
Self-management, health service use and information seeking for diabetes care among recent immigrants in Toronto

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This article has been peer reviewed.

Abstract

Introduction: Our objective was to explore self-management practices, health services use and information-seeking for type 2 diabetes care among adult men and women from four recent immigrant communities in Toronto.

Methods: A structured questionnaire was adapted for the Canadian context and translated into 4 languages. A total of 184 participants with type 2 diabetes—130 recent immigrants and 54 Canadian-born—were recruited in both community and hospital settings.

Results: Recent immigrants were significantly less likely than the Canadian-born group to perform regular blood glucose and foot checks and significantly more likely than the Canadian-born group to be non-smokers, participate in regular physical activity and reduce dietary fat. Recent immigrants were significantly less likely than the Canadian-born group to use a specialist, alternative provider and dietician and less likely to report using dietitians, nurses and diabetes organizations as sources of diabetes-related information. Important differences were observed by sex and country of origin.

Conclusion: Findings suggest that diabetes prevention and management strategies for recent immigrants must address linguistic, financial, informational and systemic barriers to information and care.

Keywords: *type 2 diabetes, self management, utilization of health services, information-seeking, immigrants, racialized groups*

Introduction

About 5% of the Canadian population is living with type 2 diabetes,¹ and this proportion is expected to increase to 11% by 2020.² The prevalence of diabetes

is also rapidly increasing among Canadian immigrants,³ with pronounced variation across ethnicity and country of origin.^{4,5} Recent immigrants and refugees from South Asia, Latin America, the Caribbean and sub-Saharan Africa have a two- to

three-times greater risk of developing diabetes than their counterparts from western Europe or North America.⁶ Moreover, this elevated risk begins earlier in life (i.e. from 20 to 40 years of age), compared with immigrants from Europe and North America and Canadian-born populations.⁶

Evidence suggests that recent immigrants do not always benefit from diabetes management programs^{7,8} due to informational, financial, linguistic, cultural and systemic barriers to health and diabetes care.^{9,10} Adherence to self-management activities and the use of health services for diabetes-related information and care varies across ethno-racial populations and among those who integrate to a host society.^{4,11-14}

Our study reports findings related to self-management practices, health services use and help-seeking patterns among immigrants with diabetes in Canada.* As this was an exploratory study, no hypotheses were specified; however, the literature suggests that seeking information about diabetes and diabetes care may be compromised among recent immigrants. In particular, our key research question was how the migration process and being new to Canada affects diabetes

* In 2008, the Public Health Agency of Canada (PHAC) commissioned a survey in two large Canadian urban centres (Toronto and Montreal) to explore the experiences of recent immigrants (less than 10 years in Canada) with type 2 diabetes. This research was part of an international collaborative study on migration and diabetes co-ordinated by the International Centre for Migration and Health in Geneva, Switzerland.

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self-management and care. Our findings have implications for the development of health- and community-based interventions to enhance informational outreach, support self-management activities and facilitate access to diabetes care for newcomer populations in Canada.

Methods

The research team adapted a survey instrument developed by the International Centre for Migration and Health (ICMH) to collect information on the experiences of immigrants with type 2 diabetes. This involved extensive consultation with representatives of immigrant-serving organizations, diabetes education centres and community health centres. The final questionnaire was pre-tested and translated into four languages: Mandarin, Tamil, Bengali and Urdu. Ethics approval was obtained from University of Toronto, Mount Sinai Hospital and St. Michael's Hospital, in Toronto, Ontario.

Sample sizes and eligibility criteria for age and length of stay were pre-established by the Public Health Agency of Canada in order to ensure consistency with those used by other countries participating in the ICMH migration and diabetes study. The study population consisted of recent immigrant (less than 10 years in Canada) and Canadian-born adults (aged 35 to 64 years) with self-reported type 2 diabetes. This temporal definition of *recent immigrants* has been used in other provincial and national studies of Canadian immigrants.¹⁵⁻¹⁷ Four newcomer communities were targeted based on the following criteria: risk of developing diabetes post-migration; current immigration trends; the presence of social, economic and linguistic barriers to care; and pre-existing relationships with the research team that would facilitate recruitment and optimize participation.

We used several techniques to recruit participants. Census data from 2006 were used to identify census tracts in the

Greater Toronto Area where more than half of the population spoke one of the four study languages. These neighbourhoods were targeted for information campaigns about the study, and participants were recruited via posters in buildings, stores and community centres. A convenience sample of recent immigrant participants was also recruited via information sharing at community health centres, diabetes education centres and immigrant-serving organizations. To recruit Canadian-born study participants from across the city, we relied on existing partnerships with community health centres, diabetes education centres and hospital-based diabetes clinics located across the city as well as the Canadian Diabetes Association. Interested participants called the research co-ordinator first and were screened to determine their eligibility for the study. Others were approached in the clinics by the research co-ordinator or peer researchers.

All potential participants were then contacted by the project co-ordinator or a peer researcher fluent in their language who explained the aims of the study as well as the risks and benefits of participation. If the potential participant agreed to participate, an interview was arranged at a mutually convenient time and place. Consent forms were translated into each of the study languages. The interviews were conducted in the participant's language of choice using computer-assisted personal interviewing. This methodology for data collection was chosen because of its great potential to eliminate or minimize human errors, contribute to standardization of survey administration, enhance the efficiency of data collection and improve general data quality and validity. It also allows for more complex questionnaire structures and flexibility in design by incorporating skip patterns and automatic fill-in options. Since respondents cannot record implausible or "out-of-range" responses, all inconsistencies can be identified and resolved during the interview.^{18,19} SPSS Data Entry Builder 4.0

software (SPSS Inc., Chicago, IL, US; 2003) was used to create the computer-assisted personal interviewing. Two members of the research team (AR, DK) developed this methodology for the Wave II data collection of the New Canadian Children and Youth Study (NCCYS) and have since used it—and shared it—across multiple projects.

Measures

Apart from age, which was treated as continuous, many of the sociodemographic variables in the survey were dichotomized due to small sample sizes: sex (male, female), current marital status (married/living with partner, not married), level of education (no university degree, university degree or higher), employment (employed, not employed), type of employment (permanent, temporary) and job reflecting education and credentials (yes, no). Income was calculated from the estimate of household income from all sources and number of people dependent on household income,²⁰ and later dichotomized as low income (yes, no). Racialized status[†] was determined by asking participants with which ethnic or racial group they best identified, with responses dichotomized (racialized, non-racialized) according to their self-response.

Variables regarding self-management practices were based on behaviours defined in the research literature as important to self-management.²² The survey participants were asked questions about the frequency with which their blood glucose is checked ("How often do you usually have your blood checked for glucose or sugar either by yourself or by a family member or friend? Yes daily/weekly glucose check, no"); the frequency that their feet are checked for sores or irritations ("How often do you usually have your feet checked for any sores or irritations by yourself or a family member or friends? Yes daily/weekly foot check, no"); their smoking status ("At the

[†] The research team adopted the term *racialized status* (as opposed to *visible minority status*) in this project to acknowledge the fact that *racialization* is a social process whereby certain groups come to be designated as different and consequently subjected to differential and unequal treatment.²¹ Unlike the term *visible minorities*, which Canada's *Employment Equity Act* defines as "non-Caucasian in race or non-white in colour," *racialized groups* makes clear that race is not an objective biological fact, but rather a social and cultural construct that potentially exposes individuals to prejudicial attitudes and discriminatory treatment.

present time, do you smoke cigarettes? Yes, no”); their physical activity (“Do you usually do some physical activity for at least 30 minutes per day? Yes, no”); and their diet (“During the past 12 months, to what extent have you tried to reduce carbohydrates (pasta, bread)? A great deal or moderately, only a little or not at all”).

Items regarding use of health services included eye examinations (“Have you ever had an eye exam for diabetes where the pupils of your eyes were dilated? Yes, no”); checking for sores or irritations (“In the past 12 months, has a health care professional checked your feet for any sores or irritations? Yes, no”); and blood indicators (“In the past 12 months, has a health care professional tested you for hemoglobin A1C? How many times?” Every 3 months, not every three months).[‡]

Questions about information-seeking practices included, “Who provides you with information about managing your diabetes (physician, dietician, nurse, family or friends, diabetes association, Internet)? Participants were able to indicate more than one source. The survey instrument also included a series of questions on barriers to accessing health care including finding a doctor who was accepting new patients, long waits to see a family doctor or specialist, not knowing where to go for health care, linguistic barriers, finding child care, transportation problems, time off work, gender issues and costs not covered by health insurance.

Statistical analyses

Bivariate analyses (Student’s *t* tests, Chi-square tests) were used to compare the recent immigrant and Canadian-born study groups, and to explore possible variations within the recent immigrant group itself by country of origin and sex. Statistical significance was set at $p < .05$.

Results

Survey data was collected from 184 participants with type 2 diabetes using

convenience sampling. Of these, 130 were recent immigrants from Sri Lanka ($n = 30$), Bangladesh ($n = 35$), Pakistan ($n = 35$) and China ($n = 30$), and 54 were Canadian-born respondents. In the recent immigrant group, 58 (45%) were men and 72 (55%) were women, compared with 28 men (52%) and 26 women (48%) in the Canadian-born group. All participants in the recent immigrant group were racialized. About 76% of the Canadian-born group was non-racialized, an identical proportion to that reported among the Canadian-born population in Toronto.²³

Demographic information describing the study participants is shown in Table 1. Recent immigrants were three times more likely to be married than the Canadian-born respondents, but less likely to have a permanent job or a job that reflected their educational credentials and experiences. There were no significant differences between groups in terms of mean age, education or employment status. The incidence of low income was notably high among recent immigrants (36%) as well as those who were Canadian-born (42%), but the difference

between the two groups was statistically nonsignificant. Some significant differences were, however, noted within the recent immigrant group by sex and country of origin. For example, recent immigrant women had completed lower levels of education, were less likely to be employed and were less likely to be permanently employed than recent immigrant men.

Figure 1 shows data on the five diabetes self-management variables by migration status. The recent immigrant group was less likely than the Canadian-born group to perform regular glucose checks (76.2% vs. 90.8%, $p < 0.001$) and foot checks (57.0% vs. 75.9%, $p < .001$). Recent immigrants were more likely than the Canadian-born to be non-smokers (10.0% vs. 35.2%, $p < .001$), participate in regular physical activity (81.5% vs. 66.7%, $p < .05$) and reduce carbohydrates moderately or a lot (76.2% vs. 51.9%, $p < .001$). Statistically significant differences by sex and country of origin were also observed. Recent immigrant women were significantly less likely than recent immigrant men to be smokers,

TABLE 1
Demographics: recent immigrant and Canadian-born study groups

	Recent immigrants (N = 130)	Canadian-born adults (N = 54)	p value	Significant differences	
				By sex ($p < .05$)	By country of origin ($p < .05$)
Mean age, years	51.2	52.3	NS		Yes
Marital status					
Married, %	89.2	24.1	< .001		
Education					
University or higher, %	52.3	35.2	NS	Yes	Yes
Employment					
Unemployed, %	33.8	29.6	NS	Yes	
Type of employment					
Permanent, %	60.0	94.4	< .01	Yes	
Job reflects credentials					
No, %	41.3	0	< .01		
Income					
Low income, %	36.3	41.9	NS		
Race					
Racialized, %	100	24.1			

Abbreviation: NS, non-significant.

[‡] The time frames indicated are the minimum periods recommended for diabetes care. For example, if a problem such as a retinopathy is found, more regular eye exams would be indicated.

whereas recent immigrants from Pakistan were more likely to check their glucose and feet and engage in regular physical activity than recent immigrants from other countries (data not shown).

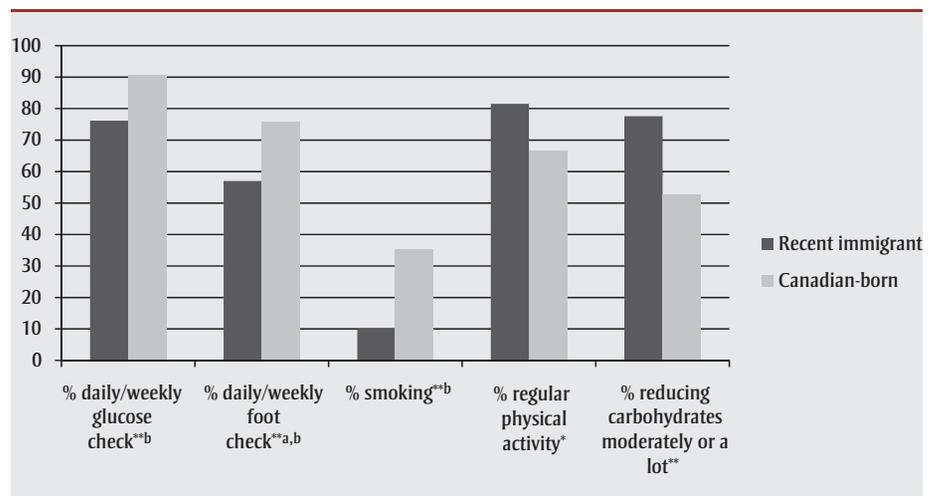
Figure 2 shows data on the utilization of health care professional services for diabetes care. Similar proportions of the recent immigrant group and the Canadian-born group ever had an eye exam (66.2% vs. 75.9%) and had their hemoglobin A1C level checked every three months (17.1% vs. 24%). However, recent immigrants were more likely to have never had a foot exam compared with the Canadian-born participants in our study sample (60.0% vs. 33.3%, $p < .001$).

Table 2 presents data on the reported usual sources of diabetes care and information. While both groups reported using general practitioners or family physicians as their usual source of health care, recent immigrants were significantly less likely to consult a specialist (24.6% vs. 40.7%, $p < .05$), alternative health care provider (0.8% vs. 7%, $p < .05$) or dietician (19.2% vs. 38.9%, $p < .01$). Some significant differences were observed by sex and country of origin. Recent female immigrants were, for example, more likely to use a dietician than recent male immigrants (data not shown).

Although both groups reported that physicians were their primary source of information on diabetes, compared with the Canadian-born respondents, recent immigrants were significantly less likely to report using dieticians (24.6% vs. 40.7%, $p < .05$), nurses (11.5% vs. 24.1%, $p < .05$) and diabetes associations (2.3% vs. 24.1%, $p < .001$) as sources of information. They were also significantly more likely to use family (46.9% vs. 27.8%, $p < .05$) and friends (39.2% vs. 13.0%, $p < .001$). There was no statistically significant difference between groups regarding Internet use for this purpose (28.5% vs. 29.6%).

When asked about the types of barriers experienced in accessing health care, recent immigrants reported significantly more problems than did their Canadian-born counterparts, indicating long waits

FIGURE 1
Diabetes self-management practices by recent immigrant and Canadian-born study groups



^a Significant differences by sex.

^b Significant differences by country of origin.

^a $p < .05$.

^a $p < .001$.

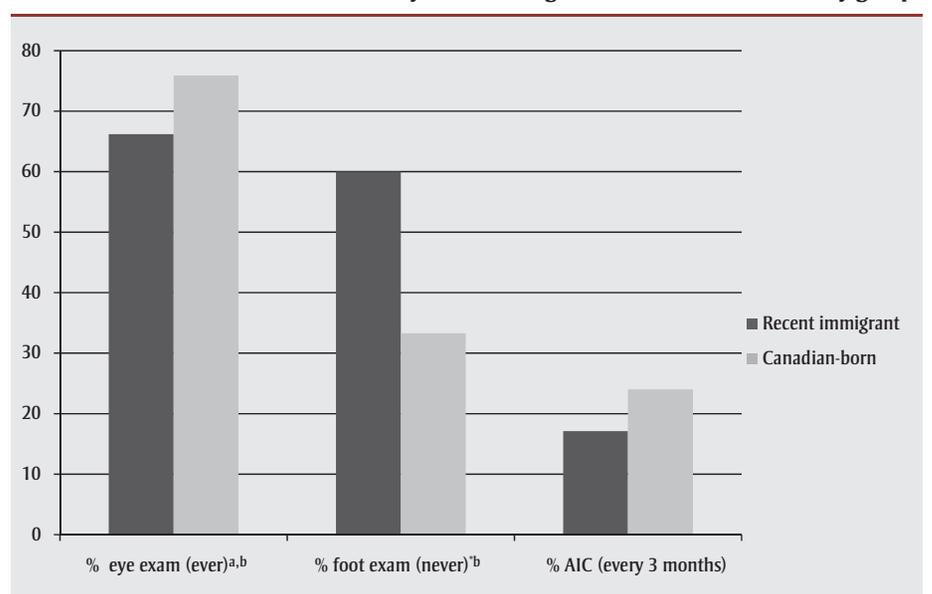
to see doctors or specialists, a lack of information on where to go, linguistic barriers, child care issues, difficulties finding a doctor of the same sex, and dealing with costs not covered by insurance (data not shown). Several of these barriers were more significant for recent

immigrant women compared with recent immigrant men.

Discussion

This survey was the first in Canada to collect information on the experiences of

FIGURE 2
Use of health services for diabetes care by recent immigrant and Canadian-born study groups



Abbreviation: A1C, hemoglobin A1C.

^a Significant difference by sex.

^b Significant differences by country of origin.

^a $p < .001$.

TABLE 2
Sources of diabetes health care and information for recent immigrant and Canadian-born study groups

	Recent immigrants (N = 130)	Canadian-born (N = 54)	p value	Significant differences	
				By sex	By country of origin
Usual source of care, %					
GP or FP	95.4	85.3	< .1		
Specialist	24.6	40.7	< .05		Yes
Social worker	2.3	1.9	NS		
Alternative health care provider	0.8	7.4	< .05		
Dietician	19.2	38.9	< .01	Yes	Yes
Nurse educator	12.3	22.2	NS		
Main source of information, %					
MD	89.2	96.3	NS		
Dietician	24.6	40.7	< .05		
Nurse	11.5	24.1	< .05		
Social worker	5.4	0	NS		
Family	46.9	27.8	< .05		Yes
Friends	39.2	13.0	< .001	Yes	Yes
Diabetes associations	2.3	24.1	< .001		
Internet	28.5	29.6	NS		Yes

Abbreviations: FP, family physician; GP, general practitioner; MD, medical doctor; NS, non-significant.

recent immigrants with diabetes in their own language. We purposefully sampled high-risk newcomer populations and, with our recruitment strategies, we most likely ended up oversampling individuals from low-income backgrounds. This was not intentional but simply reflects the economic realities of recent immigrants. As the proportion of low income was similarly high (over one-third) among both recent immigrant and Canadian-born study groups, our analyses were able to identify some differences, over and above absolute income, regarding demographics, self-management practices, the use of health services information and information seeking.

Among the differences that were observed between recent immigrant and Canadian-born adults with diabetes were differences in type of employment and underemployment. This is consistent with the literature documenting differences in these employment patterns between recent immigrant and Canadian-born individuals.²⁴ Furthermore, racialized Canadians (immigrant and Canadian-born) are more likely to be unemployed and less likely to have

permanent employment than non-racialized Canadians.^{21,25} Precarious status can have a negative impact on health care access particularly since it prevents access to insured services.^{26,27} The fact that the unemployment rate among the Canadian-born group in our study (29.6%) was higher than that of the Canadian population as a whole is likely because the study population was composed of people with diabetes, a condition that has been shown to have a significant negative impact on employment probabilities.²⁸ In addition, diabetes is more prevalent in low-income populations.

In terms of self-management practices, the differences between recent immigrants and the Canadian-born groups were less clear cut. Recent immigrants were less likely to perform regular glucose or foot checks than the Canadian-born population. This suggests that recent immigrants may be experiencing informational barriers regarding optimal diabetes care. In our study group, recent immigrants with diabetes were less likely than their Canadian-born counterparts to use tobacco and more likely to engage in

physical activity and healthy eating, positive practices that need to be encouraged and supported as an integral part of diabetes care. However, other research suggests that, whereas new immigrants are significantly less likely to smoke than the Canadian-born population, they are also less likely to engage in physical activity.²⁹⁻³²

This study identified informational and systemic barriers to health care faced by recent immigrants with diabetes, particularly for those from non-European backgrounds. Several other studies indicated that racialized Canadians, as most recent immigrants are, are less likely to use preventive, chronic and specialist health services than the Canadian-born population.^{9,33-34}

It is possible that differences in the severity of diabetes between the recent immigrant and Canadian-born study groups might account for differences in self-management and health services use. However, both groups reported similar rates of under-control diabetes and of gestational diabetes. Rates of obesity (as determined by BMI and waist circumference) were significantly higher in the Canadian-born group compared with the recent immigrant group, and yet the latter reported more problems associated with their diabetes than did the Canadian-born group. Multivariate analyses are called for to examine in greater detail demographic and other risk factors associated with self-management practices, access to diabetes care and information seeking, and possible variations by sex and country of origin.

It is also possible that our findings reflect differences in racialized status rather than newcomer status since all of the recent immigrants in our study were racialized. Newcomer status, racialized status, country of origin, sex and other social determinants are all important and intersecting predictors of self-management and access to diabetes information and care that need to be considered by health care providers and decision makers in developing culturally and contextually sensitive models of diabetes care.

These issues will be further addressed in the second phase of our research in which we examine diabetes outcomes among recent, non-recent and Canadian-born members of the Black Caribbean community with type 2 diabetes.

Conclusion

While our results are not generalizable to the entire newcomer immigrant population due to small sample size and non-random sampling, these findings have important implications for the organization and delivery of diabetes prevention and management strategies in newcomer communities, particularly those that are economically marginalized and at high risk of developing diabetes. Diabetes prevention strategies must continue to address the social determinants of health, especially precarious employment, which may contribute to inequities in health and access to care. Health service delivery policies and strategies need to recognize the unique needs and barriers facing newcomer communities as a priority population that require financial, linguistic and gender-sensitive supports. The strong reliance of recent immigrants on family and friends for diabetes-related information suggests that raising community awareness and capacity with respect to diabetes is critical. Community information sharing networks and community-based informal and formal support systems should be considered as the foundation for diabetes prevention and health promotion strategies.

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