Migration and Diabetes: Preliminary Findings from the Migration and Diabetes Study

Presented by:

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Access Alliance Multicultural Health and Community Services

- Works to increase access to services and promote health and well-being for immigrants and refugees living in Toronto by addressing medical, social, economic and environmental issues.
- Gives priority to marginalized immigrant and refugee groups, in particular emerging newcomer refugee groups, and racialized communities living in underserved low income neighbourhoods.
“Healthy immigrant effect” refers to the observation that immigrants are often in superior health to the Canadian-born population when they first arrive in Canada.

There is growing evidence that immigrants lose this health advantage over time.

The prevalence of Type II diabetes is increasing among Canadian immigrants (PHAC, 2005).

Immigrants from South Asia, Latin America, the Caribbean and sub-Saharan Africa have a two –three times greater risk of developing diabetes than other immigrant populations (Creatore et al., 2010).

This elevated risk begins earlier in life (e.g. 35-49) and is equivalent or higher among women (Creatore et al., 2010).
Multiple and intersecting genetic and social (e.g. poverty, food insecurity) determinants of Type II diabetes (Chaufan, 2008; Raphael et al., 2003).

Ho: Determinants of health related to the migration context e.g., stress, discrimination, unemployment/under-employment, changes in social support and changes in health behaviours (e.g. diet, physical activity) intersect with other determinants to increase risk.
The effective control of diabetes depends on self-management.

Determinants of self-management:
- Individual/family (e.g., income, stress, social support, depression, literacy)
- Neighbourhood (e.g. availability of resources)
- Provider-related (e.g., communication)
- Systemic (e.g., language and other barriers that influence referral and care)

(Brown et al., 2004; Raphael et al., 2003).
Literature Review: Barriers to Diabetes Care

- Barriers to health care for immigrants are well documented: informational, financial, linguistic, cultural and systemic (Hyman, 2001; 2009; AAMCHC, 2005).
- Ethnic/racial variation in the use of primary care and adherence to diabetes self-management activities (Gary et al., 2004; Mah et al. 2006; Robbins, 2000).
Literature Review: Summary

- Recognition of the complexity of pathways that limit opportunities to engage in health enhancing behaviours, deter access to information and health care, and contribute to psychosocial stress, and their impact on diabetes outcomes.
Migration and Diabetes Project: Overview

Objective: To learn about the experiences of diabetes and the factors affecting its risk, prevention, treatment and self-management among immigrants and non-immigrants.

- This research was part of an international collaborative study on migration and diabetes being coordinated by the International Centre for Migration and Health (ICMH) in Geneva, Switzerland.

- Two Canadian centres – Toronto and Montreal

Funding: PHAC (research) and CIC (KT)
Migration and Diabetes Project: Research Team

Investigators:
Ilene Hyman, Yogendra Shakya, Anneke (Joanna) Rummens, Dianne Patychuk, Marisa Creatore

Qamar Zaidi, Research Coordinator (Urdu)

Sivajini Sivasamy, Assistant Research Coordinator/Peer Researcher (Tamil)

Khaleda Yesmin, Peer Researcher (Bengali)

Ying Zhou, Peer Researcher (Mandarin)

Dragan Klujic, Data Manager, CAPI Programmer and Designer
Project Advisory Committee

- Access Alliance MCHS
- Diabetes Education Centre North-East Toronto (DEC NET)
- AWIC (formerly Asian Women in Canada)
- West Toronto Diabetes Education Program
- Tamil Eelam Society of Canada
- Toronto Chinese Health Education Committee
- Canadian Diabetes Association (South Asian Chapter)
- Vasantham – Tamil Senior’s Wellness Centre
- Providence Healthcare - Tamil Caregiver Project
Methods

- Exploratory study
  - Phase I: Ethics, PAC, adaptation of the international questionnaire, translation, pre-testing, CAPI development and training
  - Phase II: Interviews with recent immigrants (0-9 years in Canada) and non-immigrants with and without diabetes in Toronto
  - Phase III: Data analysis and knowledge exchange
Phase I: Development

- CAPI (Computer Assisted Personal Interview) development and training
- Final Questionnaire Content:
  - Demographics
  - Migration history
  - Resettlement experiences
  - Health beliefs and practices
  - Diabetes diagnosis and care
  - Self-management practices
Automated validation check (data cleaning) in CAPI

Interviewer: The File Number consists of 7 digits as follows:
The first digit indicates the city in which interview was conducted; next two digits are chosen to represent the national group the interviewee belongs to, next digit represents the type of the interviewee and the last three digits represent the interviewee’s ID number.

Interview date: Day: 29, Month: October, Year: 2009

Identification of the interviewer (number): 1

Language used for the interview:
- English
- French
- Punjabi
- Cantonese
- Creole
- Mandarin
- Tamil
- Urdu
- Bengali

Flow information: If interviewee is non-migrant GO TO Section 1
If interviewee is migrant GO TO Q.0.8

In what year did you first come to Canada to live? year: N/A - non-migrant

Flow information: If interviewee is migrant without diabetes GO TO Section 1

When were you first diagnosed with diabetes?
- Before immigration
- N/A - migrant without diabetes
- N/A - non-migrant

Validation rule Q004: Please answer this question!
Validation rule Q101: Only persons between 35 and 65 are eligible for this study! If person you are interviewing is out of this range do not continue with the interview! Otherwise click Cancel and enter corrected age.
Validation rule Q201A: Response on this question cannot exceed interviewee’s actual age (Q1.1). Please clarify!
Checking rule FilenumCheck: File number is not in accordance with other data. Please check responses on Q.0.1, Q.0.2, Q.0.3 and Q.0.4 and reenter Q.0.4!
Checking rule Qu101A: Response on this question cannot exceed interviewee’s actual age (Q1.1). Please clarify!

Next Case with Error
## Study Population

<table>
<thead>
<tr>
<th>Communities</th>
<th>Diabetes +</th>
<th>Diabetes -</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bangladeshi (Bengali-speaking)</td>
<td>35</td>
<td>10-15</td>
</tr>
<tr>
<td>Mainland Chinese (Mandarin-speaking)</td>
<td>35</td>
<td>10-15</td>
</tr>
<tr>
<td>Sri Lankan Tamils</td>
<td>35</td>
<td>10-15</td>
</tr>
<tr>
<td>Pakistani (Urdu-speaking)</td>
<td>35</td>
<td>10-15</td>
</tr>
<tr>
<td>Canadian Born</td>
<td>100</td>
<td>0</td>
</tr>
</tbody>
</table>

**Rationale for selection:** High risk of developing diabetes post-migration and/or Current immigration trends in Canada and/or Major social, economic and linguistic barriers to care and/or Pre-existing relationships with newcomer organizations

**Community-based recruitment strategies:**
Mandarin Mother Tongue Speakers, 2006

Map showing the distribution of Mandarin speakers in Toronto, 2006. The map highlights areas with the highest percentage of Mandarin speakers.

Legend:
- 50% shown
- Mandarin
- Weight: 1.000
- Highest: 3080
- Lowest: 0

Percentage of Total by Mother Tongue

Color scale:
- Lightest color: Lowest percentage
- Darkest color: Highest percentage

Areas with darker colors indicate a higher percentage of Mandarin speakers.
Recruitment Challenges

- No sampling frames -> need for community-based approaches
- Strict eligibility criteria (35-65 years, Type 2 Diabetes, 0-9 yrs in Canada)
- Newcomers have other priorities e.g., many working two jobs or shift work, more difficult to recruit men than women
- Discomfort/stigma discussing personal health issues
- Tamil community: Community focus was on bringing attention to the plight of Tamils in Sri Lanka, Spring 2009
- Non-immigrants: Lack of community partners, need for hospital-based recruitment
Phase II – Interviews with Health Providers

- Focus groups (3) and interviews with health providers from hospitals and CHC’s
- Focus group content:
  - Perceptions and understanding of the relationship between immigration and diabetes
  - Challenges that immigrants with diabetes face
  - Challenges faced by health professionals in providing care to immigrants with diabetes
  - Promising strategies used and needed
Table 1 – Demographics, immigrants and non-immigrants

<table>
<thead>
<tr>
<th></th>
<th>Non-Immigrants (N = 54)</th>
<th>Immigrants (N =130 )</th>
<th>Differences by nationality</th>
<th>Difference by gender</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age – Mean</td>
<td>52.28 (NS)</td>
<td>51.15</td>
<td></td>
<td>X</td>
</tr>
<tr>
<td>Marital status</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>% Married</td>
<td>24.1 (p&lt;.001)</td>
<td>89.2</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Education – Mean</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>% University or higher</td>
<td>6.87 (NS)</td>
<td>7.54</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Employment</td>
<td></td>
<td></td>
<td></td>
<td>X</td>
</tr>
<tr>
<td>% Employed</td>
<td>29.6 (NS)</td>
<td>33.8</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Type of employment</td>
<td></td>
<td></td>
<td></td>
<td>X</td>
</tr>
<tr>
<td>% Permanent</td>
<td>94.4 (p&lt;.01)</td>
<td>60.0</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Job reflects credentials</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>% No</td>
<td>0.0 (p&lt;.01)</td>
<td>41.3</td>
<td></td>
<td></td>
</tr>
<tr>
<td>% Low income</td>
<td>41.9 (NS)</td>
<td>36.3</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ethnicity</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>% White</td>
<td>75.9%</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Figure 1 - Diabetes outcomes, by immigration status

*** p < .001; * p < .05
Gender differences in obesity risk and health status;
Nationality differences in obesity risk (China/Pakistan)
Figure 2 – Self-management, by immigration status

Gender differences in smoking
Nationality differences: glucose (CH/PK), foot care (BAN/PK), smoking (SL/PK), adherence (CH/PK)

*** p < .001; * p < .05
Figure 3 - Diabetes care, by immigration status

- **p < .001**
- Gender differences in eye exam
- Nationality differences in eye exam (CH/SL), foot exam (CH/PK)

<table>
<thead>
<tr>
<th></th>
<th>Immigrant</th>
<th>Non-Immigrant</th>
</tr>
</thead>
<tbody>
<tr>
<td>% eye exam (ever)</td>
<td>66.2</td>
<td>75.9</td>
</tr>
<tr>
<td>% foot exam (never)</td>
<td>60</td>
<td>33.3</td>
</tr>
<tr>
<td>% AIC (every 3 months)</td>
<td>17.1</td>
<td>24</td>
</tr>
</tbody>
</table>

*** p < .001

Gender differences in eye exam
Nationality differences in eye exam (CH/SL), foot exam (CH/PK)
# Table 2 – Perceptions of why people develop diabetes

<table>
<thead>
<tr>
<th>Perceived Cause</th>
<th>Non-Immigrants (N = 54)</th>
<th>Immigrants (N = 130)</th>
</tr>
</thead>
<tbody>
<tr>
<td>It runs in the family</td>
<td>75.9</td>
<td>75.8</td>
</tr>
<tr>
<td>You get it when you get older</td>
<td>33.3</td>
<td>35.9</td>
</tr>
<tr>
<td>You get it when you are overweight or obese</td>
<td>77.8</td>
<td>62.7 (p&lt;.05)</td>
</tr>
<tr>
<td>You get it when you have high cholesterol</td>
<td>29.6</td>
<td>35.2</td>
</tr>
<tr>
<td>You get it when you don’t do enough exercise</td>
<td>44.0</td>
<td>57.0</td>
</tr>
<tr>
<td>You get it when you don’t eat healthy food</td>
<td>74.0</td>
<td>68.0</td>
</tr>
<tr>
<td>You get it when you are under a lot of stress</td>
<td>50.0</td>
<td>86.7 (p&lt;.000)</td>
</tr>
<tr>
<td>It’s God’s will or fate</td>
<td>3.7</td>
<td>22.7 (p&lt;.002)</td>
</tr>
</tbody>
</table>
### Table 3 – Importance of health practices by immigration status

<table>
<thead>
<tr>
<th>Health Practice</th>
<th>Non-Immigrants (N = 54)</th>
<th>Immigrants (N = 130)</th>
<th>Differences by nationality</th>
<th>Differences by gender</th>
</tr>
</thead>
<tbody>
<tr>
<td>Healthy diet</td>
<td>85.2</td>
<td>93.0</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Natural healing products</td>
<td>33.3</td>
<td>49.2</td>
<td>X (SL/CH)</td>
<td>X (F)</td>
</tr>
<tr>
<td>Religious/spiritual beliefs</td>
<td>35.2 (p&lt;.001)</td>
<td>67.2</td>
<td>X (CH/BAN)</td>
<td></td>
</tr>
<tr>
<td>Regular exercise</td>
<td>72.2</td>
<td>85.4</td>
<td>X (PK/BAN)</td>
<td></td>
</tr>
<tr>
<td>Low stress lifestyle</td>
<td>68.5 (p&lt;.05)</td>
<td>90.8</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Healthy weight</td>
<td>70.4 (p&lt;.05)</td>
<td>89.1</td>
<td>X (PK/CH)</td>
<td></td>
</tr>
<tr>
<td>Limit alcohol</td>
<td>64.8 (p&lt;.05)</td>
<td>84.9</td>
<td></td>
<td>x (F)</td>
</tr>
<tr>
<td>Regular sleep</td>
<td>75.9 (p&lt;.01)</td>
<td>94.6</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Regular health care</td>
<td>83.3 (p&lt;.01)</td>
<td>78.5</td>
<td>X (CH/BAN)</td>
<td></td>
</tr>
<tr>
<td>Not smoking</td>
<td>73.5 (p&lt;0.01)</td>
<td>95.4</td>
<td></td>
<td>x (F)</td>
</tr>
<tr>
<td>Meaningful well paid work</td>
<td>58.5 (p&lt;.01)</td>
<td>81.8</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Having friends</td>
<td>79.6 (p&lt;.05)</td>
<td>66.2</td>
<td>X (CH/BAN)</td>
<td>X (F)</td>
</tr>
</tbody>
</table>
### TABLE 4

<table>
<thead>
<tr>
<th></th>
<th>Non-Immigrants (N = 54)</th>
<th>Immigrants (N = 130)</th>
<th>Differences by nationality</th>
<th>Differences by gender</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Source of care:</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Hospital</td>
<td>53.7 (p&lt;0.000)</td>
<td>9.2</td>
<td>X (BAN/PK)</td>
<td>X (CH/PK)</td>
</tr>
<tr>
<td>MD office</td>
<td>81.5</td>
<td>91.5</td>
<td></td>
<td></td>
</tr>
<tr>
<td>CHC</td>
<td>18.5</td>
<td>13.1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>DEC</td>
<td>16.7</td>
<td>9.2</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Other</td>
<td>5.6</td>
<td>4.6</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Usual Provider(s):</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>GP or FP</td>
<td>85.3 (p&lt;0.1)</td>
<td>95.4</td>
<td>X (BAN/PK)</td>
<td>X (F)</td>
</tr>
<tr>
<td>Specialist</td>
<td>40.7 (p&lt;0.05)</td>
<td>24.6</td>
<td></td>
<td></td>
</tr>
<tr>
<td>SW</td>
<td>1.9</td>
<td>2.3</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Alternative provider</td>
<td>7.4 (p&lt;0.05)</td>
<td>0.8</td>
<td>X (BAN/PK)</td>
<td></td>
</tr>
<tr>
<td>Dietitian</td>
<td>38.9 (p&lt;0.01)</td>
<td>19.2</td>
<td>X (BAN/PK)</td>
<td></td>
</tr>
<tr>
<td>Nurse educator</td>
<td>22.2</td>
<td>12.3</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Sources of info:</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>MD</td>
<td>96.3</td>
<td>89.2</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Dietician</td>
<td>40.7 (p&lt;0.05)</td>
<td>24.6</td>
<td>X PK/CH)</td>
<td></td>
</tr>
<tr>
<td>Nurse</td>
<td>24.1 (p&lt;0.05)</td>
<td>11.5</td>
<td>X PK/CH)</td>
<td></td>
</tr>
<tr>
<td>Social worker</td>
<td>0.0</td>
<td>5.4</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Family</td>
<td>27.8 (p&lt;0.05)</td>
<td>46.9</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Friends</td>
<td>13.0 (p&lt;0.000)</td>
<td>39.2</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Diabetes Assoc.</td>
<td>24.1 (p&lt;0.000)</td>
<td>2.3</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Internet</td>
<td>29.6</td>
<td>28.5</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Figure 4 - Barriers to health care, by immigration status

Gender differences in information, language barriers, childcare, gender issues
Nationality differences in language (PK/CH)

*** p < .001; ** p < .05; p < .01
Figure 5 - Barriers to diabetes care, by immigration status

- % diabetes care very expensive*
  - Non-Immigrant: 25.9%
  - Immigrant: 49.6%

- % with insurance***
  - Non-Immigrant: 81.5%
  - Immigrant: 51.5%

- % reporting not enough money to manage diabetes
  - Non-Immigrant: 31.5%
  - Immigrant: 30.8%

*** p < .001; ** p < .05; p < .01

Nationality differences in expense of diabetes care (BAN/PK) and not enough money (BAN/CH=SL)
Summary

- The prevalence and risk of diabetes is increasing, esp. among recent immigrants from South Asia, Latin America/Caribbean and sub-Saharan Africa and women.
- Variation in living/working circumstances, especially among women, may contribute to diabetes risk.
- There is variation (+ and -) in self-management practices and health care use.
- There are profound differences in health beliefs re: causation and how to stay healthy.
- Multiple barriers to health and diabetes care are present for immigrants, especially for women.
1. Prevention

- Stress was cited as a risk factor for diabetes
- Need to raise community awareness about diabetes

“I never realized that stress can also bring out disease. People need to take care of themselves mentally. One also needs to take care of oneself physically” (Tamil Participant)
2. Challenges to Self-Management

Cost (e.g. costs of medicine, food, transportation, blood testing, access to exercise facilities); ODSP is insufficient to cover costs

“We are on ODSP and therefore our drugs are covered, I can’t imagine what would happen if we were not covered. Diabetes drugs are so expensive” (Tamil Participant)

“It is not convenient to go to programs which are far away, because immigrant seniors usually do not have a car and sometimes it is hard to take TTC since language is a barrier” (Chinese Participant)

“I would be happy if there was a place to exercise in my neighbourhood, with treadmills, that is open all year round” (Bengali Participant)
2. Challenges to Self-Management (cont)

- Lack of language specific diabetes information particularly re: dental, foot and eye care and where to access these services. There was also a general lack of awareness about DEC

- Family issues

  - women face multiple demands/family expectations

- “I feel shy to ask my children to buy medicine for me as I feel I do not want to be burden for them. That is why sometimes I do not buy medicines. My son asks me about the prescription written by my doctor, I do not give it to him all the time. I know they are working very hard to make ends meet” (Pakistani Participant)
3. Factors related to the organization of health services

- **Physician related** - lack of time, lack of cultural competency, lack of training, lack of referrals to specialists and/or DECs

- **Systemic** - Difficulties finding a physician, wait times to see a physician and/or a specialist, wait times for hospital care, language barriers/lack of access to interpreters

“It is very hard to find a medical doctor. I just go to a walk-in clinic. I do not have health insurance. The medicine is very expensive for me as I am not working.” (Pakistani Participant)

“Language problem is a barrier to see a specialist” (Chinese Participant)
Findings – Focus Groups

1. Factors contributing to diabetes risk

- Stress was well-recognized as a major contributor to the development of diabetes in newcomers.
- However, there was difficulty for some in disentangling factors related to the immigration context from low income.
- Financial, informational, linguistics, socio-cultural (e.g. perception, stigma) and systemic barriers influence both risk and management.

“Family responsibilities/ expectations puts a lot of stress on the migrant to provide. Often they work 10-18 hours a day, and after 5 years of living in Canada, they do not take care of their health. Factors such as this leads to additional stress and depression.”
2. Challenges for Delivering Care:
• Language barriers
• Reliance/dominance on medical advice
• Inadequate professional development/ cultural competency training and resources

3. Promising Strategies:
• Case management approaches including interdisciplinary/intersectoral team members can address the multiple and complex needs of newcomers or low income clients

“We can not separate people’s life problems from problems related to their diabetes”
Recommendations for Prevention and Awareness

- Continue to address the SDOH, especially income, that contribute to diabetes inequities in newcomer communities
- Adopt intersectoral strategies and service partnerships to reduce the challenges faced by newcomers
- Community engagement with newcomer communities to increase the awareness of diabetes information and care
Recommendations for Health Care

- Support training in culturally consistent care
- Increase provider awareness of / referral to diabetes resources (information, DECs, other professionals)
- Identify community information sharing networks and community-based support systems (informal and formal) as the foundation for health promotion and management strategies
Policy Recommendations

- Recognize community capacity (e.g., local groups best able to mobilize communities for pre-diabetes screening at the mall)
- Develop and support policies and strategies that recognize unique needs of racialized newcomer communities as a priority population (e.g., language and other supports)
- Consider multidisciplinary service models (e.g., centralized hubs for one-stop health care) including settlement workers, nurse practitioners, interpreters, lawyers, etc.
- Encourage and fund research to better plan, monitor, and evaluate strategies to reduce health inequities
Questions?
Comments?
Recommendations?
Thank you!