

FIRST-GENERATION IMMIGRANTS AND HOSPITAL ADMISSION RATES FOR PSYCHOSIS AND AFFECTIVE DISORDERS: AN ECOLOGICAL STUDY IN ONTARIO

Anna Durbin, MPH; Elizabeth Lin, PhD;
Lawren Taylor, BSc; Russell C. Callaghan, PhD

Presentation by Anna Durbin,
PhD candidate

May 31, 2012



UNIVERSITY OF
TORONTO



First-Generation Immigrants and Hospital Admission Rates for Psychosis and Affective Disorders: An Ecological Study in Ontario

Anna Durbin, MPH (PhD Candidate)¹; Elizabeth Lin, PhD²; Lawren Taylor, BSc³; Russell C Callaghan, PhD⁴

Objective: The immigrant population in Canada, and particularly in Ontario, is increasing. Our ecological study first assessed if there was an association between areas with proportions of first-generation immigrations and admissions rates for psychotic and affective disorders. Second, this study examined if area-level risks would persist after controlling for area socioeconomic factors in census-derived geographical areas—Forward Sortation Areas (FSAs)—in Ontario.

Methods: Ontario's inpatient admission records from 1996 to 2005 and census data from 2001 were analyzed to derive FSA rates of first admissions for psychotic disorders and affective disorders per 100 000 person-years. Negative binomial regression models were adjusted, first, for FSA age and sex and, second, also for FSA population density and average income.

Results: Using age- and sex-adjusted models, admission rates for psychotic disorders were higher in areas with greater proportions of immigrants. These areas were associated with lower admission rates for affective disorders. When FSA average income and population density were added to the models, the influence of immigrants was attenuated to nonsignificant levels in models predicting psychotic disorders admission rates. However, greater proportions of immigrants remained significantly protective when predicting rates of affective disorders.

Discussion: Our study provides insight about the influence of area-level variables on risk of admission for psychotic and affective disorders in high immigrant areas. There is a dearth of current Canadian research on immigrant admission for psychotic disorders at the individual or area level. Future area- and individual-level studies may better identify groups at risk and possible explanations.



BACKGROUND

- The immigrant population in Canada, and particularly in Ontario, is increasing
- Canada: 2nd largest proportion of first generation immigrants internationally (19.8% in 2006)
- In 2010, Canada admitted the highest number of immigrants in 57 years (approx. 250 000)
- Approximately 40% of Canadian immigrants moved to Ontario in 2010



BACKGROUND



- International studies have reported that:
 - The risk of hospitalization for psychosis is higher for immigrants, relative to native- born persons
 - Findings on immigrant risk for admission for affective disorders, relative to native- born persons, are mixed
- Hospitalization for psychosis among immigrants has not been assessed in recent years in Canada



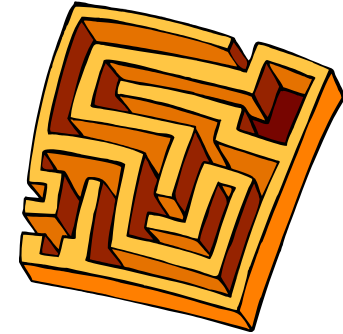
STUDY QUESTIONS



- (1) Are areas with higher proportions of first generation immigrants associated with a higher risk of first hospitalization for psychotic and affective disorders?
- (2) Do area-level socio-demographic characteristics (income and population density) influence risk of hospitalization for psychosis and for affective disorders?
 - Area level income and population density are related to the immigrant experience



STUDY DESIGN



- **Why use an ecological design:**
 - Place of birth is not recorded in individual hospital admission records in Ontario
 - Some factors of interest (e.g. urbanicity) are ecological
 - This design provides a rare opportunity to examine the influence of area level variables on mental health service use
- Study period: 1996 - 2005
- Study population: People aged 15 to 64 at first admission in Ontario



METHODS

Data sources:

1. Individual-level inpatient records from Canadian Institute for Health Information (CIHI), 1996-2005
2. Forward Sortation Area (FSA) level data from Canadian census, 2001

What are Forward Sortation Areas (FSAs)?

- First three characters in postal codes
- Maintained by Canada Post for sorting and delivering mail
- Of the 510 FSAs in Ontario in 2001, 507 had complete data for analysis

ADJUSTED ANALYSIS

Analytic choices	What was done
Type of model:	Negative binomial regression
Dependent variables:	<ol style="list-style-type: none">1. FSA rates of first admissions for psychotic disorders2. FSA rates of first admissions for affective disorders
Presentation of rates:	Rates were presented per 100 000 person-years
Weights:	Weights were used to account for FSA population size



ADJUSTED ANALYSIS

Analytic choices	What was done
Main predictor: <i>*In all models</i>	Proportion of immigrants per FSA
Other predictors:	Model 1: average age per FSA & % of males per FSA Model 2: Also adjusted for FSA average population density & FSA average income



RESULTS FOR MODEL 1

	Model	Dependent variable	
	FSA-level variables	Psychotic disorder admissions	Affective disorder admissions
MODEL 1	Main IV: % of first generation immigrants Covariates: Age, sex	<ul style="list-style-type: none">• Higher admission rates in areas with:<ul style="list-style-type: none">• ↑ proportion immigrants• ↑ proportion males	<ul style="list-style-type: none">• Higher admission rates in areas with:<ul style="list-style-type: none">• ↓ proportion immigrants

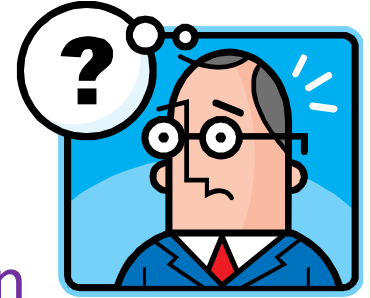


RESULTS FOR MODEL 2

	Model	Dependent variable	
	FSA-level variables	Psychotic disorder admissions	Affective disorder admissions
MODEL 2	<p>Main IV: % of first generation immigrants</p> <p>Covariates: Age, sex, income and population density</p>	<ul style="list-style-type: none"> • Higher admission rates in areas with: <ul style="list-style-type: none"> • ↓ average income • ↑ population density • Proportion of first generation immigrant → <i>not significant</i> 	<ul style="list-style-type: none"> • Higher admission rates in areas with: <ul style="list-style-type: none"> • ↓ proportion immigrant • ↓ average income

SUMMARY

- Admission rates for psychosis were elevated in crowded and impoverished areas
- The relationship between proportion of immigrants and admissions for psychosis was attenuated by social and economic variables
- Likelihood of admission for affective disorders was lower in areas with larger proportions of immigrants → this persisted with social variables in the model
- Areas with lower income had higher rates of admissions.



STRENGTHS



- Population based study for Ontario
- 10-year study period likely captured usual or regular admission rates
- Observed trends were consistent with both ecological and individual level patterns reported elsewhere
- Study has high policy relevance – for example:



OUR TIME TO LEAD
Why Canada needs a flood of immigrants

JOE FRIESEN — DEMOGRAPHICS REPORTER
From Saturday's Globe and Mail
Published Friday, May 04, 2012 8:13PM EDT

A grid of 15 small portrait photos of diverse individuals, arranged in three rows of five. The photos represent a cross-section of age, gender, and ethnicity. The text to the right of the grid is a headline and byline for an article.

LIMITATIONS



- It is unknown if the observed area-level effects persist at the individual level
 - There is a need for future studies to assess individual level patterns
- Pathways to care is conflated with risk of disorder
- Did not disaggregate immigrants (i.e., based on period of immigration, region of origin, visa category, etc.)



VALUE ADDED

- Health care administrators may consider factors related to the immigrant experience, such as economic deprivation and high population density, when planning culturally-sensitive mental health services
- This study begins to fill an important knowledge gap in Canadian research
- This study accentuates importance of immigrant status variables in Canadian and Ontario health care databases (client level)



- Questions?
- Comments?
- Anything else?

THANK YOU

