

**Disparities in Access to a Regular Primary Care Physician Among First-Generation
Migrants with Early Psychosis in Ontario, Canada**

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Word count:

Abstract: 163, Text: 1998/2400

Abstract

Objective: Disparities in primary care utilization among migrants with early psychosis may be related to lack of access to a regular primary care physician. This study aimed to investigate access to a regular primary care physician among first-generation migrants with early psychosis.

Methods: People aged 14-35 years with first onset non-affective psychotic disorder in Ontario, Canada were identified in health administrative data (N=39,440). Access to a regular primary care physician through enrollment in the year prior to diagnosis was compared between first-generation migrants (categorized by country of birth) and the general population using modified Poisson regression.

Results: Most migrant groups had a lower prevalence of regular primary care physician access relative to the general population, particularly migrants from Africa (African migrants: 81% vs non-migrants: 89%). Adjustment for sociodemographic and clinical factors attenuated these differences, although the disparities for migrants from Africa remained (PR=0.96, 95%CI=0.94-0.99).

Conclusions: Interventions aimed at improving primary care physician access in migrant groups may facilitate help-seeking and improve pathways to care in early psychosis.

Keywords: psychosis, pathways to care, primary care, family physician, migrant, ethnicity

Acknowledgements

This document used data adapted from the Statistics Canada Postal Code^{OM} Conversion File, which is based on data licensed from Canada Post Corporation, and/or data adapted from the Ontario Ministry of Health Postal Code Conversion File, which contains data copied under license from ©Canada Post Corporation and Statistics Canada. Parts of this material are based on data and/or information compiled and provided by: CIHI, Ontario Health (OH) and the Ontario Ministry of Health. The analyses, conclusions, opinions and statements expressed herein are solely those of the authors and do not reflect those of the funding or data sources; no endorsement is intended or should be inferred. Parts or whole of this material are based on data and/or information compiled and provided by Immigration, Refugees and Citizenship Canada (IRCC) current to March 31, 2015. However, the analyses, conclusions, opinions and statements expressed in the material are those of the author(s), and not necessarily those of IRCC. We thank the Toronto Community Health Profiles Partnership for providing access to the Ontario Marginalization Index.

Declarations

Funding

This study was supported by ICES, which is funded by an annual grant from the Ontario Ministry of Health (MOH) and the Ministry of Long-Term Care (MLTC). This study also received funding from: the Canadian Institutes of Health Research (PJT 153022).

Conflict of interest

The authors declare that they have no conflict of interest.

Ethical Approval and Informed Consent

ICES is a prescribed entity under Ontario's Personal Health Information Protection Act (PHIPA). Section 45 of PHIPA authorizes ICES to collect personal health information, without consent, for the purpose of analysis or compiling statistical information with respect to the management of, evaluation or monitoring of, the allocation of resources to or planning for all or part of the health system. Projects that use data collected by ICES under section 45 of PHIPA, and use no other data, are exempt from REB review. The use of the data in this project is authorized under section 45 and approved by ICES' Privacy and Legal Office.

Data, materials and/or code availability

The dataset from this study is held securely in coded form at ICES (formerly the Institute for Clinical Evaluative Sciences). While legal data sharing agreements between ICES and data providers (e.g., healthcare organizations and government) prohibit ICES from making the dataset publicly available, access may be granted to those who meet pre-specified criteria for confidential access, available at www.ices.on.ca/DAS (email: das@ices.on.ca). The full dataset creation plan and underlying analytic code are available from the authors upon request, understanding that the computer programs may rely upon coding templates or macros that are unique to ICES and are therefore either inaccessible or may require modification.

Author contributions

All authors contributed to the study conception and design. The data analysis plan was prepared by Rebecca Rodrigues, and the data analysis was performed by Jennifer Reid. The first draft of the manuscript was written by Crystal Valdez and Rebecca Rodrigues. All authors commented on previous versions of the manuscript. All authors read and approved the final manuscript.

Introduction

The pathways to care in early psychosis are often complex and multifaceted, but nevertheless important to understand for early detection and effective treatment (Anderson et al., 2010). Primary care physicians are key to facilitating access to specialized treatment for young people with early psychosis. Approximately 60% of young people seek help from primary care for mental health reasons prior to a first diagnosis of psychotic disorder – with a notable increase in visits ten months prior to first diagnosis (Schoer et al., 2021) – and 30% receive their first diagnosis of psychotic disorder from a primary care physician (Wiener et al., 2023). Involvement of primary care reduces the likelihood of aversive pathways to care and inpatient admission, and is considered a target for improving the pathways to care for people with early psychosis (Anderson et al., 2018).

Migrant and ethnic minority groups have an increased risk of developing a psychotic disorder (Selten et al., 2020), and also tend to have more aversive pathways to mental health care after psychosis onset, including a lack of primary care involvement (Anderson et al., 2014). We have previously shown that first-generation migrant groups in Ontario, Canada had fewer family physician contacts in the six months prior to a first diagnosis of schizophrenia, compared to the non-migrant group (Anderson et al., 2017). This is similar to findings from the UK, where African and Caribbean migrant groups had a lower odds of family physician involvement on the pathway to care for early psychosis (Ghali et al., 2013; Morgan et al., 2005) – it has been suggested that the non-migrant group may be more likely to be registered with a family physician and have greater trust in and involvement with the primary care system (Ghali et al., 2013).

In Canada, access to primary care is facilitated through enrollment with a regular provider, known as rostering, which involves registration with a family practice, family physician, or primary care team. This defines the population for which the provider is responsible and facilitates an ongoing relationship between patient and provider (Hutchison & Glazier, 2013). Evidence suggests that youth who are not enrolled with a family physician are less likely to use primary care (Ryan et al., 2011). Prior research on disparities in pathways to care among migrant and ethnic minority groups has largely focused on primary care contacts during help-seeking, and it is unclear whether these observed differences in service use are

due to lack of access to a regular primary care physician. To explore this, we sought to examine access to a regular primary care physician through enrollment among first-generation migrant groups with early psychosis in Ontario, Canada, relative to the general population. The current analysis is part of a larger study looking at factors associated with family physician access among young people with early psychosis, which has been reported in detail elsewhere (Rodrigues et al., 2023).

Methods

We conducted a cross-sectional study comparing access to a regular family physician for first-generation migrant groups, relative the general population, among people with early psychosis in the year prior to a first diagnosis of non-affective psychotic disorder in Ontario, Canada. We used linked population-based health administrative data housed at ICES, which is an independent, non-profit research institute whose legal status under Ontario's health information privacy law allows for the collection and analysis of health care and demographic data for health system evaluation and improvement. Data sources included physician billings, emergency department (ED) visits, and hospitalizations, and have been described elsewhere (Rodrigues et al., 2023). We used the Immigration, Refugees, and Citizenship Canada Permanent Resident (IRCC-PR) Database to identify first-generation migrants who landed in Ontario after 1985, and to obtain information on country of birth (Chiu et al., 2016). These datasets were linked using unique encoded identifiers and analyzed at ICES.

We used physician billings, ED visits, and hospitalizations to identify people aged 14-35 years with a first diagnosis of non-affective psychotic disorder between 2005 and 2015 using a validated algorithm (Kurdyak et al., 2015). Cases were identified based on one hospitalization or two outpatient or ED visits in a 12-month period with a diagnostic code for non-affective psychotic disorder (ICD-9 codes 295, 298; ICD-10 codes F20, F25, F29; DSM-IV codes 295, 298). People with a diagnostic code for non-affective psychosis prior to 2005 were excluded as prevalent cases. Country of birth for first-generation migrants was classified into regions: Africa, Caribbean, Europe, South Asia, East Asia, Latin America, and North Africa and Middle East (Statistics Canada, 2010). We excluded migrants from the United States, Australia,

and New Zealand due to small numbers (<0.1%). People who were not in the IRCC-PR Database were classified as the general population, which included non-migrants, second-generation migrants, and first-generation migrants who landed prior to 1985 or outside of Ontario.

Access to a regular primary care physician was defined as being enrolled with a primary care physician (family physician, pediatrician, or community medicine physician) through formal or virtual rostering in the year prior to first diagnosis of psychotic disorder. Approximately 75% of family physicians in Ontario practice in a type of payment model that incentivizes physicians to formally enroll (i.e., roster) patients in their practice (Hutchison & Glazier, 2013). The remaining family physicians practice in fee-for-service or salaried models, although we did not have access to data on salaried physicians in the ICES data holdings (approximately 6% of family physicians in Ontario). We identified access to a regular primary care physician in the year prior to diagnosis of psychotic disorder using the ICES-derived Primary Care Population (PCPOP) dataset. PCPOP identifies people who are rostered with a family physician practicing in a patient enrollment model, and applies virtual rostering to identify people enrolled with a primary care physician practicing in a fee-for-service model, which can include family physicians, pediatricians, and community medicine physicians. People are virtually rostered to a physician by identifying the highest-billing primary care physician in the previous 2-year period using 21 core primary care fee codes.

Sociodemographic variables included age, sex, rural residence, neighbourhood-level income quintile, and neighbourhood-level residential instability from the Ontario Marginalization Index (Matheson et al., 2012). Clinical variables were derived using the Johns Hopkins ACG© System (Version 10), and included number of ACG© System Aggregated Diagnosis Groups (ADGs), presence of a chronic psychosocial condition, and presence of a chronic physical condition within two years of the first diagnosis of psychotic disorder.

We used modified Poisson regression with robust variance estimators to compute prevalence ratios (PR) comparing access to a regular family physician among first-generation migrant groups, relative to the general population (Zou, 2004). We estimated unadjusted PRs and PRs adjusted for all sociodemographic and clinical variables (listed above), with associated 95% confidence intervals (CI). CIs that did not include

the null value of one were considered statistically significant. Analyses were conducted using SAS version 9.4 (SAS Institute, Cary, NC).

Results

Our sample included 39,440 cases of early psychosis identified over the 10-year period, and the sample characteristics are presented in Online Supplemental Table S1. Access to a regular primary care physician within the year prior to the first diagnosis of psychotic disorder ranged from 81% to 89% across sub-groups defined by country of birth. Most first-generation migrant groups had a lower proportion of people with regular primary care physician access, relative to the general population (General Population: 89%; African: 81%; Caribbean: 84%; European: 86%; South Asian: 87%; East Asian: 84%; Latin American: 88%; North African & Middle East: 85%; Online Supplemental Table S2). In particular, 19% of migrants from Africa lacked a regular primary care physician, compared to 11% of the general population.

In the unadjusted analysis, most first-generation migrant groups had a significantly lower likelihood of regular primary care physician access relative to the general population, including migrants from Africa (PR=0.91, 95%CI=0.88-0.94), the Caribbean (PR=0.94, 95%CI=0.91-0.97), Europe (PR=0.97, 95%CI=0.94-0.99), South Asia (PR=0.98, 95%CI=0.96-1.00), East Asia (PR=0.95, 95%CI=0.92-0.97), and North Africa & the Middle East (PR=0.96, 95%CI=0.93-0.98; Online Supplemental Table S1). Of exception, there was no difference in access for migrants from Latin America relative to the general population (PR=0.99, 95%CI=0.96-1.02). After adjustment for sociodemographic and clinical factors, the lower likelihood of primary care physician access, relative to the general population, persisted only in the African group (PR=0.96, 95%CI=0.94-0.99), and there were no significant differences for migrants from the Caribbean (PR=0.99, 95%CI=0.96-1.02), Europe (PR=0.99, 95%CI=0.97-1.01), South Asia (PR=1.01, 95%CI=0.99-1.03), East Asia (PR=1.01, 95%CI=0.98-1.03), Latin America (PR=1.01, 95%CI=0.98-1.04), and North Africa & Middle East (PR=0.98, 95%CI=0.96-1.01; Online Supplemental Table S2).

Discussion

We found that most first-generation migrant groups with early psychosis were less likely to have access to a regular primary care physician in the year prior to a first diagnosis, relative to the general population. We observed the largest disparity in primary care physician access among migrants from Africa, which is noteworthy given that Black-African groups with early psychosis have been previously shown to have less involvement of the family physician on the pathway to care (Morgan et al., 2005). This suggests that the lack of family physician involvement on the pathway to care for migrant and ethnic minority groups may be due, in part, to poor access to a regular primary care provider (Anderson et al., 2014; Ghali et al., 2013; Morgan et al., 2005). This family physician involvement is crucial for facilitating access to specialized services and reducing negative pathways to care (Anderson et al., 2018).

The disparities in access to a primary care physician among migrant groups that we observed were attenuated and no longer statistically significant with adjustment for sociodemographic and clinical variables, likely reflecting underlying social and health inequities among migrant groups that contribute to disparities in access. This is consistent with other Canadian evidence from broader population-based samples, showing that migrant groups are less likely to have primary care access compared to the general population (Degelman & Herman, 2016); thus, our findings may not be unique to people with psychotic disorders. We have previously found other sociodemographic disparities in access to a regular primary care physician among young people with early psychosis – including age, sex, and neighbourhood-level income (Rodrigues et al., 2023) – which likely intersect with migrant status to further increase disparities in access to primary care. A full discussion of the social and structural factors contributing to these observed disparities is provided elsewhere (Rodrigues et al., 2023).

Limitations

Our records are limited to migrants who arrived in Ontario after 1985. Therefore, people who migrated before 1985, or who landed outside of Ontario, would be included in the general population comparison group. Given the young age range of our sample (14-35 years), and the fact that any

misclassified migrants would have been in Canada for at least 20 years at the time of psychosis onset, we anticipate that the impacts of this misclassification would be minimal. The comparison group also includes second-generation migrants and other ethnic minority groups, who have also been shown to have a lower odds of family physician involvement on the pathway to care (Anderson et al., 2010; Ghali et al., 2013). The inclusion of these groups in our comparison group would likely function to bias our findings towards the null. Furthermore, our identification of migrants is based on linkages with the IRCC-PR database, which is based on federal immigration records and has a linkage rate of 86% (Chiu et al., 2016). Therefore, we will be missing undocumented migrants and those whose data were unable to be linked to the ICES data holdings.

Our findings are also limited by a lack of data from salaried physicians practicing in Community Health Centres, which provide care for <1% of the Ontario population but are more likely to provide care to recent migrants and marginalized communities (Glazier et al. 2012). Our study aimed to identify access to a regular primary care physician, rather than any access to primary care. Local walk-in clinics and Community Health Centres are available for people to access primary care in the absence of formal enrollment. Virtual rostering partially accounts for this gap, however, for people in our sample who did not utilize primary care services associated with virtual rostering, it may be that they still have primary care access through a local walk-in clinic or Community Health Centre. Finally, our findings may not be generalizable to countries that do not structure their healthcare system around primary care physicians, or to other provinces in Canada due to variation in primary care services across the country.

Conclusion

First-generation migrant groups with early psychosis are less likely to have access to a regular primary care physician, and this lack of access is particularly high among migrants from Africa. These disparities in regular primary care physician access may contribute to the aversive pathways to care for migrant groups with early psychosis that have been previously documented. Improving access to primary care services should be a target for improving the pathways to care for early psychosis.

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Supplemental Table S1. Sociodemographic characteristics of the sample of people aged 14-35 years with early psychosis in Ontario, Canada between 2005 and 2015.

	General Population n = 32,560	Africa n = 872	Caribbean n = 733	Europe n = 1,184	South Asia n = 1,505	East Asia n = 1,007	Latin America n = 521	North Africa & Middle East n = 1,058
Age in Years, mean (\pm SD)	23.8 \pm 5.8	25.3 \pm 5.2	24.8 \pm 5.2	25.0 \pm 5.4	26.1 \pm 5.8	25.8 \pm 5.8	24.9 \pm 5.5	24.9 \pm 5.5
Female Sex	11,735 (36.0%)	320 (36.7%)	266 (36.3%)	432 (36.5%)	655 (43.5%)	469 (46.6%)	202 (38.8%)	319 (30.2%)
Lowest Income Quintile	8,681 (26.7%)	454 (52.1%)	336 (45.8%)	332 (28.0%)	580 (38.5%)	332 (33.0%)	191 (36.7%)	389 (36.8%)
Rural Residence	3,472 (10.7%)	<6 (<0.01%)	<6 (<0.01%)	23 (1.9%)	<6 (<0.01%)	6 (0.6%)	<6 (<0.02%)	<6 (<0.01%)
Refugee Status	N/A	441 (50.6%)	51 (7.0%)	239 (20.2%)	260 (17.3%)	107 (10.6%)	145 (27.8%)	472 (44.6%)
High Neighbourhood Residential Instability	21,981 (67.5%)	726 (83.3%)	506 (69.0%)	785 (66.3%)	834 (55.4%)	715 (71.0%)	373 (71.6%)	719 (68.0%)
Psychosis NOS Diagnosis	16,631 (51.1%)	449 (51.5%)	376 (51.3%)	640 (54.1%)	694 (46.1%)	481 (47.8%)	247 (47.4%)	520 (49.1%)
ADGs, mean (SD)	6.3 \pm 3.9	5.4 \pm 3.7	5.3 \pm 3.6	5.7 \pm 3.7	5.8 \pm 3.5	4.9 \pm 3.5	5.9 \pm 3.8	5.7 \pm 3.7
Chronic Medical Condition	9,545 (29.3%)	254 (29.1%)	188 (25.6%)	341 (28.8%)	491 (32.6%)	242 (24.0%)	157 (30.1%)	309 (29.2%)
Chronic Psychosocial Condition	26,146 (80.3%)	566 (64.9%)	502 (68.5%)	905 (76.4%)	1,095 (72.8%)	664 (65.9%)	390 (74.9%)	798 (75.4%)

SD = standard deviation; NOS = not otherwise specified; ADG = adjusted diagnostic groups

Supplemental Table S2. Differences in access to a regular primary care physician in the year prior to diagnosis of non-affective psychotic disorder among first-generation migrant groups by region of birth

	n	Regular primary physician n (%)	No regular primary care physician n (%)	Unadjusted PR (95% CI)	Adjusted* PR (95% CI)
General Population	32,560	29,037 (89)	3,523 (11)	Reference	Reference
African	872	708 (81)	164 (19)	0.91 (0.88-0.94)	0.96 (0.94-0.99)
Caribbean	733	613 (84)	120 (16)	0.94 (0.91-0.97)	0.99 (0.96-1.02)
European	1,184	1,020 (86)	164 (14)	0.97 (0.94-0.99)	0.99 (0.97-1.01)
South Asian	1,505	1,316 (87)	189 (13)	0.98 (0.96-1.00)	1.01 (0.99-1.03)
East Asian	1,007	850 (84)	157 (16)	0.95 (0.92-0.97)	1.01 (0.98-1.03)
Latin American	521	459 (88)	62 (12)	0.99 (0.96-1.02)	1.01 (0.98-1.04)
North African & Middle East	1,058	902 (85)	156 (15)	0.96 (0.93-0.98)	0.98 (0.96-1.01)

PR = prevalence ratio; CI = confidence interval

Bolded findings denote statistical significance at $p < 0.05$.

*Adjusted for age, sex, income quintile, rurality, residential instability, index diagnosis, number of Johns Hopkins aggregated diagnosis group, chronic medical condition, chronic psychosocial condition