mothers. Immigrant families may experience changes over time and relocate across household and neighbourhood contexts, which cannot be captured in cross-sectional data. Longitudinal datasets that capture family events (births, divorce, and separation) as well as the effect of housing conditions and neighbourhood dynamics on mental health across the life course can be useful. Incorporating longitudinal income measures might be especially helpful in identifying the effects of downward mobility and sustained material strain on well-being. With shifts in immigration policy, labour market conditions, and housing affordability in recent years, more recent or future data collections would provide timely insight into current challenges and opportunities for intervention.

5.6 Conclusions

This dissertation underscores the importance of contextual factors in the household, neighbourhood, and community contexts and the mental health of immigrants and immigrant mothers in Canada. It also highlights the role of strategies across multiple levels that could promote mental health equity in the Canadian population. Such strategies include community-level integration initiatives and macro-level strategies for the availability of affordable childcare and housing. By continuing to examine the social risk and protective factors for mental health, future research can help ensure that policy and practice are informed by the lived realities of diverse immigrant populations in Canada. The use of intersectional frameworks and longitudinal methods with greater subgroup inclusion could provide further insights into the layered effects of contexts, social position, and time.

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