A Scoping Review of Associations Between Ethno-Cultural Context and Mental Health in Canada

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ABSTRACT

It is unclear how ethno-cultural concentration of residential areas relates to the mental health of immigrant, refugee, ethno-cultural, and racialized (IRER) groups. Communities of higher ethno-cultural density are theorized to support IRER groups' mental health via community supports, access to culturally/linguistically appropriate healthcare, and lower discrimination/stigma. This article reviewed quantitative studies that examined relationships between communities' ethno-cultural density and mental health among IRER groups in Canada. Eleven of the sixteen reviewed studies (almost 70%) observed protective associations between ethno-cultural density and mental health; patterns were more mixed for studies with child populations, suggesting associations may differ based on developmental phases. Findings suggested there was more support in protective associations of higher areal ethno-cultural density with regard to community mental health of IRER groups in Canada.

Keywords: ethnic density; mental health; immigration; neighbourhoods; review

RÉSUMÉ

On ne sait pas comment la concentration ethnoculturelle des zones résidentielles est liée à la santé mentale des groupes d'immigrants, de réfugiés, ethnoculturels et racialisés (IRER). Les communautés de densité ethnoculturelle plus élevée sont théorisées pour soutenir la santé mentale des groupes IRER par le biais de soutiens communautaires, l'accès à des soins de santé culturellement / linguistiquement appropriés et une réduction de la discrimination / stigmatisation. Cet article a passé en revue des études quantitatives qui ont examiné les relations entre la densité ethnoculturelle des communautés et la santé mentale des groupes IRER au Canada. Onze des seize études examinées (près de 70%) ont observé des associations protectrices entre la densité ethnoculturelle et la santé mentale; les modèles étaient plus mélangés pour les études avec des populations d'enfants, ce qui suggère que les associations peuvent différer en fonction des

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phases de développement. Les résultats suggèrent des associations protectrices de densité ethnoculturelle plus élevée en ce qui concerne la santé mentale communautaire des groupes IRER au Canada.

Mots clés : densité ethnique; santé mentale ; immigration ; quartiers ; résumé

BACKGROUND

Due to international migration, Canada's population is becoming increasingly ethno-culturally diverse. In 2016, 22% of Canada's residents (7.6 million individuals) reported being a member of a racialized group—a proportion that is expected to grow to approximately one third by 2031 (Statistics Canada, 2017). Historically, Western Europe has been a major source for Canadian immigrants, but recently Asia has recently become the largest source region. Persons of South Asian (e.g., Indian and Pakistani) and Chinese descent together now represent approximately two-thirds of Canada's racialized population, while persons of Caribbean and/or African descent comprise the next largest group (Statistics Canada, 2017). Furthermore, it is estimated that by 2031 half of Canada's population may have an immigrant background (be foreign-born or have a foreign-born parent; Statistics Canada, 2017). Spatial distribution of diverse populations across Canada varies considerably (Figure 1).

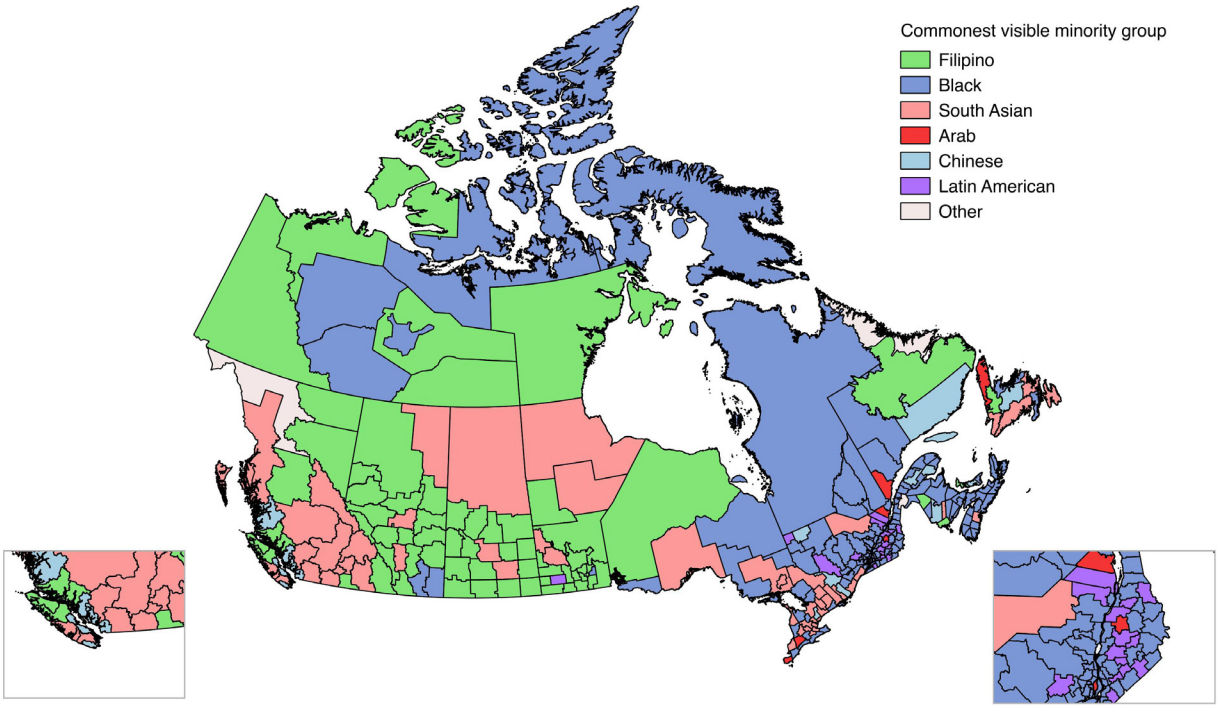
Despite the demographic significance of this population, there is a knowledge gap regarding the health of Canada's immigrant, refugee, ethno-cultural, and/or racialized (IRER) populations. Multiple terms have been used in Canada to denote racialized individuals; however, aligned with recent discourse (City of Ottawa, 2016; Mental Health Commission of Canada, 2016), we choose to use the terms racialized IRER populations to refer to persons belonging to immigrant, refugee, ethno-cultural, and/or racialized populations. Epidemiological research has often failed to distinguish outcomes between Canadian-born and foreign-born racialized groups (Khan et al., 2017). Linguistic and cultural barriers to healthcare, stigma, and racism significantly undermine the health of IRER populations, while variation in the health of IRER populations exists (Khan et al., 2017; Veenstra, 2009). Understanding contextual factors and socio-cultural processes that may help support the health among Canada's IRER populations is therefore important.

Mental Health in Canada

Mental health conditions are a major public health issue in Canada, estimated to affect one in three people in their lifetime (Pearson et al., 2013). The literature on mental health among Canada's IRER population is growing, but more is needed to describe the psychiatric epidemiology of these diverse ethno-cultural groups (Clarke et al., 2008; Khan et al., 2017). Research on the social determinants of, and barriers to, access among Canada's IRER populations has the potential to foster health equity and diversity in mental health services (Wilson, 2017). The few extant studies suggest rates of depression and other mental health disorders may be lower among (some) IRER groups than among Canadian-born white individuals (Pahwa et al., 2012; Stafford et al., 2011). Canada's IRER populations tend to under-utilize healthcare generally and mental health care in particular, but usage varies by ethno-cultural background (Chiu et al., 2018). Additionally,

Figure 1

Choropleth Map Illustrating the Most Common Racialized Group in Canada's Health Regions (as per 2016 Canadian Census Data and Categorizations)



Note. Colours indicate the racialized group with the highest proportion in each region (in many regions, there were several highly represented racialized groups). South Asian includes persons of Indian, Bangladeshi, and Pakistani background. Black denotes persons of African and/or Caribbean background.

migration stress for immigrants can detrimentally affect mental health. Moreover, marked regional variation in the mental health of IRER populations exists across Canada (Emerson et al., 2018; Reitmanova & Gustafson, 2009; Wang & Hu, 2013), alluding to contextual influences. Immigrants and refugees escaping war and political violence may experience additional mental health conditions from the psychological impacts of trauma, requiring additional culturally competent care during resettlement (Kanagaratnam et al., 2017). Taken together, Canada's large IRER population, the public health significance of mental health, and patterns of environmental influences on mental health jointly underscore a need to examine how contextual features impact the mental health of IRER groups.

Conceptual Framework

Social scientists have long theorized that a fit between an individual and their social environment supports one's mental health (Wechsler & Pugh, 1967); such theories have been built upon more recently (Pickett & Wilkinson, 2008). For IRER groups, similarity and identification with one's social environment (e.g., shared language use, cultural practices/values, services) may support well-being. Other theories suggest that areas of higher ethno-cultural density may engender racialized communities to experience less racism and ethnic discrimination, experiences that deteriorate mental health (Bécares et al., 2009; Bennett et al., 2020). In England, IRER residents in areas with higher ethno-cultural density tend to report less racism, suggesting ethnic discrimination may mediate ethno-cultural density associations with health (Das-Munshi et al., 2010; Shaw et al., 2012). Other health-relevant features, such as own-language physicians, may mitigate barriers to medical comprehension (Wilson et al., 2005); presence of own-language physicians in neighbourhoods is positively associated with Canadian immigrants' healthcare access (Deri, 2005; Leduc & Proulx, 2004). IRER populations' mental health is likely influenced by various interacting psychosocial pathways associated with ethno-cultural background and density.

In contrast with hypothesized psychosocial benefits of ethno-cultural density, some posit that such environmental characteristics may undermine mental health through effects such as segregation from mainstream society, concentrated socio-economic disadvantage, sense of isolation from the broader mainstream society (Chau & Lai, 2011; Kramer & Hogue, 2009), and/or so-called ghetto effects. IRER residents are over-represented in poorer areas in the US, yet this pattern is more varied in Canada (Hou, 2006). Residential segregation of racialized groups is a context-specific occurrence that is not uniform across or within countries. The enforced segregation of African-Americans through the Jim Crow laws in the United States until the mid-1960s is a case in point (Williams & Collins, 2001). Qadeer (Qadeer & Kumar, 2007) presents Toronto, a highly multicultural metropolitan region in Canada, as an example that illustrates that residential segregation or spatial distribution of certain cultural groups is not necessarily solely a result of enforced inequities, but may also be driven by residents' preferences. A growing proportion of immigrants in recent decades have settled in suburban areas of metropolitan regions (Walks & Maaranen, 2008), while there is little Canadian-based evidence of migrant-formed ghetto neighbourhoods (i.e., an almost exclusive concentration of one racialized group; Walks & Bourne, 2006).

An important conceptual distinction concerns own-group versus overall ethno-cultural density. Own-group density refers to the proportion of same ethno-cultural background residents (e.g., how high Chinese resident density impacts Chinese residents' health). Conversely, overall density refers to the proportion of

residents of any ethno-cultural group (e.g., how high immigrant density impacts immigrant residents' health). Own-group ethno-cultural density would appear to conceptually be most aligned with several hypothesized mechanisms and presumably represents the best/closest person-environment fit. For instance, sharing a language/dialect and cultural/social norms with neighbours could aid the initiation and maintenance of meaningful social connections. Areas of high ethno-cultural density may still confer benefits for IRER mental health, through many of the processes outlined previously. Diverse neighbourhoods may have greater resources to support the transition and activities of newcomers from a range of backgrounds while such environments may also reduce the sense of social stigma through the presence of fellow IRER residents—regardless of their specific backgrounds. Similarly, newcomers may attain greater psychosocial benefits from residing in neighbourhoods with residents who also migrated, irrespective of whether neighbours migrated from *their* specific region.

Studies Relating Ethno-Cultural Density to Mental Health

Despite limited evidence for key mechanisms relating place to IRER mental health, a burgeoning literature has tested associations of socio-cultural environments with IRER mental health (Bécares et al., 2018; Lara-Cinisomo et al., 2013; Pickett & Wilkinson, 2008). In likely the earliest epidemiological study relating residential ethno-cultural context to mental health, incidence of hospital admission for schizophrenia in Chicago was lower among African Americans residing in areas of higher African American density than among those residing in areas with low African American density (Faris & Dunham, 1939).

To synthesize patterns across the numerous studies relating ethno-cultural density to mental health, to date two major literature reviews have been performed. Shaw et al. qualitatively reviewed analyses of ethno-cultural density and mental disorders among adults, observing some evidence of protective associations (i.e., 39 of 113 analyses found evidence of protective associations, 71 found no association, and 4 found adverse associations)[1] (Shaw et al., 2012). Bécares et al. reviewed associations of ethno-cultural density with adults' mental health—and meta-analyzed a subset of 12 articles (Bécares et al., 2018). They observed some evidence of protective associations between higher ethno-cultural density and IRER populations' mental health (i.e., approximately half of the 41 studies found protective associations). This pattern was clearer for psychoses and suicidality, with a mixed pattern for common mental disorders.

These reviews of ethno-cultural density and mental health reveal that several research gaps remain. Chiefly, despite growth in literature considering neighbourhood influences on children's outcomes (Minh et al., 2017) and ethno-cultural density in relation to youths' mental health (Abada et al., 2007; Georgiades et al., 2013), the aforementioned reviews did not include studies specifically on children (Shaw et al.'s review included adolescent studies, but not younger age groups). Assessment of pediatric psychiatric outcomes can be challenging due to the potential instability of such developmental phases, over-diagnosis (especially for externalizing conditions like ADHD; Merten et al., 2017), and difficulty in conducting direct interviews with young children (where caregiver-reports are needed). Notwithstanding such measurement challenges, reviewing evidence relating ethno-cultural density to *children's* mental health is important for at least two

1. Shaw and colleagues summarized findings from all independent analyses in each study—those stratified by gender or other dimensions; hence there were many more analyses presented than articles reviewed ($n = 34$).

reasons. First, early life experiences "get under the skin," leaving enduring biological and socio-cognitive impacts across the life course (Hertzman & Boyce, 2010). Second, many mental health disorders have their onset—or display emergent symptoms—in childhood (Kessler et al., 2005; Merikangas et al., 2010). Understanding how ethno-cultural environments/contexts may impact youth mental health may help inform efforts to modify trajectories of later mental health outcomes.

Ethno-Cultural Density in Canada

An additional motivation for the present review is a need for a focus on Canadian-based ethno-cultural density research. As illustrated by the most comprehensive and recent ethno-cultural density literature review to date, most studies have been US-based (Bécares et al., 2018). US-based patterns of associations are likely heavily shaping current interpretations and conceptualizations in this literature. In other words, if associations between ethno-cultural density and mental health follow different patterns in other nations/contexts, it would have important implications for the theoretical literature.

Examination of associations between ethno-cultural density in Canada and the mental health of IRER residents may have begun in the 1960s when Malzberg first observed lower rates of psychiatric admissions among French-speaking residents in Canada who resided in areas where they formed the majority (Malzberg, 1964). Until recently, very few ethno-cultural studies have been conducted in Canada (e.g., Shaw et al.'s review in 2011 yielded one Canadian study). Yet, a cursory database search indicates the Canadian-based ethno-cultural density literature has expanded substantially since 2011. Such an increase is likely due to several intersecting factors, including a growing recognition of immigration and ethnicity as determinants of health, increased availability of population-based datasets and linkages to areal data, and a revival of neighbourhood/contextual effects research (Georgiades et al., 2013; Minh et al., 2017).

The present study is a scoping review to identify, synthesize, and evaluate studies that quantitatively examined associations between areal ethno-cultural density and mental health outcomes among Canada's IRER residents. Drawing from prior reviews, we hypothesized that there would be a general pattern of protective associations between areal ethno-cultural density in Canada and IRER residents' mental health.

METHOD

To identify eligible studies, the following criteria were used:

(a) study included an indicator of perceived or objective ethno-cultural density of a specified Canadian geography no larger than a province (e.g., percentage of Chinese immigrants in a neighbourhood area; low/medium/high ethno-cultural density in local region);

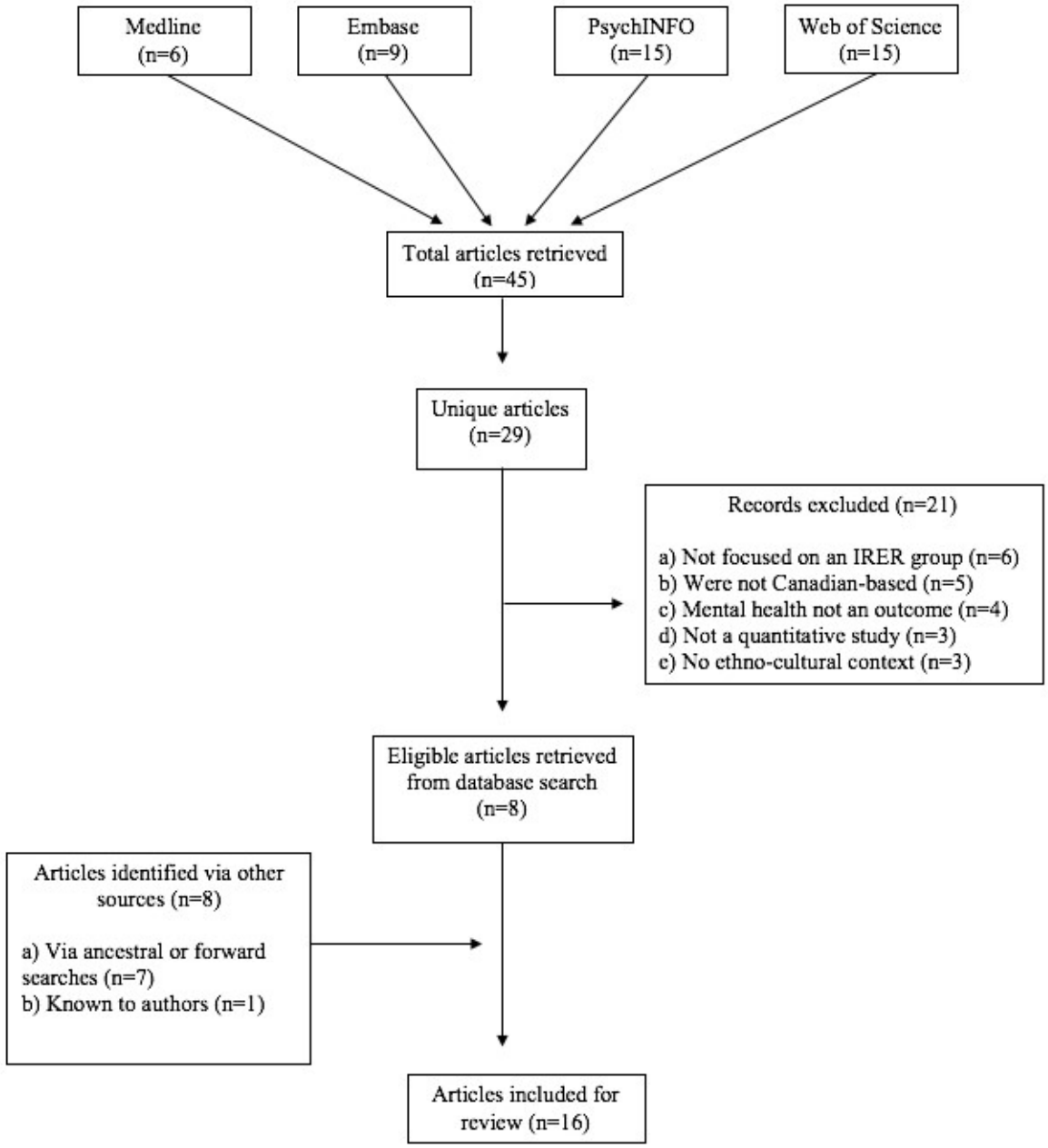
(b) study included quantitative information for the mental health (e.g., depression score, mental disorder diagnosis) of IRER individuals who resided within areas specified in criterion (a) above;

(c) study quantitatively examined relations between areal ethno-cultural density and mental health outcome for IRER individuals (e.g., via logistic or linear regression).

Four medical and social science databases (Medline, Embase, PsycINFO, and Web of Science) were searched in November 2020. The terms "Canada," "ethnic density" (with the alternates "ethnic concentration,"

Figure 2

Literature Search Process for Articles that Examined Associations of Ethno-Cultural Density and Mental Health among Racialized Individuals in Canada (as of November 2020)



"migrant density," "migrant concentration," "immigrant density," and "immigrant concentration"), and "mental health" (with the alternates "mental illness," "mental disease," "mental disorder," "psychiatric disorder," "psychotic disorder," "psychosis," "wellbeing," and "well-being") were combined. The search was restricted to studies published in English; no age restrictions were placed on study participants. Studies in peer-reviewed journals or books, as well as graduate (master's or doctoral) dissertations were considered for review.

RESULTS

Following the database search, 29 unique records were retrieved (see Figure 2). Results were screened for eligibility by the first author, initially by screening titles and abstracts, followed by full-text review (if required). Doubts about articles eligible for inclusion were discussed among authors and consensus was reached. One eligible study not identified via the database search, but otherwise known to the authors, was included (Puchala et al., 2010). As a final step, we conducted an ancestral search of the eligible articles' reference lists, followed by a forward search via Google Scholar of articles citing those retrieved eligible articles.

Overall, 16 studies were eligible for review (see Appendix). Table 1 summarizes studies regarding demographics, mental health outcomes, the measurement of ethno-cultural density, and key findings. Eight studies considered specific ethno-cultural subgroups (e.g., Chinese adults, rather than overall immigrant population). Ethno-cultural context was measured at levels ranging from neighbourhoods to provinces and included own-group and overall ethno-cultural residential context. Several groups in the reviewed studies may not ostensibly appear to be IRER populations in Canada, such as francophone residents (de Rocquigny, 2014). In the context of such studies, however, such groups were ethno-cultural and/or linguistically diverse groups in the regions in which they resided and hence fit within eligibility criteria.

Overall Pattern of Associations

Overall, the reviewed findings provided evidence suggesting protective associations between higher area-level ethno-cultural concentration and mental health among IRER populations in 11 of the 16 studies (Figure 3). Two studies yielded no evidence of associations between ethno-cultural density and mental health, one study observed mixed associations, and two studies found evidence of adverse associations. Notably, of these five studies yielding non-protective associations, all featured age groups that were either mostly older adults or mostly children/youth (i.e., mostly outside working-age population). Chau & Lai (2011) focused on older adults (aged > 54, M_{age} = 70), Abada et al. (2007) focused on adolescents, Beiser et al. (2010) and Bassani and George (2012) focused on middle-years immigrant children, and Milbrath and Guhn (2019) focused on kindergarten-aged children of diverse language backgrounds. Additionally, of the eight studies that assessed associations of own-group ethno-cultural density on mental health (Beiser et al., 2010; Chau & Lai, 2011; de Rocquigny, 2014; Jurcik et al., 2013, 2015, 2019; Malzberg, 1964; Milbrath & Guhn, 2019) five observed protective associations. Of the seven studies that tested associations of overall ethno-cultural density with mental health, (Abada et al., 2007; Emerson et al., 2018; Georgiades et al., 2007; Menezes et al., 2011; Pan & Carpiano, 2013; Puchala et al., 2010; Stafford et al., 2011), six observed evidence of protective associations. Bassani and George tested both own-group and overall ethno-cultural density (Bassani

Table 1

Summary of Canadian Studies (*n* = 16) Relating Ethnic Density to Mental Health Outcomes

First Author (year)	Sample	Ethno-Cultural Density Measure	Mental Health Outcome	Key Ethnic Density Findings
Adult populations (n = 9)				
Jurcik (2019)	Migrant adults with personal trauma histories from developing or transitional countries residing in Montreal (*n* = 99)	Categories of perceived same-ethnicity density in local area	General psychological distress (GHQ-12); depression (CES-D); post-traumatic stress (SPRINT); life satisfaction (SWLS)	Lower general psychological distress symptoms were associated with higher perceived ethnic density; no association was observed for post-traumatic symptoms
Emerson (2018)	Ethnic minority respondents to the Canadian Community Health Survey (CCHS) across Canada aged > 15 (*n* = 33,201)	10% increases in ethnic minority density within health region; stratified by foreign-born status	Self-reported receipt of a diagnosis of an anxiety and/or mood disorder	Lower odds of anxiety and/or mood disorders were associated with higher ethnic density for Canadian-born minorities
Jurcik (2015)	Russian-speaking adult immigrants in Montreal (*n* = 269)	Categories of perceived same-ethnicity density in local area; % Russian linguistic density in neighbourhood	Distress (GHQ-12); Depression (CES-D)	Distress scores were lower among those in the high ethnic density group
Jurcik (2013)	Immigrant university students in Montreal of diverse backgrounds (n = 146)	Categories of perceived same-ethnicity density in local area	Depression (CES-D)	Depression scores were lower among those in the high ethnic density group
Pan (2013)	Racial minority and White immigrant CCHS respondents in BC, AB, ON, aged > 15 (*n* = 12,951)	10% increases in immigrant density per health region; regions stratified rural/urban	Self-reported suicide ideation (single item)	Lower odds of suicide ideation were related to higher immigrant density for racial minority immigrants in rural regions, but not for white immigrants

Table 1, continued

Summary of Canadian Studies (*n* = 16) Relating Ethnic Density to Mental Health Outcomes

First Author (year)	Sample	Ethno-Cultural Density Measure	Mental Health Outcome	Key Ethnic Density Findings
Menezes (2011)	First generation immigrant CCHS respondents across Canada aged > 15 (*n* = 35,708)	% increases in immigrant density per neighbourhood (census dissemination area)	Interviewer-assessed psychiatric disorder (mood, anxiety, substance); self-reported psychotic disorder diagnosis	Lower odds of mood, anxiety, and substance dependence disorders were associated with higher immigrant density for immigrants
Stafford (2011)	Immigrant and visible minority CCHS respondents aged > 11 (*n* = 108,064)	10% increases in immigrant density per health region	At least 4 depressive symptoms (CIDI SF MD)	Lower odds of depression were associated with higher immigrant density for visible minorities (immigrants and overall)
Chau (2010)	Chinese adults aged > 54 in Toronto, Calgary, Vancouver, Victoria, Montreal Edmonton, and Winnipeg (*n* = 2,272)	Categories of same-ethnicity density (low/medium/high) per each metropolitan area	Self-rated overall mental health (single item)	Mental health rating was lower among Chinese living in cities of high Chinese ethnic density
Malzberg (1964)	Residents in Quebec and Ontario of British and French origins (*n* = 18,754)	Categories of French-origin density (high/low) for two provinces (Quebec/Ontario)	Admission to hospital for mental illness	Lower incidence of mental illness was observed among French-origin individuals living in Quebec (which had higher proportions of French-origin individuals)
Child populations (n = 7)				
Milbrath (2019)	Kindergarten-aged children in British Columbia of Punjabi, Tagalog, Mandarin, Cantonese, and English language backgrounds (*n* = 45,290)	Neighbourhood cultural composition unique to each language background, derived from factor analysis of ethnic density, home language, and mother tongue; highest/lowest terciles used to group high/low composition	Teacher-rated emotional functioning (EDI subscale)	Emotional health scores did not vary by neighbourhood cultural composition for any of the language background groups of children

Table 1, continued

Summary of Canadian Studies (n = 16) Relating Ethnic Density to Mental Health Outcomes

First Author (year)	Sample	Ethno-Cultural Density Measure	Mental Health Outcome	Key Ethnic Density Findings
de Rocquigny (2014)	Kindergarten-aged children in Manitoba of French language backgrounds (n = 19,431)	High vs low concentration of Francophone residents	Teacher-rated emotional functioning (EDI subscale)	Emotional health was better among French language background children living in areas with a high concentration of Francophone residents
Bassani (2012)	Immigrant children (age 4–13) living in Montreal, Toronto, and Vancouver (n = 810)	High vs low own-group migrant density of neighbourhoods	Self-rated prosocial and externalizing behaviours	Higher prosociality and higher aggression scores among Hong Kong youth was associated with higher own-group immigrant density
Puchala (2010)	Kindergarten-aged children in Saskatoon of ESL backgrounds (n = 135)	Categories (sextiles) of neighbourhood ethnic density	Teacher-rated emotional functioning (EDI subscale)	Emotional health was positively associated with higher neighbourhood ethnic density for ESL children
Milbrath (2019)	Kindergarten-aged children in British Columbia of Punjabi, Tagalog, Mandarin, Cantonese, and English language backgrounds (n = 45,290)	Neighbourhood cultural composition unique to each language background, derived from factor analysis of ethnic density, home language, and mother tongue; highest/lowest terciles used to group high/low composition	Teacher-rated emotional functioning (EDI subscale)	Emotional health scores did not vary by neighbourhood cultural composition for any of the language background groups of children
Beiser (2010)	Immigrant children (age 4–13) from the Philippines, mainland China, and Hong Kong (n = 2,160)	Perception of many people living in their neighbourhood of same national origin (yes/no)	Caregiver-reported emotional problems and physical aggression of the child (OCHS; NLSCY)	Mean emotional problems and physical aggression levels were not associated with ethnic density of any cultural group
Abada (2007)	Minority and non-minority adolescents aged 12–17 in Vancouver (n = 1,111)	10% increases in ethnic density per census tracts	At least 4 depressive symptoms	Higher depression scores were not associated with higher ethnic density for minority youth

Table 1, continued

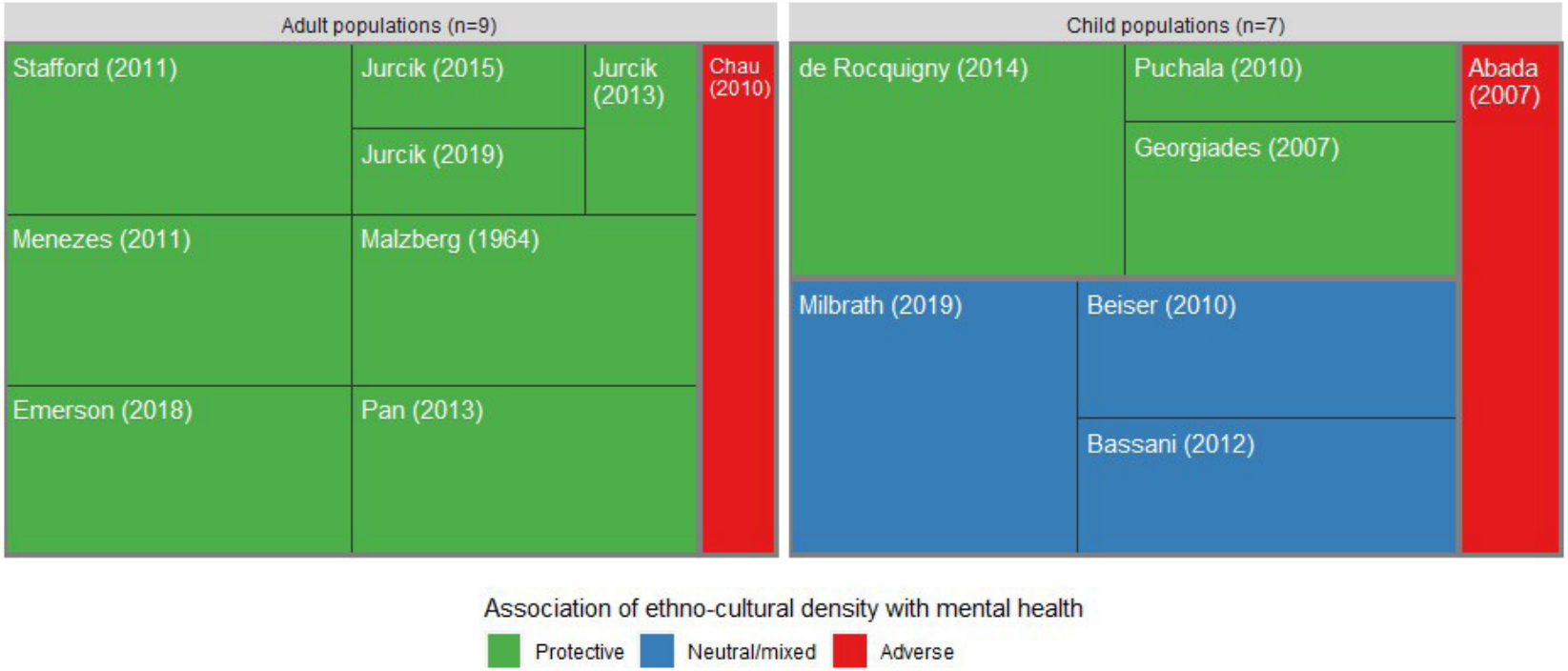
Summary of Canadian Studies (*n* = 16) Relating Ethnic Density to Mental Health Outcomes

First Author (year)	Sample	Ethno-Cultural Density Measure	Mental Health Outcome	Key Ethnic Density Findings
Georgiades (2007)	Nationally representative sample of children aged 4–11 (*n* total = 13,470; *n* immigrant background = 3,236*)	10% increases in immigrant density per classroom	Caregiver-reported internalizing and externalizing behaviours of child	Fewer internalizing or externalizing behaviours for immigrant children was associated with higher immigrant density

Abbreviations: AB = Alberta; BC = British Columbia; CCHS = Canadian Community Health Survey; CES-D = Centre for Epidemiology Studies – Depression Scale; CIDI SF MD = Composite Diagnostic Interview Schedule Short-Form for Major Depression; EDI = Early Development Instrument; ESL = English as a Second Language; GHQ-12 = 12-item General Health Questionnaire; NLSCY = National Longitudinal Study of Children and Youth; OCHS = Ontario Child Health Survey; ON = Ontario; SPRINT = Short Post-Traumatic Stress Disorder Rating Interview; SWLS = Satisfaction with Life Scale. *The exact number of immigrant children was not listed in Georgiades et al. (2007) but was inferred based on reported proportions in Table 2.

Figure 3

Tree Map Illustrating Main Outcome of Canadian Studies (*n* = 16) Relating Ethno-Cultural Density to Mental Health Outcomes, Stratified by Population Type



Note. Rectangle size is proportional to relative sample sizes via a small/medium/large categorization (i.e., smallest: n <300; medium: $n \geq 300 - 3{,}500$; largest: $n \geq 3{,}500$).

& George, 2012), observing mixed findings (e.g., higher ethnic density was negatively as well as positively related to youth mental health ratings).

Across the 16 studies reviewed, four employed mental disorder diagnosis as an outcome (Abada et al., 2007; Emerson et al., 2018; Menezes et al., 2011; Stafford et al., 2011), six studies employed mean score on a self-reported multi- or single-item mental health rating (Chau & Lai, 2011; Jurcik et al., 2013, 2015, 2019; Pan & Carpiano, 2013), five studies featured caregiver- or teacher-ratings of mental health (Beiser et al., 2010; de Rocquigny, 2014; Georgiades et al., 2007; Milbrath & Guhn, 2019; Puchala et al., 2010), and one employed psychiatric admission records (Malzberg, 1964).

Pattern of Associations Among Adult Populations

Nine studies (56%) featured adult participants; six of which employed general population samples, one featured older adults (age >54 years), and two focused on younger adults or university students. In the first documented Canadian-based analysis relating ethno-cultural density and mental health outcomes, Malzberg compared mental hospital admission records for schizophrenia (dementia praecox) among residents of British and French origin residing in Québec and Ontario in 1951 (Malzberg, 1964). French-origin residents comprised 10% of the Ontario sample, and 82% of the Québec sample. Age-standardized annual incidence rate ratios (per 100,000) for schizophrenia indicated that French-origin residents in Québec had a lower rate than British residents in Québec, whereas in Ontario the pattern was reversed (Malzberg, 1964).

Emerson et al. found that lower odds of self-reported anxiety and/or mood disorder diagnoses were related to higher ethno-cultural density of regions for Canadian-born racialized respondents to a national health survey (Canadian Community Health Survey [CCHS]; Emerson et al., 2018). In other CCHS-based studies, higher area-level immigrant density was related to lower odds of suicide ideation for racialized immigrant respondents (Pan & Carpiano, 2013), lower odds of mood, anxiety, and substance disorders among first generation immigrants (Menezes et al., 2011), and lower odds of depression among racialized and immigrant respondents (Stafford et al., 2011). Among Russian-speaking migrants, lower distress scores were found among those who perceived their neighbourhoods as having many Russian-speakers relative to those respondents who perceived their neighbourhoods as having few Russian-speakers (Jurcik et al., 2015). Among two studies of immigrants in Montréal, those who perceived their neighbourhoods to have more co-ethnic density had lower depression scores in one study (Jurcik et al., 2013), and lower general psychological distress in another study (Jurcik et al., 2019). Among older Chinese adults across seven Canadian cities, mean self-rated overall mental health was lower among those residing in cities of high Chinese ethno-cultural density than those in cities of low Chinese ethno-cultural density (Chau & Lai, 2011). The authors speculated that the adverse associations observed may have reflected greater social isolation (marginalization) among the Chinese older adults residing in cities with larger Chinese ethno-cultural communities.

Pattern of Associations Among Child Populations

Seven studies focused on child/adolescent populations (Abada et al., 2007; Bassani & George, 2012; Beiser et al., 2010; de Rocquigny, 2014; Georgiades et al., 2007; Milbrath & Guhn, 2019; Puchala et al.,

2010). Three studies featured kindergarten-aged children (ages 5–6), three studies featured middle-years individuals (ages 4–13), and one study focused on adolescents (ages 12–17).

Among kindergarten-aged children in Saskatoon with English-as-a-second-language (ESL) backgrounds (i.e., mostly children of immigrant or racialized backgrounds), those who lived in neighbourhoods with higher ethno-cultural diversity (i.e., a higher proportion of residents with non-Caucasian backgrounds) had better teacher-rated emotional health than those in neighbourhoods with lower ethno-cultural diversity (Puchala et al., 2010). Notably, in the lowest quintiles of neighbourhood ethno-cultural diversity, ESL background children had worse teacher-rated emotional health than non-ESL background children; however, this disparity was not observed in the neighbourhoods with quintiles of highest ethno-cultural diversity. In a study of kindergarten-aged children in Manitoba, those of French-language backgrounds living in neighbourhoods with high proportions of Francophone residents had better teacher-rated emotional health than those residing in neighbourhoods with few Francophone residents (de Rocquigny, 2014). In a study of kindergarten-aged children in British Columbia, associations were examined between own-group neighbourhood cultural density (dichotomized as high vs. low own-group cultural density) and teacher-ratings of various domains of developmental functioning (including emotional health) for children of Punjabi, Tagalog, Mandarin, Cantonese, and English language backgrounds (Milbrath & Guhn, 2019). Neighbourhood cultural density was not associated with emotional health for any of the language background groups of children.

Georgiades et al. found that higher immigrant density of schools in Vancouver related to lower levels of caregiver-rated internalizing and externalizing behaviours among middle-years immigrant children (Georgiades et al., 2007). In another Vancouver-based study (Abada et al., 2007), higher ethnic concentration was associated with higher self-rated depressive symptoms among adolescents in urban neighbourhoods (census tracts). Beiser et al. found that the mean number of parent-reported emotional problems among immigrant children (from China, Hong Kong, or the Philippines) did not differ for parents who perceived their neighbourhood as having high or low own-group immigrant density (Beiser et al., 2010). Among immigrant children residing in Montréal, Toronto, and Vancouver, Bassani et al. found evidence that, for immigrant youth from Hong Kong, higher own-group immigrant density related to higher self-reported physically aggressive behaviours (measured via variables adapted from the National Longitudinal Survey of Children and Youth [NLSCY]; Bassani & George, 2012). Bassani et al. also observed that a higher density of Hong Kong migrant residents was associated with lower levels of self-reported physical aggression for migrant youth from mainland China and the Philippines.

Moderators and Mediators in Associations Between Ethno-Cultural Context and Mental Health

Four studies examined moderation effects in the association between ethno-cultural density and mental health. Jurcik et al. (2013) assessed and found a clear interaction between perceived ethnic density and heritage acculturation in predicting depression. Among immigrant residents in high ethnic density areas, greater French-Canadian acculturation was associated with higher life satisfaction and lower depression scores (Jurcik et al., 2015). In a Vancouver-based study of adolescents (Abada et al., 2007), higher census tract-level concentration of racialized individuals was associated with higher self-rated depressive symptoms

among adolescents in urban neighbourhoods (census tracts), but there was no evidence that this association significantly interacted with neighbourhood cohesion.

Four studies explicitly explored pathways/mechanisms by which ethno-cultural areal context related to mental health. In two studies using CCHS data, higher sense of belonging was inversely related to odds of suicide ideation among racialized immigrants in rural areas (Pan & Carpiano, 2013) and odds of mental disorders among second-generation racialized immigrants (Emerson et al., 2018), however no association was observed between sense of belonging and ethno-cultural density. Hence, these two CCHS-based studies found no evidence that sense of belonging mediated associations between regional ethno-cultural density and mental health. Discrimination mediated the association ethnic density and depression among immigrant university students from diverse backgrounds, but no evidence of mediation occurred for social support (Jurcik et al., 2013). Another study found that associations were mediated by acculturation (to the French-Canadian mainstream cultural context) but no evidence of mediation was observed for heritage acculturation, social support, or discrimination (Jurcik et al., 2019). A less clear effect was observed by Jurcik et al., in a subsequent study, who also found that acquired social support was a mediator of ethno-cultural density and general distress among immigrant adults from Russian language-speaking backgrounds (Jurcik et al., 2015).

DISCUSSION

The mental health of Canada's increasingly ethno-culturally diverse population warrants additional attention, particularly surrounding the adjustment of immigrants and refugees to Canada. This study summarized previous empirical analyses that quantified how the ethno-cultural environment in Canada relates to mental health outcomes among IRER populations. Across diverse mental health outcomes, different geographical regions, and ethno-cultural groups, results generally provided evidence of protective associations between higher ethno-cultural density and mental health. Nevertheless, some mixed, null, and deleterious findings were observed for children/adolescent populations—hinting at the potential complexity of how ethno-cultural context of an area may relate to the mental health of IRER populations. It may also indicate that the immigrant trajectory differs for children compared to adults and/or that it has different effects due to the different developmental phases. Additionally, measurement issues may have occurred since many of the child/adolescent studies relied on teacher- or caregiver-reports rather than self-reported mental or behavioural information.

Ethno-Cultural Context, Human Development, and Mental Health

The five studies that documented evidence of deleterious, null, or mixed associations between increasing ethno-cultural density and mental health all featured populations not typically classified as working age (namely, children and older adults aged over 54 [M_{age} = 70]). Abada and colleagues (2007) found higher census tract ethno-cultural density was related to a higher number of depressive symptoms among adolescents in Vancouver, whereas Beiser et al. found no relationship between perceived own-group immigrant density and parent-rated emotional problems among immigrant middle-years children (Beiser et al., 2010) and another study observed no association between own-group neighbourhood cultural density and teacher-rated emotional health of kindergarten-aged children of diverse language backgrounds (Milbrath & Guhn,

2019). Chau & Lai found worse self-rated mental health among Chinese seniors living in cities with higher concentrations of Chinese persons (Chau & Lai, 2011). Bassani and George found higher immigrant density was associated with higher self-rated aggression for Hong Kong immigrant youth (Bassani & George, 2012). Although several other studies on pediatric populations yielded evidence of protective associations of ethno-cultural density on mental health (e.g., Georgiades et al., 2007; Puchala et al., 2010), ethno-cultural density effects may vary according to developmentally important issues.

Chau and Lai's study was the sole one focused on older adults. Their study operationalized ethno-cultural context at city-level (Chau & Lai, 2011); for example, Chinese older adults were categorized as residing in contexts of high, medium, or low Chinese density depending on residence in cities: Vancouver, Toronto; Edmonton, Calgary, Montréal; and Victoria or Winnipeg, respectively. City-level categorization of ethno-cultural density (rather than neighbourhood-levels) likely masked within-city variations. City-level comparisons may indicate city-level differences of older adults' mental health (e.g., comparisons between Victoria, which has a higher proportion of older adults, and cities with lower proportions of older adults) rather than the influence of ethno-cultural density per se. Although classified as having a lower concentration of older Chinese adults in Chau's study, Victoria had a larger share of older adults larger than any other city in their study (21.1% aged over 65; Government of Canada, 2019). Older adults residing in neighbourhoods with high proportions of older adults tend to report better health than those in neighbourhoods with fewer older adults (Omariba et al., 2014), which may reflect social reasons as well as environmental features (e.g., Victoria has a milder winter climate than other Canadian cities).

Adolescence is a developmental period during which individuals grapple with identity development, experimentation, and emotional changes (Larson et al., 2002). The adverse association between ethno-cultural density and depressive symptoms among adolescents from racialized ethno-cultural groups may reflect adolescents' experiences with identity development (French et al., 2006) and self-esteem, which may impact internalizing symptoms. Child and adolescent populations typically immigrate without having direct choice in the move—whereas adults often do so by choice and based on selection criteria. Further, these experiences may vary according to ethno-cultural context/density of neighbourhoods and adolescents' ethno-cultural backgrounds (Hughes et al., 2017). Relatedly, although higher ethno-cultural density can help buffer the adverse impacts of racism for adults (Bécares et al., 2009), such a buffering influence may be less evident for adolescents. Some have argued that individual-level racism and discrimination may be a more salient influence than residential characteristics on mental health during adolescence (Astell-Burt et al., 2012). Clearly, in-depth elucidation of how ethno-cultural density/contexts impact youth mental health is warranted.

Acculturation may moderate associations of ethno-cultural density with mental health. Jurcik et al. found protective associations of own-group ethno-cultural density whereby concordance occurred between residents' acculturation and residential ethno-cultural density (Jurcick et al., 2013); see also Jurcik et al. (2015). Hence, acculturation may be an additional element of the person-fit hypothesis for ethno-cultural density whereby a fit between one's personal attachment to their heritage culture and the ethno-cultural context of their community is important. Some suggest acculturation issues may be especially salient for IRER youth, who may differ from their parents with respect to identification and attachment to their heritage culture (Asvat & Malcarne, 2008). For instance, some children/adolescents may identify more strongly

with mainstream Canadian culture/values, especially if it is more proximal and ubiquitous to them, than with their heritage culture.

Moderators and Mediators in Associations of Ethno-Cultural Context with Mental Health

A broader issue with ethno-cultural context research is *how* environmental characteristics impact the mental health of IRER subgroups *differently*. Own-group ethno-cultural density likely confers enhanced social support, reduced racism and discrimination, a greater sense of place/belonging, and/or more culturally/linguistically appropriate health/educational services (Pickett & Wilkinson, 2008). The pattern of results reviewed did not, however, suggest that protective associations with mental health imbued by ethno-cultural residential/community context solely occur when the context represents *own-group* ethno-cultural density. Rather, such associations may also occur even if there is *overall* ethno-cultural density (Emerson et al., 2018; Pan & Carpiano, 2013; Puchala et al., 2010).

Among the few reviewed studies that assessed mediators of ethno-cultural density and mental health (including sense of belonging, social support, discrimination, and neighbourhood cohesion), significant mediators were observed in discrimination (Jurcik et al., 2013) and social support (Jurcik et al., 2015). Unfortunately, little international evidence empirically supports specific pathways linking ethno-cultural density to mental health (Bennett et al., 2020). Racism and discrimination has been found to be inversely related to higher ethno-cultural density, which was in turn inversely related to mental health problems in a UK-based study (Bécares et al., 2009). Relatedly, variation in the pattern of associations between ethno-cultural density and mental health outcomes points to the importance of the unaddressed role of moderators in this literature. These may include factors such as duration of years in the host country, generation status, sense of belonging, and other features of residents and/or their communities. Explicit examination of both moderators and mediators would be a useful direction to better advance this research area.

Regardless of the proposed mediators or pathways by which ethno-cultural context of an area relates to mental health of IRER residents, the broader human development literature (Bronfenbrenner & Morris, 2007) suggests that factors shaping behaviour are inter-related. Rather than a single, uni-directional influence on children's mental health (i.e., higher ethno-cultural density supports mental health), it is likely that multiple individual and contextual processes are operating and interacting at different ecological levels. Advancing our knowledge in this research field may hence require elucidation of how, for whom, and the contexts in which ethno-cultural density impacts mental health.

Limitations of Reviewed Studies

A challenge to this evidence synthesis was the heterogeneity of the ethno-cultural contexts, samples, and outcomes. Reviewed studies varied in the size of the "ethno-cultural context" referred—ranging from large areas combining rural and urban areas to neighbourhoods. Indices of ethno-cultural density at larger geographic levels may misrepresent neighbourhood-level density and associations may even have differed had different boundaries been used (the "modifiable areal unit problem" [Elliott & Wartenberg, 2004]). Ideally, small aggregations (e.g., neighbourhoods) could be used in ethno-cultural density research, as they better represent residents' typical experiences.

As illustrated in Table 1, operationalizations of ethnic density varied quite substantially, from treatment of ethno-cultural density as a numeric, categorical, or binary measure as well as consideration of objective assessments (e.g., census geographic records) or subjective assessments (e.g., respondents' perceptions of their neighbourhoods). There are trade-offs with the various approaches. Where possible, it could be valuable to incorporate multiple attributes or sensitivity analyses; moreover, valuing respondents' perceptions is an important consideration especially given evolving understandings of the fit between a person and their environment (Doucerain, 2019).

Few studies assessed nativity (foreign-born status) as a possible moderator in analyses. Being born and growing up in Canada is associated with different socio-cultural experiences for IRER groups relative to those born outside of Canada, including the psychological and cultural impacts of international migration (Jasso & Massey, 2004). Foreign-born and Canadian-born members of Canada's two largest ethno-cultural groups (Chinese and South Asian) have been found to vary in their self-rated health status, underscoring within-group differences between the first- and second-generation members (Kobayashi et al., 2008). A recent review identified some evidence that foreign-born working-age adults tended to have better mental health than their Canadian-born peers, a phenomenon referred to as the "healthy migrant effect" (Vang et al., 2015). The healthy migrant effect has been attributed to systematically better health amongst international immigrants compared to non-immigrants from the same home country, as well as to Canadian migration processes that tend to favour the movement of those who are healthier, skilled/educated, and with more socio-economic resources (Jasso & Massey, 2004; Vang et al., 2015). It should, however, be noted that the Canadian-based literature concerning an immigrant paradox shows considerable inconsistencies (Vang et al., 2015), suggesting the complexity of the phenomenon and the value in considering interactions among various processes and contexts.

Another challenge concerns the self- or layperson-reported measures of mental health employed in many reviewed studies. Parent- or teacher-reported symptoms via survey items may overstate prevalence of certain psychiatric problems (Thombs et al., 2018). Several studies, however, employed measures for which considerable validity evidence exists (e.g., teacher-rated outcomes (de Rocquigny, 2014; Milbrath & Guhn, 2019; Puchala et al., 2010) were assessed via the Early Development Instrument (EDI; Janus & Offord, 2007)—a measure for which substantial validity evidence exists (Guhn et al., 2011). A strength of self- or layperson-rated mental health measures is the potential to document sub-threshold problems as well as the measurements being independent from healthcare utilization since IRER populations under-utilize healthcare relative to the general Canadian population (Chiu et al., 2018). Also, it is noteworthy that four of the reviewed studies employed the same source—the Canadian Community Health Survey (CCHS)—albeit across different Canadian regions and years (Emerson et al., 2018; Menezes et al., 2011; Pan & Carpiano, 2013; Stafford et al., 2011). Regarding studies employing mental health condition diagnoses (Emerson et al., 2018; Menezes et al., 2011), O'Donnell and colleagues (O'Donnell et al., 2016) compared prevalence of mood and/or anxiety disorders from 2003 to 2009 based on self-reports (via the CCHS) to estimates based on medical administrative data, and found that self-reported estimates of disorders were lower than the estimates from medical records (9.4% vs. 11.3%), suggesting possible under-reporting, possibly due to stigma.

Future Investigation

The settlement experiences of recent immigrants and refugees to Canada are under-investigated. Canada is an international leader in refugee resettlement, admitting the highest number of refugees to a single nation in 2019 (United National High Commissioner for Refugees, 2020). The United National High Commissioner for Refugees (UNHCR) reports that Canada welcomed 20% of all resettled refugees globally in the past 10 years. In an unparalleled effort, Canada resettled over 25,000 Syrian refugees fleeing humanitarian crisis between 2015 and 2016, who accessed government resettlement programs and supports. The majority of these refugees were young people and families with children landed across the country. In an outcomes survey, Immigration, Refugees and Citizenship Canada found that most Syrian refugees accessed healthcare, but stigma concerning mental health, language barriers, and misunderstanding of services were barriers to care (Immigration Refugees and Citizenship Canada, 2020). Similarly, the Mental Health Commission of Canada found that IRER populations access mental health services less frequently in Canada, and recommended that more programs and psychotherapies consider cultural diversity and a social determinants of health approach in the planning and delivery of health services (Mental Health Commission of Canada, 2016). Research on ethno-cultural density has the potential to inform future policy, planning, and delivery of health and social services for IRER populations. While the issue and needs of this population are complex, the findings of this review suggest that health and social policies supporting recent immigrants and refugees to Canada should include planning and resources for more culturally safe mental health services.

All studies noted in this review, and the majority of studies relating ethno-cultural density to mental health, were cross-sectional (Bécares et al., 2018). Such study designs obfuscate clear assessment of directionality. For example, downward social drift may occur whereby IRER persons may move from areas of lower ethno-cultural density (and potentially also from areas of higher socio-economic status) into areas of higher ethno-cultural density as their mental health worsened (Das-Munshi et al., 2019). Longitudinal and representative research that accounts for residential and mental health changes over time (e.g., cohort studies) is needed to help address these issues.

Ethno-cultural diversity can be viewed as a community social asset whereby diverse groups can learn from and support each other. However, there is a substantial body of evidence suggesting ethno-cultural diversity may confer negative social impacts in some contexts. As an example, a recent meta-analytic review of ethnic diversity on another important social issue—trust—indicated an inverse relationship; the level of trust in neighbours decreased as the level of ethnic diversity increased (Dinesen et al., 2020). The authors highlighted several considerations: (a) the effect size of the association was small; (b) little theoretical explanation exists for *why* ethnic diversity may negatively impact social factors such as trust (beyond general ideas that trust would be lower when persons perceive less similarity with their neighbourhoods); and (c) policy geared at improving integration ought to be considered. The study meta-analyzed across dozens of diverse nations, each with different immigration policies (and therefore, different cultural contexts) for IRER populations (Dinesen et al., 2020). Given the present scoping review's focus on the Canadian context, and heterogeneity across (and within) the various nations included in the aforementioned meta-analysis, it is useful to consider pertinent Canadian-based evidence on associations between ethno-cultural diversity and social outcomes.

One recent Canadian study took an approach unique from most research on ethno-cultural density and trust in neighbours by disaggregating results by ethno-cultural group—namely by white and racialized residents (Wu et al., 2018). These authors found that trust in neighbours increased for white residents as the proportion of white residents increased, and trust in neighbourhoods increased for racialized residents as the proportion of racialized residents increased. Hence, these results contradicted the perception held by some—and the pattern suggested by Dinesen et al. (2020)—that ethno-cultural diversity confers negative social impacts. Such patterns and discourse can also be influenced by the type of data being collected—and the questions being asked. As a case in point, a Canadian study found positive associations between higher neighbourhood ethno-cultural diversity and a higher sense of belonging to Canada among both white and racialized residents (Wu et al., 2011). The authors theorized that greater cultural diversity may encourage residents, especially white residents, to collectively identify with a common identity. Although a sense of belonging matters for mental health and social capital, Wu et al. did not examine the social or health outcomes associated with a higher sense of belonging to Canada.

Previous research at the intersect of area-level ethno-cultural density and mental health has rarely accounted for issues of racism or integration among residents in analyses. Relatedly, some theory and empirical work suggests multi-cultural identity maintenance may be beneficial for IRER populations (Immigration Refugees and Citizenship Canada, 2020). For instance, immigrant individuals who employ integration acculturation strategies have been shown to experience better self-rated mental health than those who solely retain heritage values and culture (Berry et al., 2006; Berry & Hou, 2016). Thus, understanding contexts and factors that help promote positive relations among residents of diverse ethno-cultural backgrounds, and positive integration of these populations, is a research priority for Canada.

CONCLUSIONS

Taken together, the review of studies suggests that a strong ethno-cultural context may be beneficial for the mental health of IRER populations, perhaps by providing some protection from racism and discrimination as well as socio-economic adversities (e.g., lower incomes; Pendakur & Pendakur, 2015; Picot & Lu, 2017). Despite the diversity of types of ethno-cultural groups (immigrants, language backgrounds, racialized groups), area of aggregation (health region, neighbourhood block), and mental health outcomes, some consistency across results occurred. Foremost, 11 of the 16 studies (approximately 70%) found protective associations. The pattern may partly represent publication bias—an issue that limits many reviews (Dwan et al., 2013)—however, we attempted to mitigate this issue by searching for and including studies outside peer-reviewed journals/books (de Rocquigny, 2014; Malzberg, 1964).

This review synthesized evidence relating ethno-cultural contexts in which Canada's IRER populations reside to their mental health. There is value in reviewing of the ethno-cultural density literature limited to Canada in order to consider country-specific factors and the heterogeneity of the immigrant and refugee population. Findings generally suggested that areas with higher (own-group or overall) ethno-cultural density may support IRER mental health, through representing a component of the person-environment "fit" (Wechsler & Pugh, 1967), and conferring important socio-cultural resources such as language congruence, a sense of belonging, and reduced social stigma. As global immigration, migration, and forced displacement continues to increase, Canada's experience in general—and the role of community contexts like ethno-cultural density

in particular—may serve as an example for other countries to consider diversity in planning and delivering mental health services. We hope findings motivate further inquiry and evidence to support the mental health of IRER populations in Canada.

APPENDIX: REVIEWED ARTICLES

Abada, T., Hou, F., & Ram, B. (2007). Racially mixed neighborhoods, perceived neighborhood social cohesion, and adolescent health in Canada. *Social Science & Medicine*, *65*(10), 2004–2017.

Bassani C., & George A. (2012). Social capital and immigrant children's behaviour in Canada. In C. Bassani (Ed.), *Adolescent Behavior*. Nova Science Publishers.

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