# Examining social determinants of health and diabetes in Black and South Asian populations in Ontario: A scoping review

## Supplemental material

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We wish to acknowledge this land on which Wellesley Institute operates. For thousands of years it has been the traditional land of the Huron-Wendat, the Seneca and the Mississaugas of the Credit. Today, this meeting place is still the home to many Indigenous people and we are grateful to have the opportunity to work on this land.

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Wellesley Institute advances population health and reduces health inequities by driving change on the social determinants of health through applied research, effective policy solutions, knowledge mobilization and innovation.

## About this document

This scoping review is funded by the Ministry of Health of the Province of Ontario, Grant #739. The views expressed are the views of Wellesley Institute and the authors and do not necessarily reflect those of the Province. This report includes a second document with supplemental material.

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We are grateful to Margaret Wall, MISt, University of Toronto Libraries, for peer review of the submitted search strategy. We also thank the following people from Wellesley Institute for their support in developing and implementing this research: Dr. Kwame McKenzie, MD, Dr. Brenda Roche, PhD, Jesse Rosenberg, JD, and Judy Noordermeer, MA.

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## List of tables

## Table 1. Search strategy developed for MEDLINE

| # | Search term | Result |
|---|---|---|
| 1 | diabetes mellitus/ | 145,495 |
| 2 | diabetes mellitus, type 1/ | 88,558 |
| 3 | diabetes mellitus, type 2/ | 181,641 |
| 4 | latent autoimmune diabetes in adults/ | 197 |
| 5 | prediabetic state/ | 9,814 |
| 6 | diabetes complications/ | 44,813 |
| 7 | Hyperglycemia/ | 32,931 |
| 8 | Glucose Intolerance/ | 10,107 |
| 9 | Glycated Hemoglobin/ | 45,082 |
| 10 | diabet*.tw,kf. | 828,946 |
| 11 | (T1D or T2D).tw,kf. | 29,262 |
| 12 | (prediabet* or pre-diabet*).tw,kf. | 15,302 |
| 13 | hyperglycem*.tw,kf. | 65,594 |
| 14 | blood glucose.tw,kf. | 92,542 |
| 15 | insulin.tw,kf. | 422,899 |
| 16 | glucose intoleran*.tw,kf. | 12,937 |
| 17 | (iddm or niddm).tw,kf. | 12,719 |
| 18 | or/1-17 | 1,148,584 |
| 19 | Ontario/ | 32,827 |
| 20 | ontari*.tw,kf. | 37,686 |
| 21 | (algoma or brant county or chatham-kent or durham or grey bruce or haldimand-norfolk or haliburton or kawartha or pine ridge or halton or hamilton or hastings or prince edward count* or huron or perth or kingston or frontenac or lennox or addington or lambton or leeds or grenville or lanark or middlesex or niagara or north bay or parry sound or ottawa or peel or peterborough or renfrew county or simcoe or muskoka or sudbury or thunder bay or timiskaming or toronto or waterloo or wellington or dufferin or guelph or windsor or essex county or york region).tw,kf. | 77,688 |
| 22 | (mississauga or brampton or markham or kitchener or ajax or oshawa or pickering or milton).tw,kf. | 4,465 |
| 23 | (london not (england or united kingdom or uk)).tw,kf. | 26,369 |
| 24 | or/19-23 | 151,783 |
| 25 | Black or African American/ | 75,191 |
| 26 | Black People/ | 41,023 |
| 27 | (black or afro-canad* or afric* or caribbean* or acb).tw,kf. | 499,799 |
| 28 | (haiti* or nigeria* or ethiopia* or somali* or congo* or ghana* or trini* or cameroon* or jamaica* or barbadian* or bajan*).tw,kf. | 154,500 |

| # | Search term | Result |
|---|---|---|
| 29 | South Asian People/ | 128 |
| 30 | (south asia* or brown).tw,kf. | 90,473 |
| 31 | (desi or desis).tw,kf. | 1,254 |
| 32 | (afghan* or bangladesh* or bengali* or bhutan* or india* or maldiv* or nepal* or pakistan* or sri lanka* or tamil*).tw,kf. | 303,190 |
| 33 | (racializ* or bipoc or "people of color" or "people of colour" or poc or "person of color" or "person of colour" or "persons of color" or "persons of colour").tw,kf. | 12,426 |
| 34 | or/25-33 | 1,017,840 |
| 35 | Social Determinants of Health/ | 7,564 |
| 36 | sdoh.tw,kf. | 1,673 |
| 37 | (social or socio* or structural).tw,kf. | 1,872,169 |
| 38 | Socioeconomic factors/ or Social Factors/ or Social Change/ or Social Conditions/ or Social Structure/ | 198,493 |
| 39 | Economic factors/ or Economic stability/ or Financial Stress/ | 1,587 |
| 40 | Economic Status/ or Social Class/ or Low Socioeconomic Status/ or Social Mobility/ | 46,908 |
| 41 | (SES or wealth* or financ* or econom*).tw,kf. | 638,929 |
| 42 | (class or caste).tw,kf. | 523,985 |
| 43 | Housing Instability/ or Home Environment/ or Housing Quality/ | 595 |
| 44 | Housing/ or Housing for the Elderly/ or Public Housing/ or Independent Living/ | 36,161 |
| 45 | (hous* or rent* or lodging* or dwelling* or apartment* or overcrowd* or living or home* or residen* or tenant*).tw,kf. | 1,625,513 |
| 46 | ill-housed persons/ or homeless youth/ | 11,574 |
| 47 | (homeless* or unhous* or shelter* or street people or street youth*).tw,kf. | 28,240 |
| 48 | Poverty/ or Poverty Areas/ or Medical Indigency/ | 54,179 |
| 49 | (poor or poverty or indigen*).tw,kf. | 873,721 |
| 50 | Social Environment/ | 44,870 |
| 51 | Community Networks/ | 7,223 |
| 52 | (communit* or group* or relation*).tw,kf. | 7,181,848 |
| 53 | Neighborhood Characteristics/ or Residential Segregation/ or Census Tract/ | 539 |
| 54 | (environment* or pollut*).tw,kf. | 1,584,532 |
| 55 | (neighborhood* or neighbourhood* or urban* or rural or segregat* or census area* or census tract*).tw,kf. | 477,807 |
| 56 | (geograph* or green* or park* or outdoor*).tw,kf. | 735,208 |
| 57 | Social Integration/ or Social Cohesion/ or Social Inclusion/ or Social Capital/ | 2,329 |

| # | Search term | Result |
|---|---|---|
| 58 | (shared or solidarity or cohes* or inclus*).tw,kf. | 645,520 |
| 59 | Social Isolation/ or Loneliness/ or Social Alienation/ or Ostracism/ | 23,678 |
| 60 | (isolat* or lonel* or alienat* or ostrac*).tw,kf. | 1,590,159 |
| 61 | Social Deprivation/ or Cultural Deprivation/ or Psychosocial Deprivation/ | 3,305 |
| 62 | depriv*.tw,kf. | 110,871 |
| 63 | Social Marginalization/ or Social Vulnerability/ | 941 |
| 64 | (marginal* or vulnerab*).tw,kf. | 337,164 |
| 65 | Educational Status/ or Literacy/ | 64,209 |
| 66 | (educat* or literate or literacy or illiter*).tw,kf. | 872,787 |
| 67 | Employment/ or Job Security/ or Unemployment/ | 58,035 |
| 68 | (employ* or unemploy* or underemploy* or occupation*or part-time).tw,kf. | 860,249 |
| 69 | Income/ | 35,851 |
| 70 | (income or salar* or wage*).tw,kf. | 215,771 |
| 71 | Pensions/ or "Salaries and Fringe Benefits"/ or Family Leave/ or Parental Leave/ or Health Benefit Plans, Employee/ or Sick Leave/ | 37,323 |
| 72 | (pension* or retirement* or benefits or health insurance or family leave or parental leave or paternity leave or maternity leave or care leave).tw,kf. | 539,492 |
| 73 | Workplace/ or Working Conditions/ or Workforce Diversity/ | 31,277 |
| 74 | (work* or job*).tw,kf. | 2,197,753 |
| 75 | Nutritional Status/ | 56,629 |
| 76 | food supply/ or food deserts/ or food insecurity/ or access to healthy foods/ or food security/ | 17,678 |
| 77 | (nutrition* or diet*).tw,kf. | 1,012,248 |
| 78 | (food* or grocer* or supermarket*).tw,kf. | 669,617 |
| 79 | Family Characteristics/ or Family Structure/ or Extended Family/ or Nuclear Family/ or Single-Parent Family/ or Marital Status/ or Divorce/ or Marriage/ or Single Person/ or Single Parent/ or Widowhood/ | 73,327 |
| 80 | (famil* or household* or generation* or multigeneration* or stepfamily* or stepparent* or parent* or marital or marri* or divorc* or unmarried or single or singles or widow*).tw,kf. | 4,442,158 |
| 81 | Emigration and Immigration/ or Refugees/ | 38,843 |
| 82 | (migrant* or immigra* or emigra* or refugee* or asylum or displaced or visa).tw,kf. | 128,293 |
| 83 | Communication Barriers/ or Limited English Proficiency/ or Nonverbal Communication/ | 11,791 |

| # | Search term | Result |
|---|---|---|
| 84 | (communicat* or language* or nonverbal or non verbal).tw,kf. | 660,373 |
| 85 | Internet/ or Internet Access/ or Digital Divide/ or Computer Literacy/ | 84,939 |
| 86 | (internet or digital divide or digital divide or digital gap or digital inclusion or computer*).tw,kf. | 442,400 |
| 87 | Health Services Accessibility/ or Access to Primary Care/ or Health Equity/ or Right to Health/ | 92,665 |
| 88 | (access* or health care or healthcare or health service* or primary care or health equity or health rights or quality of care or virtual care).tw,kf. | 1,700,102 |
| 89 | Culturally Competent Care/ or Cultural Competency/ | 8,780 |
| 90 | (cultural* competen* or cultural* sensitive*).tw,kf. | 12,783 |
| 91 | Health Inequities/ or Gender Equity/ or Health Status Disparities/ or Healthcare Disparities/ or Socioeconomic Disparities in Health/ | 42,463 |
| 92 | (equality or inequality or equit* or inequit* or disadvant* or disparit* or barrier*).tw,kf. | 732,360 |
| 93 | Social Discrimination/ or Social Stigma/ | 15,310 |
| 94 | (discriminat* or marginali* or stigma*).tw,kf. | 377,482 |
| 95 | Prejudice/ or Ageism/ or Bias, Implicit/ or Disability Discrimination/ or Homophobia/ or Racism/ or Systemic Racism/ or Sexism/ or Weight Prejudice/ or Xenophobia/ | 38,398 |
| 96 | (prejudice or ageis* or bias or ableis* or homophob* or transphob* racis* or racial* or sexis* or misogyn* or fatphob* or xenophob*).tw,kf. | 333,164 |
| 97 | or/35-96 | 18,642,640 |
| 98 | 18 and 24 and 34 and 97 | 367 |
| 99 | limit 98 to yr="2000 -Current" | 327 |

## Table 2. Characteristics of included studies

| Author and location | Study design and purpose | Diabetes | Social determinants of health | Sample characteristics | Key findings |
|---|---|---|---|---|---|
| Agarwal et al. (2020)<br>Hamilton | A feasibility study evaluating the implementation of an evidence-based chronic disease prevention and health promotion program for a South Asian-origin community, predominantly consisting of recent immigrants. | **Diabetes management and complications** | Immigrant status<br>Access to health services | N=71 South Asian-origin community members, predominately North Indian<br>- Male: 56.3%<br>- Mean age: 61.6<br>- High school or less: 21.1% | Paramedics faced challenges in recording physical health measures and conducting diabetes and other cardiovascular risk assessments, including language barriers and cultural considerations (e.g., male-female interactions). Volunteers assisted in overcoming these obstacles by translating information and carrying out risk assessments where appropriate.<br>Program was initially implemented in a social housing building, with low uptake among South Asian community members. Once program moved to a Sikh temple, participation increased. |

| Author and location | Study design and purpose | Diabetes | Social determinants of health | Sample characteristics | Key findings |
|---|---|---|---|---|---|
| Banerjee et al. (2018)<br><br>Ontario | Population-based cohort study to examine differences in diabetes prevalence among immigrants to Canada from South Asian countries. | **Diabetes incidence and prevalence**<br><br>Diabetes diagnosis determined through Ontario Diabetes Database. | Demographic factors<br><br>Income<br><br>Education<br><br>Immigrant status<br><br>Access to services | N=441,765 first-generation South Asian immigrants from India (53.1%), Pakistan (22.1%), Sri Lanka (18.9%), Bangladesh (5.3%), and Nepal (0.6%).<br><br>- Male: 50.4%<br>- Aged 20-45 (59%), 45-64 (31%) and 65+ (10%)<br>- High school or less: 50.6%<br>- Lowest income quintiles: 53%<br>- Refugee: 12%<br>- Proficient in English: 65% | Diabetes prevalence increased with age. However, immigrants from Sri Lanka and Bangladesh had high rates in younger adults (aged 20-44).<br><br>Diabetes prevalence was inversely related to income for immigrants from Sri Lanka but not other regions.<br><br>Across all sub-groups, diabetes prevalence was higher for males, refugees and individuals with no English proficiency.<br><br>Diabetes prevalence was proportional to education attainment for immigrants from Nepal, but the inverse was true for immigrants from India. |

| Author and location | Study design and purpose | Diabetes | Social determinants of health | Sample characteristics | Key findings |
|---|---|---|---|---|---|
| Banerjee et al. (2021)<br><br>Ontario | Population-based cohort study to examine differences in diabetes prevalence among residents of Ontario with South Asian origin. | **Diabetes incidence and prevalence**<br><br>Diabetes diagnosis determined through Ontario Diabetes Database. | Demographic factors<br><br>Immigrant status | N=199,003 South Asian immigrants from India (63.4%), Sri Lanka (15.3%), Caribbean (10.5%), Pakistan (5.0%), Bangladesh (2.2%), East Africa (1.8%), Middle East (0.9%), Fiji (0.5%), and South Africa (0.4%).<br><br>- Male: 49.8%<br>- Aged 20-45 (54.6%), 45-64 (31.5%) and 65+ (13.9%)<br>- High school or less: 56.9%<br>- Lowest income quintiles: 69.9%<br>- Refugee: 9.6%<br>- Proficient in English: 63.2%<br><br>N=132,052 South Asian non-immigrants<br>- Male: 49.7%<br>- Aged 20-44 (50.4%), 45-64 (33.7%), and 65+ (15.9%)<br>- Lowest income quintiles: 57% | Immigration status impacted diabetes prevalence: highest rates for South Asian immigrants from Sri Lanka (24.3%), Pakistan (22.2%), Bangladesh (21.9%), Fiji (21.5%) and the Caribbean (20.4%).<br>In comparison, South Asian non-immigrants had a diabetes prevalence rate of 17%.<br><br>Across all groups, diabetes prevalence was highest for males. |

| Author and location | Study design and purpose | Diabetes | Social determinants of health | Sample characteristics | Key findings |
|---|---|---|---|---|---|
| Banerjee et al. (2024)<br><br>Peel Region | Qualitative study using photovoice to explore social determinants of health among South Asian-origin adolescents with a family history of diabetes. | **Progression from prediabetes to diabetes**<br><br>Self-reported family history of diabetes, including at least one biologic parent and grandparent with type 2 diabetes mellitus. | Employment<br><br>Food security<br><br>Immigrant status<br><br>Access to health services | N=15 South Asian-origin adolescents<br><br>- Male: 27%<br>- Aged 13-16<br>- Immigrant: 33% | Employment barriers due to lack of recognition for qualifications. This led to low-wage jobs with long hours and no health benefits, causing stress and poor physical and mental health.<br><br>Food infrastructure promoted access to cheap, unhealthy foods (e.g., "food swamps").<br><br>School programs (e.g., cafeterias, lunch programs) lacked healthy food options, contributing to food insecurity.<br><br>Healthcare practitioners were culturally insensitive and blamed South Asian diets as the primary cause of diabetes, overlooking food insecurity. |

| Author and location | Study design and purpose | Diabetes | Social determinants of health | Sample characteristics | Key findings |
|---|---|---|---|---|---|
| Benchimol et al. (2015)<br><br>Ontario | Population-based cohort study examining the incidence of diabetes in South Asian immigrants and their Ontario-born children. | **Diabetes incidence and prevalence**<br><br>Diabetes diagnosis determined through Ontario Diabetes Database. | Immigrant status | N=443,265 South Asian immigrants<br><br>- Median age: 28 (Interquartile range: 17-37)<br>- Male: 51.7%<br>- Lowest income quintiles: 62.5%<br>- High school or less: 55.1%<br>- Refugee: 11.9% | From 1994 to 2008, type 1 diabetes mellitus incidence increased among South Asian immigrant children, but remained lower than non-immigrant children.<br><br>Type 2 diabetes mellitus incidence and prevalence among adults aged 18-65 were twice as high among South Asian immigrants compared to non-immigrants. |
| Booth et al. (2019)<br><br>Ontario | Population-based cohort study examining the association between neighbourhood walkability and diabetes incidence and associated risk factors. | **Diabetes incidence and prevalence**<br><br>Diabetes diagnosis determined through Ontario Diabetes Database. | Physical environment | N=958,567 from Toronto, GTA, Hamilton, London and Ottawa. | Low-walkability neighbourhoods had more South Asian residents and higher incidence of diabetes. |

| Author and location | Study design and purpose | Diabetes | Social determinants of health | Sample characteristics | Key findings |
|---|---|---|---|---|---|
| Chiu et al. (2010)<br>Ontario | Population-based cohort study with the Canadian Community Health Survey to compare the prevalence of cardiovascular diseases and risk factors among White, South Asian-origin, Chinese-origin and Black people. | **Diabetes incidence and prevalence**<br>Self-reported diagnosis of diabetes. | Demographic factors | N=163,797<br>*South Asian* (n=3,364):<br>- Mean age: 42<br>- Male: 49.1%<br>- College or university: 78.8%<br>- Lowest income adequacy group: 11.9%<br>*Black* (n=2,742):<br>- Male: 49.1%<br>- Mean age: 42<br>- College or university: 73%<br>- Lowest income adequacy group: 16.5% | *South Asian:*<br>8.1% had diabetes. Males (9.4%) had higher rates of diabetes than females (6.8%) overall. This pattern remained true across age groups.<br>*Black:*<br>8.5% had diabetes. Females (9.5%) had higher rates of diabetes than males (7.4%) overall. This pattern differed by age groups, whereby females had higher prevalence at younger ages (45-64) but males had higher prevalence at older ages (65+). |
| Chiu et al. (2015)<br>Ontario | Population-based, repeated cross-sectional study using the Canadian Community Health | **Diabetes incidence and prevalence**<br>Self-reported diagnosis of diabetes. | Demographic factors | N=219,276<br>*South Asian* (n=3,693):<br>- Male: 49.1%<br>- Mean age: 42<br>- College or university: 81.7% | *South Asian:*<br>From 2001-2012, prevalence of diabetes increased 126.9% for males but remained relatively stable for |

| Author and location | Study design and purpose | Diabetes | Social determinants of health | Sample characteristics | Key findings |
|---|---|---|---|---|---|
| | Survey to determine ethno-specific temporal trends in cardiovascular risk factors from 2001-2012. | | | - Immigrant: 88.1%<br><br>*Black* (n=2,523):<br>- Male: 47.8%<br>- Mean age: 42<br>- College or university: 73.4%<br>- Immigrant: 77.8% | females.<br><br>*Black:*<br>From 2001-2012, prevalence of diabetes increased 27.6% for males and 94.2% for females. |
| Cooper Brathwaite et al. (2016)<br><br>Ontario | Qualitative study exploring health beliefs and practices among African immigrants to prevent type 2 diabetes (T2DM). | **Progression from prediabetes to diabetes** | Immigrant status<br><br>Employment<br><br>Food security | N=14 African immigrants<br><br>- Mean age: 44.6<br>- Male: 21.4%<br>- Canadian Residency: 15.4 years (6-25 years)<br>- College or university: 100%<br>- Immigrated from Nigeria (78.6%) and Ghana (21.4%)<br>- No diabetes education: 50% | Participants acknowledged the role of genetic factors, but also discussed how work stress and adapting to a new culture made it difficult to prioritize health.<br><br>Preference for African foods and cooking methods that are high in carbohydrates (e.g., yams, tapioca, rice).<br><br>Belief that traditional herbs and spices (e.g., ginger) can help manage stress and prevent diabetes. |

| Author and location | Study design and purpose | Diabetes | Social determinants of health | Sample characteristics | Key findings |
|---|---|---|---|---|---|
| Cooper Brathwaite et al. (2017)<br><br>Ontario | Qualitative study exploring health beliefs and practices among Caribbean immigrants to prevent type 2 diabetes (T2DM). | **Progression from prediabetes to diabetes** | Food security<br><br>Immigrant status | N=15 Caribbean immigrant women<br><br>- Mean age: 52<br>- Female: 100%<br>- Employed: 53.3%<br>- Canadian Residency: 29 years (16-51 years)<br>- Immigrated from Jamaica (40%), Trinidad (46.7%), and Barbados (13.3%)<br>- Earn $20,000-49,000: 47%<br>- No diabetes education: 53% | Foods were purchased based on income, choice and availability. Preference for Caribbean foods, herbs and spices to prevent diabetes (e.g., cinnamon bark and bitter melon).<br><br>Preferred ways of preparing meals (e.g., deep frying) increased health risks; therefore, adopted other strategies (e.g., broiling, grilling, steaming).<br><br>Participants had fewer servings of fruits and vegetables, and linked intake to the seasonality of such foods in the Caribbean. |

| Author and location | Study design and purpose | Diabetes | Social determinants of health | Sample characteristics | Key findings |
|---|---|---|---|---|---|
| Creatore et al. (2020)<br>Ontario | Population-based retrospective cohort study using administrative health and immigration records to examine diabetes incidence by ethnicity and age among recent immigrants. | **Diabetes incidence and prevalence**<br>Diabetes diagnosis determined through Ontario Diabetes Database. | Demographic factors | N=592,376<br>*South Asian* (n=141,638):<br>- Mean age: 37<br>- Male: 47.3%<br>- Lowest income quintile: 32.9%<br>*Sub-Saharan Africa* (n=30,606):<br>- Mean age: 34<br>- Male: 46.6%<br>- Lowest income quintile: 46.6%<br>Caribbean (n=30,062):<br>- Mean age: 36<br>- Male: 47.3%<br>- Lowest income quintile: 37.3% | Males from South Asian regions and Sub-Saharan African regions had higher incidence of diabetes than females across all age groups. The opposite was true for immigrants from the Caribbean region.<br>By age 20, the adjusted incidence of diabetes rapidly increased among South Asian immigrants. While a similar trend was observed for immigrants from the Caribbean and Sub-Saharan Africa, the increase was more gradual. |
| Creatore et al. (2012)<br>Ontario | A population-based retrospective cohort study using administrative health and immigration | **Diabetes incidence and prevalence**<br>Diabetes diagnosis determined | Immigration status<br>Access to health services<br>Demographic | N=422,837 immigrants and N=3,484,222 non-immigrants<br>Immigrant cohort:<br>- South Asia: 16%<br>- Sub-Saharan Africa: | Screening efficiency was highest in people from South Asia (13.0% of people screened had undiagnosed diabetes) followed by the Caribbean |

| Author and location | Study design and purpose | Diabetes | Social determinants of health | Sample characteristics | Key findings |
|---|---|---|---|---|---|
| | records to examine whether individuals were screened for diabetes. | through Ontario Diabetes Database. | factors | 5.2%<br>- Caribbean: 6.7%<br>- Median age: 48<br>- Male: 48.9%<br>- High school or less: 49.1%<br>- Arrived 15% years ago: 33.6% | (9.5%).<br>Despite high rates of screening, there were many undiagnosed diabetes cases (n=1,832) among the newcomer South Asian population.<br>Undiagnosed diabetes across these immigrant populations was always higher among men compared to women. |
| Creatore et al. (2010)<br>Ontario | A population-based cohort study using administrative health and immigration records to examine the distribution of diabetes risk for immigrants to Ontario. | **Diabetes incidence and prevalence**<br>Diabetes diagnosis determined through Ontario Diabetes Database. | Demographic factors<br>Immigration status | N=7,503,083 long-term residents and N=1,112,771 recent immigrants<br>*Recent immigrants:*<br>- South Asian: 19.4%<br>- Sub-Saharan Africa: 5.7%<br>- Latin America and Caribbean: 15.8%<br>- Median age: 43<br>- Men: 49.5% | Diabetes prevalence among immigrants from South Asia was at least triple that of immigrants from Western Europe and North America (OR = 4.01 for males and 3.22 for females). Prevalence was double for immigrants from the Caribbean (OR = 2.18 for males and 2.40 for females) and Sub-Saharan African |

| Author and location | Study design and purpose | Diabetes | Social determinants of health | Sample characteristics | Key findings |
|---|---|---|---|---|---|
| | | | | - Men: 49.5%<br>- Lowest income: 26.4%<br>- High school or less: 54.8%<br>- 15+ years since arrival: 37.1% | (OR = 2.31 for males and 1.83 for females).<br><br>Across all age groups, males from South Asia had the highest prevalence rates.<br><br>Females from Latin America and the Caribbean and from South Asia had the highest prevalence rates when compared across different age groups.<br><br>An age-related disparity in diabetes prevalence became evident at 35 years of age, particularly among South Asians, and this increased with age. By 65 years of age, more than a third of men and women from these regions had diabetes. |

| Author and location | Study design and purpose | Diabetes | Social determinants of health | Sample characteristics | Key findings |
|---|---|---|---|---|---|
| Dahal et al. (2013)<br><br>Ontario | A qualitative study exploring the perspectives of immigrant community leaders on culturally appropriate diabetes education and care. | **Diabetes management and complications** | Immigration status<br><br>Access to health services | N=34<br><br>*Nepali* (n= 8)<br>- Male: 63%<br>- Aged 27-50<br>- Undergraduate degree: 25%<br><br>Punjabi (n=9)<br>- Male: 67% male<br>- Aged 22-79<br>- Undergraduate degree: 67%<br><br>Somali (n=8)<br>- Male: 63%<br>- Aged 35-56<br>- Undergraduate degree: 25% | Initial feeling of acceptance by healthcare provider associated with accessing a service.<br><br>There was a lack of confidence on accuracy of medical care unless they could trust the source or verify information with other trusted sources. This made it difficult for people to know which recommendations for diabetes management to trust.<br><br>While some only wanted to disclose their diabetes diagnosis to a trusted community member, many expressed feeling more secure sharing private details with a professional health provider.<br><br>Recommended a trusted community member |

| Author and location | Study design and purpose | Diabetes | Social determinants of health | Sample characteristics | Key findings |
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| | | | | | participate in diabetes care, who can act as a cultural and language liaison with physicians. |
| Deveci et al. (2024)<br>Toronto | A qualitative study exploring the experiences of Somali Canadian families with children living with type 1 diabetes (T1D), as well as healthcare professionals (HCPs) to better understand how T1D impacts these families. | **Diabetes management and complications** | Social support<br>Income | N=25<br>*Somali Canadian parents of children with type 1 diabetes* (n=11)<br>- 57% children male<br>- Average child age: 13.5<br>- Parent unemployed or student: 45%<br>- Parent education high school or less: 55%<br>*Somali Canadian adolescents with type 1 diabetes* (n=5)<br>- Male: 60% male<br>- Average age: 13.2<br>*HCP* (n=9) | All 3 groups noted barriers surrounding glycemic control:<br>- Parents with multiple children in the household emphasized difficulty in controlling food intake in children.<br>- Adolescents found it challenging to manage their eating habits, particularly in social situations.<br>- HCPs acknowledged parents' struggles of controlling access to high glycemic foods when household consists of multiple children. This was thought to be more |

| Author and location | Study design and purpose | Diabetes | Social determinants of health | Sample characteristics | Key findings |
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| | | | | | challenging for households with lower socioeconomic status. |
| Draanen et al. (2014)<br>Toronto | A mixed-methods study on the South Asian Diabetes Prevention Program (SADPP), created to improve access to diabetes prevention resources for South Asian communities by offering language-specific and culturally relevant services. | **Progression from prediabetes to diabetes** | Access to health services<br>Food security | N=491<br>- Mean age: 51<br>- Male: 35% | This program targeted barriers such as transportation, language, cost and health literacy, by offering mobile clinics with free services in participants' preferred languages and using culturally relevant practices.<br>Risk assessments revealed 32% of participants were at increased risk, 40% at high risk, and 21% at very high risk of developing diabetes.<br>Key program benefits included presentations from health professionals, Q&A sessions, healthy eating demonstrations, multilingual delivery and convenient locations. |

| Author and location | Study design and purpose | Diabetes | Social determinants of health | Sample characteristics | Key findings |
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| D'Silva et al. (2022)<br><br>Peel Region | A qualitative study examining the social determinants of health that impact type 2 diabetes management among South Asian-origin adults, from service provider perspectives. | **Diabetes management and complications** | Immigrant status<br><br>Income<br><br>Employment<br><br>Food security | N=12<br><br>- South Asian: 83%<br>- Male: 33%<br>- Mean age: 45<br>- 17% leader of non-profit, 17% HCP, 66% community centre health provider | Immigrants faced barriers such as racism in the job market and difficulties in obtaining employment matching their qualifications, making it difficult to prioritize health. Reversing discriminatory labour policies was emphasized.<br><br>Poor working conditions and low socioeconomic status hindered access to healthcare, medication and transportation. Virtual care was noted as a potential solution to these.<br><br>Limited culturally appropriate food options and financial constraints made it hard for individuals to follow dietary and exercise recommendations. Long working hours, particularly among women |

| Author and location | Study design and purpose | Diabetes | Social determinants of health | Sample characteristics | Key findings |
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| | | | | | in caregiving roles, reduce time available for health behaviours. |
| Fazli et al. (2020)<br><br>Ontario | A retrospective population-based cohort study comparing the rates of progression from prediabetes to diabetes between non-European immigrants, Europeans, and Canadian-born residents, overall and by age. | **Progression from prediabetes to diabetes** | Immigrant status<br><br>Demographic factors | N=134,550<br><br>*Immigrants (n=23,465)*<br>- Mean age: 49.9<br>- Male: 56.2%<br>- Lowest income quintile: 28.7%<br><br>*Canadian-born residents (n=111,085)*<br>- Mean age: 57.1<br>- Male: 57.3%<br>- Lowest income quintile: 16.7% | Nearly 50% of South Asian immigrants aged 20-34 developed diabetes over 12 years, with conversion rates rising to nearly 60% after age 35.<br><br>South Asians immigrants converted to diabetes 3.1-4.6 years earlier than Western European immigrants, despite having a 0.5mmol/L lower baseline fasting glucose.<br><br>Ethnic disparities in diabetes conversion became more pronounced after living in Canada for over 10 years. |

| Author and location | Study design and purpose | Diabetes | Social determinants of health | Sample characteristics | Key findings |
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| Fazli et al. (2019)<br><br>Ontario | A population-based cohort study exploring the incidence of prediabetes among Canadian immigrants of various ethnic backgrounds and the age at which ethnic differences first appeared. | **Incidence and prevalence of prediabetes** | Immigrant status<br><br>Demographic factors | N=1,772,180<br><br>*Immigrants (n=334,678)*<br>- Mean age: 41.3<br>- South Asian: 20.8%<br>- Sub-Saharan African or Caribbean: 11.0%<br>- Lowest income quintile: 26.9%<br>- High school or less: 59.4%<br><br>*Long-term Canadian residents (n=1,437,502)*<br>- Mean age: 47.4<br>- Lowest income quintile: 14.9% | Over 12 years, the adjusted cumulative incidence of prediabetes was 40% higher in immigrants (21.2%) than long-term Canadian residents (16.0%), with South Asians (23.6%) and Sub-Saharan/ Caribbean immigrants (20.3%) at nearly double the risk compared to Western Europeans (13.1%).<br><br>Ethnic differences emerged at younger ages, with South Asians aged 20-34 having prediabetes rates similar to Europeans 15 years older. |
| Fazli et al. (2020)<br><br>Southern Ontario | A population-based cohort study exploring whether adults residing in highly walkable areas are less likely to develop prediabetes, and if | **Incidence and prevalence of prediabetes** | Immigration status<br><br>Physical environment | N=1,128,181<br><br>Immigrants (n=267,529)<br><br>*Immigrants from the least walkable decile (n=30,598)*<br>- Mean age: 39.3<br>- Male: 41.7% | South Asians were more likely to live in less walkable neighborhoods.<br><br>Ethnic disparities in prediabetes incidence were more pronounced in low-walkability areas but |

| Author and location | Study design and purpose | Diabetes | Social determinants of health | Sample characteristics | Key findings |
|---|---|---|---|---|---|
| | this association varies based on immigration status and ethnicity. | | | - South Asian: 24.3%<br>- Sub-Saharan African and Caribbean: 10.0%<br>- Lowest income quintile: 8.0%<br>- High school or less: 54.8%<br>- Speak no English or French: 34.7%<br>- <10 years duration in Canada: 51.0%<br><br>*Immigrants from the highest walkable decile (n=24,530)*<br>- Mean age: 39.1<br>- Male: 41.7%<br>- South Asian: 7.8%<br>- Sub-Saharan African and Caribbean: 10.8%<br>- Lowest income quintile: 44.5%<br>- High school or less: 63.6%<br>- Speak no English or French: 42.7% | diminished in high-walkability areas.<br><br>In low-walkability areas, South Asians (HR 2.40) and Sub-Saharan African/Caribbean immigrants (HR 2.11) had twice the prediabetes incidence compared to Western Europeans.<br><br>In high-walkability areas, these groups had only 10% (South Asians) and 24% (Sub-Saharan/Caribbean) higher incidence compared to Western Europeans. |

| Author and location | Study design and purpose | Diabetes | Social determinants of health | Sample characteristics | Key findings |
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| | | | | - <10 years duration in Canada: 54.6% | |
| Goshe et al. (2019)<br>Ontario | A cross-sectional survey on CCHS data using a social determinants of health framework to assess the relationship of the risk factors with type 2 diabetes mellitus among African immigrants. | **Diabetes incidence and prevalence** | Income<br>Immigrant status | N=1,526<br>- Male: 48.5% male<br>- <45 years of age: 58.1%<br>- Income under <$45,000: 36.7% | African immigrants had higher rates of diabetes compared to non-immigrants. Having a household income under $45,000 was associated with a higher risk of self-reported diabetes.<br>Immigrants from Sub-Saharan Africa had a higher prevalence of diabetes compared to those from North Africa. |
| Gucciardi et al. (2013)<br>Toronto | A qualitative study exploring the practices of self-monitoring of blood sugar among Black Caribbean and South Asian individuals with type 2 diabetes mellitus. | **Diabetes management and complications** | Access to health services<br>Income | N=12<br>*Black Caribbean (n=5)*<br>- Mean age: 58<br>- Mean years since diagnosis: 7.5<br>- Mean years living in Canada: 32<br>- Unemployed and looking: 40% | Barriers to self-monitoring of blood glucose included the cost of self-monitoring blood sugar. The cost of lancets and strips was a significant issue for most, particularly for South Asian participants, who expressed greater concern about these expenses |

| Author and location | Study design and purpose | Diabetes | Social determinants of health | Sample characteristics | Key findings |
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| | | | | - High school or less: 40%<br><br>*South Asian (n=5)*<br>- Mean age: 55<br>- Mean years since diagnosis: 4.5<br>- Mean years living in Canada: 12<br>- Unemployed and looking: 20%<br>- High school or less: 40% | compared to Caribbean participants. Some participants reported re-using lancets to save money, which resulted in increased pain during the lancing process. |
| Hafleen et al. (2024)<br><br>Peel Region | A qualitative study identifying sociocultural and systemic factors affecting diabetes management among South Asian-origin individuals who are caregivers. | **Diabetes management and complications** | Immigration status<br><br>Income<br><br>Employment<br><br>Food security<br><br>Access to health services<br><br>Social support | N=21 caregivers<br><br>- Male: 42.9%<br>- Mean age: 60.5<br>- 14.3% Bangladeshi<br>- 28.6% Indian<br>- 47.6% Pakistani<br>- 9.5% Sri Lankan<br>- Permanent resident: 52.4%<br>- Lived in Canada <10 years or less: 61.9% | South Asian mothers prioritized family needs, while fathers faced stress from financial caregiving, multiple jobs, and dealing with time constraints, sleep deprivation, and affordability issues.<br><br>New migrants (<5 years in Canada) reported systemic discrimination in the job market, challenges with |

| Author and location | Study design and purpose | Diabetes | Social determinants of health | Sample characteristics | Key findings |
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| | | | | - High school or less: 19.0%<br>- Income <$49,999: 57.1%<br>- Unemployed: 33.3%<br>- Prediabetes: 19%<br>- Type 2 diabetes: 76.2% | recognizing international qualifications, and difficulties affording housing, food and medication. South Asian grandfathers expressed concerns about losing financial autonomy and burdening children with diabetes-related expenses.<br><br>Caregivers faced challenges with the cost of living, adapting to Canadian lifestyle, and navigating healthcare systems. Language barriers and lack of family involvement in healthcare appointments were other barriers to healthcare access. Recent migrants expressed a need for guidance and connection to local resources. |

| Author and location | Study design and purpose | Diabetes | Social determinants of health | Sample characteristics | Key findings |
|---|---|---|---|---|---|
| Hyman et al. (2014)<br><br>Toronto | A cross-sectional study using a questionnaire developed by International Centre for Migration and Health (ICMH), examining diabetes self-management and care among Black-Caribbean immigrants with type 2 diabetes. Participants were recruited through a sampling technique from diabetes education centres, community centres, hospital-based diabetes clinics, immigrant-serving organizations, and more. | **Diabetes management and complications** | Immigration status<br><br>Access to health services | N=102<br><br>*Black Caribbean immigrants (n=48)*<br>- Mean age: 54.6<br>- Male: 35.4%<br>- College or university: 25%<br>- Employed: 61.7%<br>- Household income < $50,000: 64.1%<br><br>*Canadian-born (n=54)*<br>- Mean age: 52.3<br>- Male: 51.9% male<br>- College or university: 50.0%<br>- Employed: 29.6%<br>- Household income <$50,000: 66.7% | Black-Caribbean immigrants were more likely than Canadian-born individuals to receive diabetes care from community health centres (45.8% vs. 18.5%) and dietitians (50% vs. 38.9%). They also relied more on nutritionists/dietitians for diabetes information (64.6% vs. 40.7%).<br><br>Black-Caribbean immigrants were more likely to receive regular A1C (45.8% vs. 24%) and eye screenings (91.7% vs. 75.9%) and to obtain diabetes information through community health centres (45.8% vs. 18.5%) and health professionals like nurses (47.9% vs. 24.1%) and dietitians (64.6% vs. 40.7%). |

| Author and location | Study design and purpose | Diabetes | Social determinants of health | Sample characteristics | Key findings |
|---|---|---|---|---|---|
| Hyman et al. (2017)<br><br>Toronto | A cross-sectional study, using a questionnaire developed by the International Centre for Migration and Health (ICMH), exploring provider- and patient-related factors influencing diabetes self-management among recent immigrants.<br><br>Census data were used to identify neighbourhoods where more than half of the population spoke one of the four study languages, from which participants were recruited. | **Diabetes management and complications** | Immigration status<br><br>Income<br><br>Access to health services | N=130 recent immigrants<br><br>- Mean age: 51.2<br>- Male: 45.0%<br>-23.1% from Sri Lanka<br>- 26.9% from Bangladesh<br>- 26.9% from Pakistan<br>- 66.0% unemployed<br>- High school or less: 48.0%<br>- Not enough money for diabetes management: 30.8%<br>- Lack of insurance for diabetes management: 48.5% | Two significant factors predicted diabetes self-management among recent immigrants: financial barriers (lack of money for diabetes-related expenses) and the quality of the provider-patient relationship.<br><br>Participants with financial difficulties were 9% less likely to engage in self-management, while those with poor provider interactions were 16% less likely to do so. |

| Author and location | Study design and purpose | Diabetes | Social determinants of health | Sample characteristics | Key findings |
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| Hyman et al. (2012)<br><br>Toronto | A qualitative study examining self-management practices and healthcare utilization for type 2 diabetes care among recent immigrants. | **Diabetes management and complications** | Immigration status<br><br>Access to health services<br><br>Social support | N=184 participants<br><br>*Recent immigrants (n=130):*<br>- Mean age: 51.2 years<br>- 23.1% from Sri Lanka<br>- 26.9% from Bangladesh<br>- 26.9% from Pakistan<br>- University or higher: 52.3%<br>- Unemployed: 33.8%<br>- Job reflects credentials, No: 41.3%<br>- Low income: 36.3%<br><br>*Canadian-born adults (n=54):*<br>- Mean age: 52.3 years<br>- University or higher: 35.2%<br>- Unemployed: 29.6%<br>- Job reflects credentials, No: 0%<br>- Low income: 41.9% | Recent immigrants were less likely than Canadian-born individuals to perform regular glucose (76.2% vs. 90.8%) and foot checks (57.0% vs. 75.9).<br><br>Recent immigrants were less likely to consult specialists (24.6% vs. 40.7%), alternative healthcare providers (0.8% vs. 7%) or dietitians (19.2% vs. 38.9%). They relied more on family (46.9% vs. 27.8%) and friends (39.2% vs. 13.0%) for information, while Canadian-born individuals used more professional sources.<br><br>Immigrants faced more barriers accessing healthcare, including long waits, linguistic issues, and costs not covered by |

| Author and location | Study design and purpose | Diabetes | Social determinants of health | Sample characteristics | Key findings |
|---|---|---|---|---|---|
| | | | | | insurance, with women experiencing more challenges than men. |
| Iftekhar et al. (2009)<br><br>Southern Ontario | A qualitative study exploring the needs and preferences for dietary counseling resources based on the recently updated Canadian Diabetes Association meal planning guide for South Asian populations. | **Diabetes incidence and prevalence** | Income<br><br>Employment<br><br>Access to health services<br><br>Food security | N=53 South Asian focus group participants<br><br>- Male: 54.7%<br>- Age group 25-49: 50.9%<br>- Diabetes diagnosis: 17%<br>- High school or less: 11.3%<br>- India: 52.8%<br>- Pakistan: 35.8%<br>- Sri Lanka: 7.5%<br>- Bangladesh: 3.8%<br>- <10 years in Canada: 52.8% | Barriers to diabetes education included financial limitations, time constraints among work and family responsibilities, access issues, language barriers, and cultural aspects of South Asian diets, such as large portion sizes, fewer meals, fasting practices, and significance of sweets during holidays.<br><br>A need for more community-based services and culturally relevant diabetes education was emphasized, as many clients did not believe diabetes could be managed effectively. |

| Author and location | Study design and purpose | Diabetes | Social determinants of health | Sample characteristics | Key findings |
|---|---|---|---|---|---|
| Ke et al. (2023)<br><br>Ontario | A population-based cohort study investigating ethnic differences in the relationship between age at diabetes diagnosis and the risk of cardiovascular complications. | **Diabetes incidence and prevalence** | Demographic factor | N=453,433<br><br>*Young-onset diabetes (n=47,710)*<br>- Mean age: 33.3<br>- Male: 47.7%<br>- South Asian: 8.6%<br>- Lowest income quintile: 28.0%<br><br>*Usual-onset diabetes (n=405,723)*<br>- Mean age: 59.8<br>- Male: 50.7%<br>- South Asian: 2.9%<br>- Lowest income quintile: 22.0% | Young-onset diabetes (age at diagnosis < 40) was linked to higher cardiovascular risk among South Asians (HR: 3.82) compared to usual-onset diabetes (age at diagnosis ≥ 40 years) (HR :2.43).<br><br>Among those with young-onset diabetes, South Asians had lower cardiovascular risk (HR: 0.75) but similar coronary artery disease risks compared to the general population.<br><br>In usual-onset diabetes, South Asians showed lower cardiovascular risk (0.90) but higher coronary artery disease risk (1.08) compared to the general population. |

| Author and location | Study design and purpose | Diabetes | Social determinants of health | Sample characteristics | Key findings |
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| Mivian Consulting (2024)<br><br>Mississauga | Community consultation via focus groups to identify community needs around diabetes and inform the development of the Diabetes Healthy City Strategy for the City of Mississauga. | **Diabetes management and complications** | Income<br><br>Food security<br><br>Physical environment<br><br>Housing | N=241 focus group participants<br><br>- South Asian: 28%<br>- Diagnosed with diabetes: 28%<br>- Self-identified at risk for diabetes: 47%<br>- Age range 35-44: 22%<br>- Born in Canada: 67% | Participants felt that programs which could help with increased physical activity and improve diabetes management were often unaffordable, especially for those on fixed incomes or with low-income levels. There is a desire for reduced fees for recreational programs to make them more accessible to community members.<br><br>Community members called for improved program accessibility as it relates to cultural appropriateness, proximity, and types of programs and services. It was suggested that services need to be tailored to the specific |

| Author and location | Study design and purpose | Diabetes | Social determinants of health | Sample characteristics | Key findings |
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| | | | | | needs of diverse cultural and demographic (e.g., youth, seniors) communities.<br><br>Community members highlighted the need for improved mobility through the transit system and built environment.<br><br>Participants explained that due to socioeconomic barriers, walking was the only exercise option that many can regularly perform. They indicated that maintained, safe outdoor spaces will support this outcome.<br><br>A significant proportion of community members also shared that access to healthy and affordable food options within their communities was limited. They want to be able to |

| Author and location | Study design and purpose | Diabetes | Social determinants of health | Sample characteristics | Key findings |
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| | | | | | access healthy foods through a variety of options (e.g. small ethnic shops, community gardens, farmer's markets, community fridges, etc.) close to home.<br><br>43% of participants highlighted the need for affordable housing in their community to ensure they remain as healthy as possible, as it would relieve them from the stress they believed contributed to the development of their diabetes. |
| Shah et al. (2015)<br><br>Ontario | A population-based cohort study using the OHIP database and a cross-sectional study using data from clinical records obtained from physician | **Diabetes management and complications** | Access to health services | N=49,484<br><br>*COHORT STUDY (n=25,619 South Asian immigrants):*<br><br>*Patients with South Asian physician (n=11,434):* | Among South Asian patients, having a physician of the same ethnic background had no impact on most quality-of-care measures in either study. |

| Author and location | Study design and purpose | Diabetes | Social determinants of health | Sample characteristics | Key findings |
|---|---|---|---|---|---|
| | offices from neighbourhoods with >25% South Asian-origin ethnicity based on the 2006 Canadian census, explores whether having a family physician of the same ethnicity impacts the quality of diabetes care for Chinese and South Asian-origin patients. | | | - Mean age: 51.8<br>- Male: 54.4%<br>- Lowest socioeconomic status: 29.5%<br><br>*Patients with Non-South Asian physician (n=11,434):*<br>- Mean age: 51.3<br>- Male: 56.4%<br>- Lowest socioeconomic status: 27.7%<br><br>*CROSS-SECTIONAL STUDY (n=148 South Asian immigrants):*<br><br>*Patients with South Asian physician (n=129):*<br>- Mean age: 60.8<br>- Male: 51.2% male<br>- Lowest socioeconomic status: 24.8%<br><br>*Patients with Non-South Asian physician (n=117):*<br>- Mean age: 55.5<br>- Male: 66.7% | In the cohort study, South Asian patients who had physician of the same ethnicity were less likely to have HbA1c testing or retinal screening. Findings were similar for the cross-sectional study where the measures explored were not associated with family physician ethnicity among South Asians. |

| Author and location | Study design and purpose | Diabetes | Social determinants of health | Sample characteristics | Key findings |
|---|---|---|---|---|---|
| | | | | - Lowest socioeconomic status: 26.5% | |
| Shah et al. (2013)<br>Ontario | A population-based cohort study to determine the risks of cardiovascular complications and mortality after diabetes diagnosis for South Asian-origin and Chinese patients, compared with European patients. | **Diabetes management and complications** | Demographic factors<br>Income | N=593,446<br>*South Asian (n=22,342)*<br>- Mean age: 51.6<br>- Male: 55.6%<br>- Lowest socioeconomic status: 28.0% | South Asian patients were diagnosed with diabetes more than 6.5 years earlier than European patients.<br>Income was positively associated with cardiovascular complications for South Asian patients where increasing income correlated with greater rates of cardiovascular complications. |
| Swaleh et al. (2021)<br>Toronto | A qualitative study using focus groups and interviews to examine self-management within the Black Canadian community through the framework of | **Diabetes management and complications** | Income<br>Immigrant status<br>Food security<br>Access to health services<br>Social support | N=43<br>- Male: 37%<br>- Age group 25-54: 39%<br>- African origin: 53%<br>- Caribbean: 40%<br>- Pakistani: 2%<br>- Length of diabetes diagnosis <5 years: 32% | Perceived susceptibility to diabetes and perceived severity of diabetes was influenced by family, peers, churches, online sources and healthcare providers. There was a common need for more information on |

| Author and location | Study design and purpose | Diabetes | Social determinants of health | Sample characteristics | Key findings |
|---|---|---|---|---|---|
| | the Health Belief Model. | | | | complications.<br><br>Participants managed diabetes through diet, exercise and medications. Management practices were influenced by cost, trust in providers, and exposure to alternative medicine.<br><br>Challenges to diabetes self management included culturally relevant dietary advice, cost of healthy foods, medication adherence, language barriers, mistrust of healthcare providers, immigration-related issues, and access to services due to not knowing how to navigate Canadian health system. |

| Author and location | Study design and purpose | Diabetes | Social determinants of health | Sample characteristics | Key findings |
|---|---|---|---|---|---|
| Umaefulam et al. (2023)<br>Ottawa | A qualitative study using community-based co-design methods to develop a linguistically and culturally tailored retinopathy screening program for recent immigrants with diabetes from China or African or Caribbean countries. | **Diabetes management and complications** | Immigrant status<br>Access to health services<br>Social support | N=26<br>*Patients in the community workshops (n=13)*<br>- Male: 61.5%<br>- <10 years in Canada: 76.9%<br>- French speaking: 46.2% | Patients identified five barriers to diabetic retinopathy screening: language, familiarity with retinopathy, physician communication barriers, lack of publicity, and difficulty fitting screening into schedules.<br>The intervention addressed these barriers with behaviour change techniques such as providing health information, instructions for attending screenings, social support, and restructuring the social environment.<br>Delivery channels included language support, pre-booking screenings with reminders, social support through social media and community champions. |

| Author and location | Study design and purpose | Diabetes | Social determinants of health | Sample characteristics | Key findings |
|---|---|---|---|---|---|
| Uppal et al. (2016)<br><br>Toronto | A qualitative study examining the ethnocultural factors influencing type 2 diabetes management among a small group of older Sikh immigrants. | **Diabetes management and complications** | Immigrant status<br><br>Access to health services<br><br>Social support | N=9<br><br>- Male: 55.6%<br>- Mean age: 56 | Unhealthy food options present within family gatherings and the temple were prevalent and socially encouraged.<br><br>Women balancing multiple roles faced conflicts between health needs and cultural expectations.<br><br>Many participants lacked awareness that diabetes could be prevented despite a family history.<br><br>Patients felt inadequately informed about their diagnosis and treatment plans. They expressed a preference for Indian physicians who understood their language and cultural norms. |

| Author and location | Study design and purpose | Diabetes | Social determinants of health | Sample characteristics | Key findings |
|---|---|---|---|---|---|
| Waqar et al. (2024)<br><br>Toronto | A qualitative study exploring the perceptions and experiences of South Asian-origin individuals living with type 2 diabetes and their use of diabetes-related services. | **Diabetes management and complications** | Income<br><br>Employment<br><br>Immigrant Status<br><br>Food security<br><br>Access to health services | N=20<br><br>- Pakistani: 45%<br>- Indian: 25%<br>- Bangladesh: 15%<br>- Sri Lankan: 15%<br>- Male: 50%<br>- Age group 36-50: 40%<br>- High school or less: 10%<br>- Diagnosis after migration to Canda: 85%<br>- <10 years in Canada: 25% | Stressors such as relocation to Canada, demanding jobs, and balancing work and family negatively impacted health management. This led to irregular meal schedules, reliance on junk food, limited physical activity.<br><br>Challenges related to diet and exercise were prevalent due to financial constraints and time limitations.<br><br>Concerns about the cost of monitoring tools, such as sensors, were expressed across different income levels, and there was insufficient coverage for diabetes-related medicines and tests.<br><br>Participants emphasized need for better communication from |

| Author and location | Study design and purpose | Diabetes | Social determinants of health | Sample characteristics | Key findings |
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| | | | | | family doctors about available community resources, such as diabetes centres, educational programs, to improve overall awareness and utilization.<br><br>Participants expressed a need for primary care physicians to play a more active role in raising awareness about available community resources and services. |
| Wayne et al. (2014)<br><br>Toronto | A longitudinal feasibility study to develop and assess a smartphone-assisted intervention aimed at improving the behavioural management of type 2 diabetes in a diverse, lower | **Diabetes management and complications** | Employment<br><br>Access to health services | N=21<br><br>- Mean age: 55.6<br>- Male: 43%<br>- African: 14%<br>- Caribbean: 14%<br>- South Asian: 14%<br>- High school or less: 33%<br>- Unemployed: 33% | It was observed that participants faced challenges attending healthcare appointments due to familial and work obligations, which made taking time off financially difficult.<br><br>The intervention addressed this issue by |

| Author and location | Study design and purpose | Diabetes | Social determinants of health | Sample characteristics | Key findings |
|---|---|---|---|---|---|
| | socioeconomic status population. | | | | offering 24-hour electronic access to the health coach, allowing participants to communicate at their convenience. Twelve participants had baseline HbA1c levels above 7.0%, and these individuals showed a mean reduction of 0.43%. |

## Table 3. Overview of social determinants of health and diabetes outcomes by study

| | Population | | Diabetes | | | | | Social determinants of health | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | South Asian | Black | Incidence and prevalence of prediabetes | Progression from prediabetes to diabetes | Incidence and prevalence of diabetes | Diabetes management and complications | Sociodemographic factors | Immigrant status | Income | Education | Employment | Food security | Physical environment | Access to health services | Social support | Housing |
| Agarwal et al. (2020) | X | | | | | X | | X | | | | | | X | | |
| Banerjee et al. (2018) | X | | | | X | | X | X | X | X | | | | X | | |
| Banerjee et al. (2021) | X | | | | X | | X | X | | | | | | | | |
| Banerjee et al. (2024) | X | | | X | | | | X | | | X | X | | X | | |
| Benchimol et al. (2015) | X | | | | X | | | X | | | | | | | | |
| Booth et al. (2019) | X | | | | X | | | | | | | | X | | | |
| Chiu et al. (2010) | X | X | | | X | | X | | | | | | | | | |
| Chiu et al. (2015) | X | X | | | X | | X | | | | | | | | | |
| Cooper Brathwaite et al. (2016) | | X | | X | | | | X | | | X | X | | | | |
| Cooper Brathwaite et al. (2017) | | X | | X | | | | X | | | | X | | | | |
| Creatore et al. (2020). | X | X | | | X | | X | | | | | | | | | |
| Creatore et al. (2012) | X | X | | | X | | X | X | | | | | | X | | |

| | Population | | Diabetes | | | | | Social determinants of health | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | South Asian | Black | Incidence and prevalence of prediabetes | Progression from prediabetes to diabetes | Incidence and prevalence of diabetes | Diabetes management and complications | Sociodemographic factors | Immigrant status | Income | Education | Employment | Food security | Physical environment | Access to health services | Social support | Housing |
| Creatore et al. (2010) | X | X | | | X | | X | X | | | | | | | | |
| Dahal et al. (2013) | X | X | | | | X | | X | | | | | | X | | |
| Deveci et al. (2024) | | X | | | | X | | | X | | | | | | X | |
| Draanen et al. (2014) | X | | | X | | | | | | | | X | | X | | |
| D'Silva et al. (2022) | X | | | | | X | | X | X | | X | X | | | | |
| Fazli et al. (2020) | X | | | X | | | X | X | | | | | | | | |
| Fazli et al. (2019) | X | X | X | | | | X | X | | | | | | | | |
| Fazli et al. (2020) | X | X | X | | | | | X | | | | | X | | | |
| Goshe et al. (2019) | | X | | | X | | | X | X | | | | | | | |
| Gucciardi et al. (2013) | X | X | | | | X | | | X | | | | | X | | |
| Hafleen et al. (2024) | X | | | | | X | | X | X | | X | X | | X | X | |
| Hyman et al. (2014) | | X | | | | X | | X | | | | | | X | | |

| | Population | | Diabetes | | | | | Social determinants of health | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | South Asian | Black | Incidence and prevalence of prediabetes | Progression from prediabetes to diabetes | Incidence and prevalence of diabetes | Diabetes management and complications | Sociodemographic factors | Immigrant status | Income | Education | Employment | Food security | Physical environment | Access to health services | Social support | Housing |
| Hyman et al. (2017) | X | | | | | X | | X | X | | | | | X | | |
| Hyman et al. (2012) | X | | | | | X | | X | | | | | | X | X | |
| Iftekhar et al. (2009) | X | | | | | X | | | X | | X | X | | X | | |
| Ke et al. (2023) | X | | | | X | | X | | | | | | | | | |
| Mivian Consulting (2024) | X | | | | | X | | | X | | | X | X | | | X |
| Shah et al. (2015) | X | | | | | X | | | | | | | | X | | |
| Shah et al. (2013) | X | | | | | X | X | | X | | | | | | | |
| Swaleh et al. (2021) | | X | | | | X | | X | X | | | X | | X | X | |
| Umaefulam et al. (2023) | | X | | | | X | | X | | | | | | X | X | |
| Uppal et al. (2016) | X | | | | | X | | X | | | | | | X | X | |
| Waqar et al. (2024) | X | | | | | X | | X | X | | X | X | | X | | |
| Wayne et al. (2014) | X | X | | | | X | | | | | X | | | X | | |

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