Examining social determinants of health and diabetes in Black and South Asian populations in Ontario:

A scoping review

WELLESLEY INSTITUTE

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Statement on Acknowledgement of Traditional 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.

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Contents

Introduction

Diabetes is one of the most common chronic conditions in Ontario.

Research studies underscore the importance of social determinants in the incidence of diabetes, progression from prediabetes to diabetes, and risk of diabetes complications[1-4]. Key factors that have been linked include food security, access to safe outdoor spaces, education, income and healthcare access[1-4]. Disparities in exposure to these social determinants increase the risk of diabetes and reduce the ability of those with diabetes to both manage their blood sugar levels and avoid disease complications[5].

Black and South Asian-origin populations in Ontario experience some of the highest rates of diabetes and related complications, at 13 per cent and 16 per cent respectively[6]. They also have higher exposure to social factors that have been linked to diabetes incidence and progression, including poverty, discrimination, food insecurity and inadequate housing[5,7-9]. This exposure may explain some of their disparities in diabetes rates and complications. An in-depth understanding of the relationship between the social determinants and diabetes is therefore essential for addressing health inequalities for these populations[10].

"Black and South Asian-origin populations in Ontario experience some of the highest rates of diabetes and related complications."

Using a scoping review methodology with a stakeholder consultation, this paper identifies the scope, range and characteristics of research linking social determinants to diabetes outcomes in Black and South Asian-origin populations. This work will serve as a precursor to a systematic review examining the effectiveness of social determinants of health interventions for improving diabetes outcomes for these populations.

Methods

This scoping review examined the associations between social determinants of health and the development and progression of diabetes among Black and South Asian-origin populations in Ontario. It followed the six-step framework developed by Arksey and O'Malley[11] and enhanced by other methodologists[12,13]. This included the optional stakeholder consultation completed as a final step (Step 6). Findings are reported according to the Preferred Reporting Items for Systematic Reviews and Meta-Analyses Scoping Review Extension guidelines[14].

Step 1: Research question

This scoping review aimed to answer the following research question:

> What are the associations between specific social determinants of health and the incidence and prevalence of diabetes, progression from prediabetes to diabetes, and diabetes management and complications among Black and South Asian-origin populations in Ontario?

The social determinants that were explored related to: socioeconomic status and income, education levels, job security, food security, housing and the environment, social support, language and communication, systemic barriers and discrimination, racism, and access to healthcare. In addition, age, sex and gender, as well as immigration status, were also considered due to their intersection with other social determinants[15-17].

Step 2: Identify relevant studies

To identify the relevant peer-reviewed literature, the following electronic databases were searched in July 2024: MEDLINE (Ovid), Embase (Ovid), PsycINFO (Ovid), CINAHL (EBSCO), Applied Social Sciences Index and Abstracts (Proquest), and Scopus. The primary search strategy was developed by a social work librarian (YL) in collaboration with the research team, and was peer reviewed by an academic librarian (MW) according to the Peer Review of Electronic Search Strategies (PRESS) checklist[18].

The search included terms related to diabetes, Black and South Asian-origin populations, social determinants of health, and Ontario (see Table 1 below for an overview). The search was limited to publications from the year 2000 onwards to examine literature in the past 25 years. A sample search strategy for MEDLINE is provided in Table 1 of the supplemental materials. The research team also conducted a manual search of previously published review articles as well as publications in the Canadian Journal of Diabetes to ensure no relevant studies were missed.

Grey literature was identified by handsearching websites of research institutes and government bodies that produce research related to diabetes in Black and South Asian-origin populations in Ontario. These included Diabetes Canada, the Public Health Agency of Canada, Public Health Ontario, Institute of Clinical Evaluative Sciences (ICES), and Novo Nordisk. These were identified via a Google search using terms related to "diabetes," "social determinants of health" and "Ontario." Additionally, a search was conducted on the websites of regional and municipal governments that served census subdivisions with a high proportion of Black (>5 per cent of the population) or South Asian-origin populations (>15 per cent of the population) according to the 2021 Census of the Population[19]. These included the City of Toronto, City of Mississauga, City of Brampton, City of Markham, City of Ajax, City of Kitchener, Peel Region, Durham Region, Halton Region and Waterloo Region.

Table 1. Search terms

Search concept	Description of search terms
Diabetes	Search terms related to type 1 and type 2 diabetes, prediabetes, diabetes complications, insulin, glucose intolerance, and hyperglycemia.
Black and South Asian-origin populations	Search terms related to Black and South Asian-origin populations, including specific countries of origin.
Social determinants of health	Search terms related to socioeconomic status and income, education levels, job security, food security, housing and the environment, social support, language and communication, systemic barriers and discrimination, and access to healthcare.
Ontario	Search terms included Ontario Public Health Units, as well as census subdivisions with a high proportion of Black or South Asian-origin populations reported in the 2021 Census of the Population[19].

Step 3: Study selection

Covidence systematic review software was used to facilitate the screening process[20]. Titles and abstracts were screened by two independent reviewers from a team of four (ME, YLY, RT, CLS) to assess for relevance. Full-text articles were then independently screened by the same reviewers to determine final inclusion. Discrepancies were resolved through discussion until a consensus was reached.

Articles selected for inclusion were quantitative, qualitative or mixed-methods studies that reported on associations between the social determinants of health and incidence or prevalence of diabetes, progression from prediabetes to diabetes, or diabetes management and complications among Black or South Asian-origin populations living in Ontario. Included studies also had to be written in English and published in 2000 or later. Studies were excluded if they focused on diabetes in populations other than Black or South Asian-origin groups from Ontario, reported on gestational diabetes, or did not examine associations between diabetes and a social determinant of health. Reviews, commentaries, book chapters and conference proceedings were also excluded.

Step 4: Charting the data

Data were charted by the lead researcher (ME) and reviewed by the senior author (CLS). Key variables included: author, publication year, location, methodology, sample characteristics, social determinant(s) of health under study and associations with diabetes. Sample characteristics were extracted according to the PROGRESS-Plus framework [21,22]. As this was a scoping review, the quality of the included studies was not assessed[23].

Step 5: Collating, summarizing and reporting the results

The lead author (ME) created numerical summaries to describe included studies based on their methodological characteristics, and the social determinants of health and diabetes outcomes under study.

A deductive content analysis[24-26] was then used to map the associations between specific social determinants of health and diabetes incidence and prevalence, progression from prediabetes to diabetes, and diabetes management and complications. Income, education and employment were analyzed together to provide a more nuanced understanding of how socioeconomic status impacts diabetes. Separate analyses were conducted for Black and South Asian-origin populations.

Step 6: Stakeholder consultation

The research team conducted virtual focus groups with 22 diabetes professionals from Ontario, including nurses, dietitians, social workers, urban planners, public health experts and diabetes researchers. One frontline practitioner worked exclusively with Black populations while one population-health researcher focused exclusively on South Asian-origin populations. The remaining stakeholders brought expertise serving both groups from either a direct care (n=15) or population health (n=5) perspective.

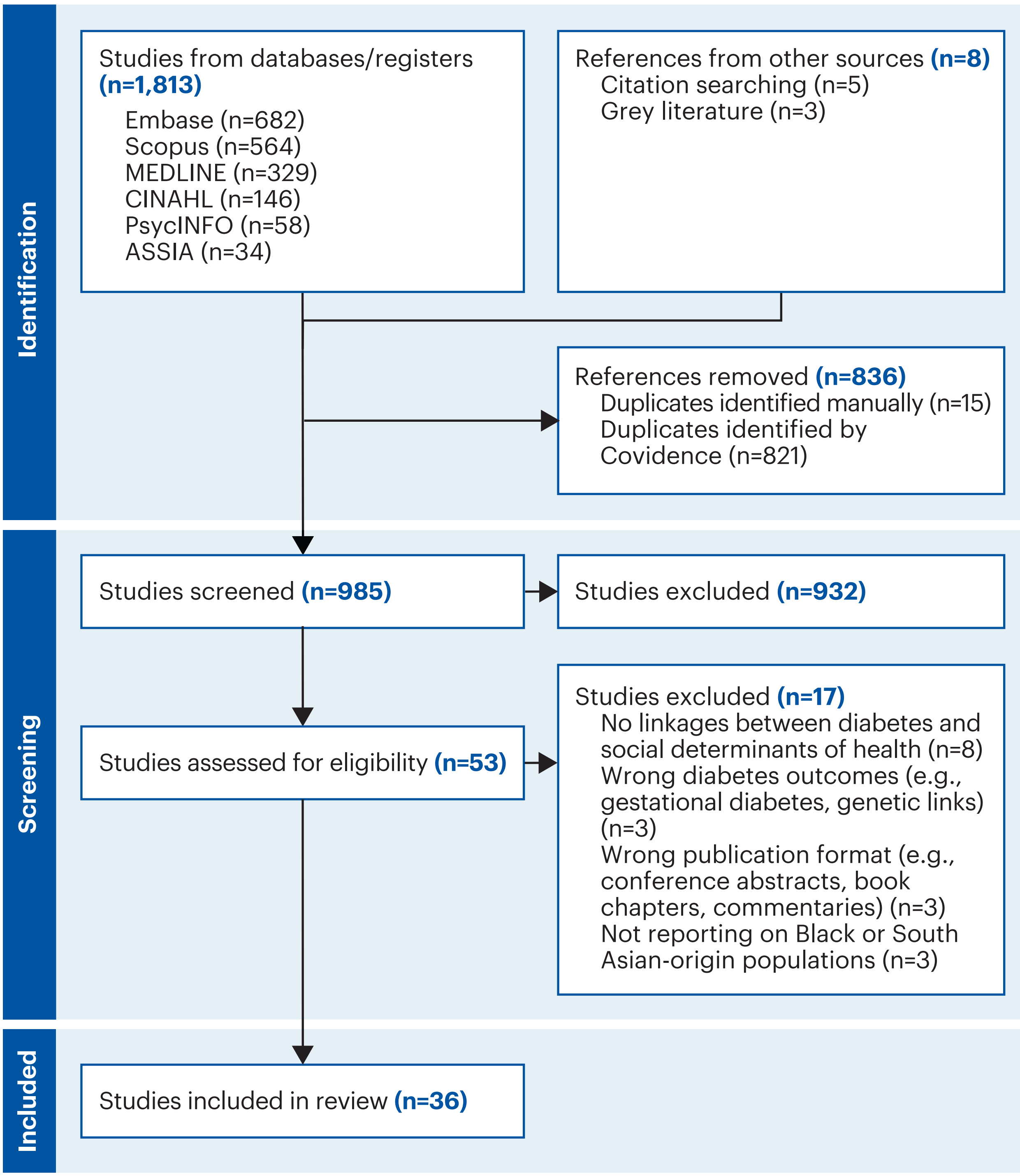
Focus groups explored whether the findings of the scoping review resonated with their professional expertise, if there were any emerging trends they were observing in policy or practice that had not yet been captured in the literature, and how findings from the review could be applied to shape current policies and programs that aim to improve diabetes outcomes for Black and South Asian-origin populations in Ontario.

Discussions were facilitated by the lead author (ME) and a member of the research team (RT) and lasted approximately 60 minutes. Audio-recordings were transcribed verbatim via Otter.ai. Data were analyzed using a deductive thematic analysis approach, whereby key findings were mapped to the social determinants of health[27]. Ethics approval was provided by the Toronto Metropolitan University Research Ethics Board (REB 2024-301).

Results

A total of 985 unique records were screened, and 53 full texts were assessed for eligibility. Thirty-six records met the full inclusion criteria (see Figure 1). This included two grey literature reports and 34 peer-reviewed studies. Table 2 below summarizes the characteristics of included studies. Further details on each study can be found in Table 2 of the supplemental materials.

Figure 1. PRISMA flowchart



Included studies were published in Ontario between 2009 and 2024. The majority used samples from across the province (n=18), but there were several studies conducted in Toronto (n=10) and Peel Region (n=4).

Three-quarters of included studies reported on South Asian-origin populations (n=29). These were predominately population-based cohort (n=12) or qualitative (n=9) studies reporting on diabetes management and complications (n=14) or diabetes incidence and prevalence (n=10).

Black populations were reported on in half of included studies (n=17).

These were mostly qualitative (n=7) or population-based cohort (n=6) studies and examined diabetes management and complications (n=8) or diabetes incidence and prevalence (n=5). For both Black and South Asian-origin populations, studies on prediabetes incidence and prevalence, as well as progression from prediabetes to diabetes, were less common.

Table 2. Summary of study characteristics

Study characteristics	Overall (n=36)	South Asian-origin populations (n=29)	Black populations (n=17)
Location			
Ontario-wide	18 (58.8%)	13 (44.8%)	8 (47.1%)
Toronto	10 (27.8%)	8 (27.6%)	6 (35.3%)
Peel	4 (11.1%)	4 (13.8%)	0
Hamilton	1 (2.8%)	1 (3.5%)	0
Ottawa	1 (2.8%)	1 (3.5%)	2 (11.8%)
Southern Ontario	2 (5.6%)	2 (6.9%)	1 (5.9%)
Methodology			
Qualitative	14 (38.9%)	9 (31.0%)	7 (41.2%)
Cross-sectional survey	3 (8.3%)	3 (10.3%)	2 (11.8%)
Population-based cohort	14 (38.9%)	12 (44.8%)	6 (35.3%)
Other	3 (8.3%)	3 (10.3%)	1 (5.9%)
Mixed methods	2 (5.6%)	2 (6.9%)	1 (5.9%)

Study characteristics	Overall (n=36)	South Asian-origin populations (n=29)	Black populations (n=17)
Diabetes focus			
Prediabetes incidence and prevalence	2 (5.6%)	2 (6.9%)	2 (11.8%)
Progression from prediabetes to diabetes	5 (13.9%)	3 (10.3%)	2 (11.8%)
Diabetes incidence and prevalence	11 (30.6%)	10 (34.5%)	5 (29.4%)
Diabetes management and complications	18 (58.8%)	14 (48.3%)	8 (47.1%)
Social determinants of health			
Immigrant status	23 (63.9%)	18 (62.1%)	11 (64.7%)
Sociodemographic	11 (30.6%)	11 (37.9%)	6 (35.3%)
Income	12 (33.3%)	9 (31.0%)	4 (23.5%)
Education	1 (2.8%)	1 (3.5%)	0
Employment	7 (19.4%)	6 (20.7%)	2 (11.8%)
Food security	10 (27.8%)	7 (24.1%)	3 (17.6%)
Healthcare access	18 (50.0%)	16 (55.2%)	7 (41.2%)
Physical environment	3 (8.3%)	3 (10.3%)	1 (5.9%)
Social support	6 (16.7%)	3 (10.3%)	3 (17.6%)
Housing	1 (2.8%)	1 (3.5%)	0

Some social determinants of health were more common in the literature than others. For both South Asian-origin and Black populations, the most studied social determinants were healthcare access and sociodemographic factors, followed by income, food security, and social support. Immigration status was also discussed in nearly two-thirds of studies, with findings exploring differences in diabetes outcomes between immigrants and non-immigrants. However, most of these studies did not define immigration status (i.e., first- or second-generation immigrant) or specify population of origin, limiting the level of analysis.

Table 3 shows the distribution of each social determinant in relation to each diabetes outcomes of interest. Among South Asian-origin populations, the most commonly discussed outcome was diabetes management and complications, with associations related to access to health services, income and immigrant status being the most explored.

Diabetes management and complications was also the most explored outcome within the literature on Black populations, with social support and immigrant status being the most prominent associations. An overview of the social determinants, diabetes outcomes and population for each included study is presented in Table 3 of the supplemental materials.

Table 3. Distribution of social determinants of health across diabetes outcomes for Black and South Asian-origin populations

	South Asian-origin populations (n=29)	Black populations (n=17)
Incidence and prevalence of prediabetes	Sociodemographics (n=1) Physical environment (n=1) Immigrant status (n=2)	Sociodemographics (n=1) Physical environment (n=1)
Progression from prediabetes to diabetes	Sociodemographics (n=1) Employment (n=1) Food security (n=2) Access to services (n=2) Immigrant status (n=2)	Employment (n=1) Food security (n=2) Immigrant status (n=2)
Incidence and prevalence of diabetes	Sociodemographics (n=8) Income (n=1) Education (n=1) Physical environment (n=1) Access to services (n=2) Immigrant status (n=4)	Sociodemographics (n=4) Income (n=1) Access to services (n=1) Immigrant status (n=4)
Diabetes management and complications	Sociodemographics (n=1) Income (n=7) Employment (n=5) Physical environment (n=1) Food security (n=5) Access to services (n=12) Social support (n=3) Housing (n=1) Immigrant status (n=7)	Income (n=3) Employment (n=1) Food security (n=1) Access to services (n=6) Social support (n=3) Immigrant status (n=5)

In the results that follow, findings from the literature are organized by social determinants of health, highlighting their associations with each diabetes outcome of interest. For each social determinant, findings are presented separately for South Asian-origin and Black populations. Findings from the stakeholder consultation are presented separately at the end.

Sociodemographic factors

Eleven studies reported on associations between diabetes and demographic factors, including age (n=9) and sex (n=7). No studies reported on gender. Of these studies, 11 reported on South Asian-origin populations and six on Black populations.

South Asian-origin populations: Of the 11 studies on South Asian-origin populations, nine explored age and seven explored sex. Six studies explored the intersection of demographic factors with immigration status. Diabetes incidence and prevalence was the most common outcome (n=8), with only one study examining incidence and prevalence of prediabetes, one examining progression from prediabetes to diabetes, and another examining diabetes management and complications. The majority were population-based cohort studies (n=9), with two studies using a cross-sectional survey design.

Studies found that diabetes among South Asian-origin immigrants was frequently diagnosed in young adulthood[1,28], with the prevalence rising sharply after the age of 20[29], and peaking at ages 65-74[30]. Furthermore, in one study of older adults, South Asian immigrants had the lowest rates of diabetes screening but the highest rate of detection of undiagnosed cases compared to other populations[31].

Studies showed that the incidence of prediabetes was also high at younger ages. For instance, one population-based cohort study reported that the incidence of prediabetes in South Asian-origin groups aged 20-34 years was comparable to that of Europeans aged 35-49[32]. These same authors further found that 50 per cent of the South Asian-origin population aged 20-34 go on to develop diabetes, and that after age 35, the cumulative conversion rates reached 60 per cent[33]. Young-onset diabetes (less than 40 years) was also associated with higher cardiovascular risk compared to usual-onset diabetes (diagnosed > 40) among South Asian-origin groups[34].

With respect to sex, population-based cohort studies found that while South Asian-origin immigrant males were screened for diabetes at lower rates compared to females[31], they had higher rates of diabetes[29-31,35] and this was true across immigrants from all South Asian countries[1,36]. Furthermore, one study examining temporal trends in diabetes from 2001 to 2023 found that prevalence rates increased 130 per cent among South Asian-origin males but remained relatively stable among South Asian-origin females[37].

Black populations: Among the six studies on Black populations, the majority focused on diabetes incidence and prevalence (n=5), and its association with age (n=5) or sex (n=5). There was one study that reported on incidence and prevalence of prediabetes. No other diabetes outcomes were examined in relation to sociodemographic factors. The majority of studies were population-based cohort studies (n=5), with one cross-sectional survey.

Intersections between demographic factors and immigrant status were explored in three studies.

Diabetes prevalence trends in Black populations became apparent at an early age of 35-49[30]. Subsequent population-based cohort studies showed an increase in prediabetes and diabetes incidence after the age of 20 among Sub-Saharan African- and Caribbean-origin immigrants[29,32]. In regards to sex, both diabetes screening rates and prevalence were found to be higher among females[31], particularly for younger age groups[35]. Another study found that from 2001 to 2023, increases in diabetes prevalence were greater for Black females (94 per cent increase) compared to Black males (27 per cent increase)[37]. However, in one study that examined prevalence rates among immigrants by country, females from the Caribbean had higher rates of diabetes compared to males, but the opposite was true for immigrants from Sub-Saharan Africa[29].

Socioeconomic status (income, education and employment)

Fifteen studies examined socioeconomic status, including income (n=11), employment (n=7) and education (n=1). Of these studies, 10 studies focused on South Asian-origin populations while six focused on Black populations.

South Asian-origin populations: For the 11 studies that examined South Asian-origin populations, nine focused on income, seven on employment and one on education. Six studies explored the intersection of socioeconomic factors and immigration status. The majority of studies (n=8) examined associations with diabetes management and complications. However, diabetes incidence and prevalence and progression from prediabetes to diabetes were also explored in one study each. Five of the studies were qualitative in design, while the remaining consisted of a population-based cohort study, a cross-sectional survey, a grey literature report and two intervention studies employing mixed methods or longitudinal evaluation designs.

Income and education were associated with diabetes prevalence among South Asian-origin immigrants, with different trends emerging based on country of origin[1]. For instance, diabetes prevalence was inversely related to income for immigrants from Sri Lanka, but not other South Asian countries[1]. Diabetes prevalence was also proportional to educational attainment among immigrants from Nepal, but the inverse was true for immigrants from India[1].

Socioeconomic challenges faced by South Asian-origin immigrants during resettlement and their impacts on type 2 diabetes management were discussed frequently in the literature[4,38,39]. For instance, underemployment and lack of recognition for international credentials were linked to poor mental and physical health outcomes for South Asian-origin immigrants, including diabetes[4,38,39]. Shift work, working “odd jobs” with long hours and limited sick time[4,38-41] were also found to hinder access to healthcare and engagement in diabetes management practices (e.g., glucose monitoring)[38,41]. Studies also discussed the intersection of employment with food security, describing how working odd jobs forced individuals into irregular meal schedules and encouraged a high reliance on high sugar food[4,38,42]. These factors made it difficult for individuals to manage blood sugar levels, which increase their risk of complications. This was supported by a population-based cohort study showing that higher rates of cardiovascular complications following a diabetes diagnosis were inversely related to income levels[28].

Cost was also an important social determinant linked with diabetes management. For instance, in studies with South Asian-origin immigrants, participants expressed concerns over high costs for purchasing medication, taking time off work, accessing transportation to medical appointments, and using exercise facilities[38,39,41-44]. Diabetes prevention and management interventions were implemented to overcome such economical barriers to healthcare by using mobile clinics with free services[45] and 24-hour virtual support through a health coach[40]. Participants reported feeling more efficient in managing and preventing diabetes complications[45] and showed a reduction in glucose levels[40] after taking part in the interventions.

Black populations: Six studies focused on Black populations and examined employment (n=2) and income (n=4). No studies examined education, while three reported on associations with immigration status. Diabetes management and complications were examined in four studies, while progression from prediabetes to diabetes, and diabetes incidence and prevalence were discussed in one study each. The majority of studies were qualitative (n=4), while the other two consisted of a cross-sectional survey and a longitudinal feasibility analysis of an intervention.

One study presenting findings of a survey of African-origin immigrants found that annual incomes less than $45,000 were associated with higher prevalence rates of diabetes[46]. Qualitative studies further suggested that diabetes management was linked with affordability. For instance, the costs of glucose strips and lancets were found to prevent participants from checking their glucose levels regularly[47]. Studies with Caribbean-origin immigrants and Black Canadians exploring progression to and self-management of diabetes further highlighted how costs and work stress limited their ability to purchase and prepare healthy and culturally appropriate foods[3,48,49]. Shiftwork was also found to be a barrier to effective diabetes management, and one study found that delivering 24-hour electronic access to health coaches increased clinical contact for participants of African and Caribbean origin, and helped them achieve better glucose control levels[40].

Food environment

Ten studies examined food environments, including food insecurity (n=6), access to culturally appropriate foods (n=5) and food availability (n=2). Within these studies, seven focused on South Asian-origin populations and three on Black populations.

South Asian-origin populations: Among the seven studies of South Asian-origin populations, four focused on food insecurity, two on culturally appropriate foods and one on food availability. Four studies examined the intersection of these factors with immigration status. Most studies reported on diabetes management and complications (n=5), while two examined progression from prediabetes to diabetes. Five studies were qualitative study designs (n=5), while the remaining were a grey literature report and a mixed-methods intervention study.

A study on South Asian-origin adolescents from immigrant families with a history of diabetes living in Peel Region identified food insecurity as a key challenge for preventing diabetes[4]. Participants described how the abundance of “food swamps” (unhealthy food options that are easy to access) in their neighbourhoods made it difficult for them to prioritize healthy food options[4]. A survey conducted in the City of Mississauga for the Diabetes Healthy City Strategy similarly identified the need to improve healthy food access to address food security and support diabetes management[50].

Access to fresh and affordable food was reported as a challenge to diabetes management among South Asian immigrants with caregiving duties[39]. This difficulty was further exacerbated for those in demanding jobs, which often led to a reliance on junk food[41,42]. Studies also raised concern about cultural insensitivity among healthcare workers when discussing dietary management of diabetes[41]. For instance, South Asian-origin immigrants reported that their healthcare workers frequently ignored food insecurity when discussing dietary recommendations[4,38]. In contrast, when healthy eating demonstrations were integrated into a culturally adaptive South Asian Diabetes Prevention program, participants found it to be beneficial in learning to manage their diabetes[45].

Black populations: Only three studies examined associations between food environments and diabetes within Black populations. All three discussed culturally appropriate foods, while two also examined food insecurity and one included food availability. All three studies examined the intersection of these factors with immigration status using qualitative approaches. Two studies focused on progression from prediabetes to diabetes, while one study explored diabetes management and complications.

Concerns around the lack of cultural awareness among healthcare workers when addressing dietary management of diabetes were highlighted in the literature[3]. Studies also found that Black populations reported limited options for affordable and healthy culturally appropriate foods[3,49]. African- and Caribbean-origin immigrants, in particular, were found to have a strong preference for adhering to cultural practices during meal preparation as a strategy to prevent the progression of diabetes[49,51].

Healthcare access

Eighteen studies reported on healthcare access, including access to health services (n=17), diabetes formal education (n=10) and language barriers (n=11). Within these studies, 16 focused on South Asian-origin populations and seven addressed Black populations.

South Asian-origin populations: For the studies on South Asian-origin populations, 16 examined access to health services, nine explored language barriers, and six examined diabetes formal education. Eleven focused on the intersection of these factors with immigration status. Most studies reported on associations with diabetes management and complications (n=12). However, two studies reported on diabetes incidence and prevalence and two reported on progression from prediabetes to diabetes. Most studies were qualitative in design (n=9), while the remaining included two population-based cohort studies, two cross-sectional surveys and two mixed-methods studies, with one examining an intervention.

Studies found that South Asian-origin communities had high rates of undiagnosed diabetes and low access to diabetes education[31,41,52]. For instance, in qualitative studies, participants explained they did not receive sufficient information about their diabetes diagnosis and treatment plans from their healthcare provider, nor did they receive support to make the necessary medical appointments, which made it challenging to "blindly" follow recommendations[53]. Other studies showed these challenges were exacerbated when individuals faced language barriers in healthcare environments[1,39,41,42,53]. Healthcare interventions that provided multilingual nurse- and dietitian-led diabetes services helped reduce these barriers and promote diabetes management practices among South Asian immigrants[45,54]. Other barriers to diabetic healthcare, such as transportation[38], inflexible work schedules[38,41], family responsibilities[41], and costs[47], were addressed through an intervention that offered 24-hour electronic access to a health coach, which allowed participants to receive support at their convenience and improved glucose control[40].

In several studies, trust with providers was found to be important for helping South Asian-origin immigrants access community resources for diabetes management[39,42,44], but when trust had not been established, individuals questioned the accuracy of diabetes-related advice they received[52]. Additionally, discriminatory treatment and the lack of cultural sensitivity by healthcare practitioners was found to make it difficult for South Asian-origin immigrants to engage in diabetes prevention[4] and self-management[44] strategies. Some research suggested there were higher levels of perceived acceptance of healthcare providers within community-based, culturally responsive diabetes programs[41,52].

Another study found a preference among South Asian-origin immigrants for a physician from their ethnic and language background who could understand their cultural norms[53]. However, a subsequent study found this had no impact on the quality of diabetes care[55].

Black populations: Among the seven studies reporting on Black populations, all examined access to services, five focused on diabetes formal education, and two on language barriers. Five studies examined the intersection of these factors with immigration status. The most common diabetes outcome related to management and complications (n=6), with one study reporting on diabetes incidence and prevalence. Most studies were qualitative in design (n=4). However, there was also one population-based cohort study and one longitudinal feasibility assessment of an intervention.

One study found that Black populations of Caribbean origin had high rates of undiagnosed diabetes[56]. While the authors attributed this to poor access to screening, there have not been any studies examining barriers to diabetes screening for this population. However, there have been several studies that identified barriers to accessing diabetes education and medical supplies[47], both of which were linked to disease management. For instance, the lack of culturally relevant dietary advice and information on how to navigate the Canadian health system was reported to negatively impact self-management abilities[3,57]. The importance of trust in community resources and healthcare providers was also highlighted as a way to promote engagement in diabetes management practices[52], including regular HbA1c monitoring or retinopathy screening[58]. Studies also showed that Black populations preferred a healthcare provider of their ethnicity to help overcome language and cultural barriers[3,57].

There have been two studies examining the effectiveness of culturally and linguistically tailored approaches for promoting diabetes management practices among Black populations. For instance, one intervention for immigrants of African and Caribbean origin incorporated language support, information flyers and workshops, and social support through community champions and reported increased uptake of diabetic retinopathy screening[57]. Another intervention that targeted financial constraints to diabetes management implemented a virtual 24-hour electronic health coach and found improved glucose control levels in Black participants[40].

Physical environment

Two population-based cohort studies and one grey literature report examined the physical environment, namely neighbourhood walkability. South Asian-origin populations were addressed in all three studies while Black populations were discussed in only one study.

South Asian-origin populations: All three studies on South Asian-origin populations reported on diabetes management and complications, as well as the incidence or prevalence of both prediabetes and diabetes. One study examined the physical environment in relation to immigration status.

A study of five urban regions across Ontario found that low-walkability neighbourhoods had a greater number of people of South Asian-origin relative to high-walkability neighbourhoods and that neighbourhood walkability was directly linked to diabetes[2]. A related study examining prediabetes cases among immigrant populations living in less walkable neighbourhoods found that South Asian immigrants had double the incidence compared to Western Europeans[59].

Research by the City of Mississauga (a region of Ontario with a large population of individuals of South Asian origin) developed a diabetes prevalence map to identify environmental improvements for neighbourhoods most affected by diabetes[50]. Findings pointed to the need for improved transit, better walkability, more green spaces, and more affordable recreational programs. These changes were thought to improve food access, healthcare access, and increase physical activity, reducing the incidence of prediabetes and diabetes, and support better diabetes management[50].

Black populations: The one population-based cohort study that examined the incidence of prediabetes among Black immigrant populations living in less walkable areas found that Sub-Saharan African- and Caribbean-origin immigrants had a prediabetes rate twice as high as that of Western Europeans[59]. There were no other studies that explored associations between the physical environment and diabetes outcomes for Black populations.

Social support

Six studies examined social support, including three with South Asian-origin populations and three with Black populations.

South Asian-origin populations: Three studies explored the association between social support and diabetes management and complications among South Asian-origin populations. All studies were qualitative in design and examined the intersection with immigrant status.

One study on recent South Asian immigrants found they were more likely to rely on their family and friends for diabetes information compared to their Canadian-born counterparts[43]. Another study with immigrant Sikhs found that social events, like family gatherings and attending the temple, made diabetes management more challenging due to the availability of unhealthy foods in these settings[53]. To strengthen social support, one study emphasized the importance of involving family members during healthcare appointments to support better diabetes management[39].

Black populations: All three studies on Black populations were qualitative in nature and examined associations with diabetes management and complications. No other diabetes outcomes were examined. Additionally, all studies considered the intersection with immigration status.

One qualitative study with Black Canadians found that the beliefs about susceptibility to and the severity of diabetes were structured around information obtained from peers, family, churches and online sources[3]. The role of social networks in diabetes management was further explored in a study with adolescents diagnosed with type 1 diabetes from Somalian families who expressed challenges managing eating habits during social situations with friends and family, where they often overate or consumed high-sugar foods[48]. In recognizing the role of social networks, one intervention to improve diabetic retinopathy screening for African and Caribbean-origin immigrants targeted the social environment by using patient partners who had diabetes and spoke the same languages as the participants[57].

Housing

There was one report that examined the role of housing in diabetes prevention, and it focused specifically on South Asian-origin populations. This report was from the City of Mississauga for their Diabetes Healthy City Strategy and discussed housing affordability and its impact on diabetes management as well as the intersection of housing with food security and healthcare costs[50]. For instance, the report found that 43 per cent of respondents identified the need for affordable housing in their community to ensure they remain as healthy as possible, as it would relieve them from stress they believed contributed to the development of their diabetes[50]. There were no other studies that explored housing and diabetes outcomes such as diabetes incidence and prevalence or progression from prediabetes to diabetes.

There were no studies that explored associations between housing and diabetes among Black populations.

Stakeholder consultations

Stakeholders discussed several social determinants they felt impacted diabetes management and prevention for South Asian-origin and Black populations. These included food environment, healthcare access, physical environment, social context, and housing. Many of the discussions supported existing findings in the literature, while also uncovering trends that were not extensively captured in previous research.

A theme throughout discussions focused on food insecurity and the availability of culturally appropriate food. This issue was thought to be particularly prominent for individuals experiencing housing insecurity, as shelter programs could not always provide low glycemic meals or culturally appropriate diets. Stakeholders also noted that lower-income Black and South Asian-origin families often had to rely on unhealthy food options that were perceived to be more affordable, with strong preferences for cultural staples such as rice and lentils in South Asian populations or fufu and doubles in African populations. While participants explained that many desired to eat healthier, affordability and access to better options were thought to be major limiting factors. Dietitians emphasized the importance of understanding cultural dietary practices and offering culturally relevant recommendations to help individuals make healthier choices and better manage their diabetes.

Stakeholders also reiterated the need for healthcare providers to remain “culturally humble” when providing diabetes care for Black and South Asian-origin populations. Participants called for greater respect for patients' autonomy in decision-making and offering culturally appropriate care, such as accessing language line translation services. They also stressed the importance of acknowledging the structural and social inequities experienced by Black and South Asian-origin populations that contribute to chronic stress and alter their metabolic system, making it harder to process sugar.

Other barriers to healthcare raised by stakeholders included limited primary care access and high costs of medical equipment for diabetes management. Stakeholders highlighted Black and South Asian-origin communities in Ontario frequently lacked access to primary care providers, especially if they were newcomers. This was thought to make it difficult to access routine blood work for diabetes prevention and monitoring, and several had experiences supporting immigrants and refugees who were unaware that they had prediabetes or diabetes due to limited primary care access.

Diabetes nurse educators were also concerned with the costs of glucose monitoring systems, insulin, and other diabetes-related medications, particularly for low-income individuals and those without health insurance. The importance of compassionate care programs offered by pharmaceutical companies to reduce this cost burden were discussed. However, stakeholders highlighted barriers to accessing these programs, including requirements for a physician referral.

Stakeholders also explored social influences on self-management of diabetes among South Asian-origin and Black populations. For instance, some described how the stigma associated with diabetes within these populations made it difficult for people to talk about their diagnosis or management practices with friends and family. Social isolation was also raised as a key issue that adversely impacted motivation for engaging in self-management practices, especially for older adults living alone. Stakeholders discussed the importance of fostering supportive communities to promote diabetes management. For instance, one stakeholder who worked predominately with young adults discussed the difficulties of managing diabetes while transitioning into adulthood, and highlighted the important role of peer support for promoting self-management practices.

Stakeholders also expressed the importance of building safer, more walkable communities to reduce the burden of diabetes. For instance, researchers discussed how South Asian-origin and Black immigrants often came to Canada from communities where they primarily got around by walking (e.g., walking to work or the market). This was contrasted with experiences in Canada where individuals rely on transportation to get around due to low-walkability neighbourhoods, diminishing their opportunities for physical activity.

While the role of housing in diabetes care for South Asian-origin and Black populations was discussed by stakeholders, reflections were more limited. Discussions focused predominately on poor quality housing, especially among South Asian and Black refugees and immigrants, and the ways in which poor housing adversely impacted their ability prioritize their health.

Discussion

This review examined the impact of socioeconomic, environmental and social factors on diabetes incidence, progression, management and complications among Black and South Asian-origin populations in Ontario. There were no studies published between 2000 and 2008. Eighty per cent of included studies focused on South Asian-origin populations, and there was less attention overall to social determinants of health and diabetes care for Black populations (only 47.2 per cent of included studies). Additionally, most of the studies focused on diabetes incidence and prevalence (drawing from population-based cohort analyses; 30.6 per cent of included studies), or diabetes management and complication (drawing from qualitative methodologies; 58.8 per cent). There were very few studies on the progression from prediabetes to diabetes (only 13.9 per cent or prediabetes incidence and prevalence (5.6 per cent). Key findings revealed low income, food insecurity, and cultural barriers hindered access to healthcare and diabetes management resources for both populations, and that these challenges were intensified for immigrants.

Studies highlighting differences by country of origin (eight in total for South Asian-origin and Black populations) found differences in associations between social determinants of health and diabetes, underscoring the need for continued data disaggregation and further research to guide targeted social determinants of health interventions for specific sub-populations. Additionally, as much of the existing research focused on individual-level associations (only one study was population-level focused), future studies are needed to identify and prioritize system-level factors to enhance diabetes outcomes for Black and South Asian populations through action on the social determinants.

The importance of thriving workplaces[60] for potentially reducing the burden of diabetes and associated complications within Black and South Asian-origin populations emerged within literature on socioeconomic challenges[40,45]. For instance, studies found how underemployment, long working hours, lack of transportation and other financial constraints hindered access to diabetes healthcare, medications and self-management practices like glucose monitoring, exercise or healthy eating[40,45]. While there was some literature on ways healthcare interventions can combat these challenges for Black and South Asian-origin populations through digital or mobile health services, additional work is needed to explore how factors like adequate and stable employment income, health benefits, or sick leave promote diabetes management.

The findings in this review on Black and South Asian-origin populations underscore the importance of having access to a family doctor and high-quality healthcare clinics for diabetes prevention and management. Stakeholders emphasized that lower primary care access among Black and South Asian-origin populations significantly hindered access to diabetes care, including diabetes education, retinopathy screening and HbA1c monitoring[53,57,58]. However, even when clinics were available, evidence in this review suggested that the lack of culturally competent or linguistically accessible care may act as barriers for Black and South Asian-origin populations[41,45]. Strategies and interventions to meet this need identified in the literature and through consultations included culturally informed diabetes management plans (e.g., dietary recommendations), community resources and language line services[45,57].

The food environment and social context also played a role in diabetes prevention and management for Black and South Asian-origin populations. For instance, findings from this review showed that the existence of "food swamps"[4], coupled with high costs of healthy foods and lack of culturally appropriate foods limited access to nutritious food options and heightened food insecurity. Studies also raised concerns about healthcare workers' cultural insensitivity, particularly regarding food insecurity and dietary recommendations[3,4,38]. Despite the availability of community resources (e.g., food vouchers, cooking classes, and free meals), findings emphasized the need to address systemic drivers of food insecurity, including stable income and access to healthy food, especially in disadvantaged neighbourhoods[39,47].

Evidence in this review showed that Black and South Asian-origin immigrant populations often relied on family, peers and religious sites for diabetes information and that social support played a key role in diabetes management[3,43]. However, family and community norms were found to hinder efforts, especially in social settings where unhealthy food options were encouraged[48,53]. Culturally tailored interventions that involved patient partners emphasized the powerful role social support can play in addressing these challenges[57].

There was a notable gap in the literature for both Black and South Asian-origin populations regarding the role of the built environment on diabetes outcomes. The limited studies on walkability, particularly among South Asian-origin populations, found higher rates of diabetes in low-walkability areas with large South Asian-origin populations[2,59]. Stakeholder consultations highlighted the importance of improving urban spaces by increasing transportation options, enhancing walkability and promoting access to nutritious food and green spaces. Given the limited research in this area, future studies should explore how urban design – such as transportation, green spaces and food access – can improve walkability and access to resources in neighbourhoods with high proportions of Black and South Asian-origin populations, thus improving diabetes prevention and management.

Housing also emerged as a critical yet understudied factor for both Black and South Asian-origin populations. One grey literature report on South Asian-origin populations emphasized the need for affordable housing to ensure individuals can prioritize their health[50]. Discussions with stakeholders further emphasized this point where they stated that these populations found it difficult to prioritize health while having to support their families and pay for unaffordable housing. More research on the intersection of housing instability and diabetes is needed, including how collaborative efforts between urban planning, public health and the housing sector can address health inequities for Black and South Asian-origin populations.

The City of Mississauga was a notable example of one municipality working to reduce disparities in diabetes at a population level through action on the social determinants of health[50]. The Cities for Better Health initiative uses tools like the Foodscape Assessment Toolkit to examine the interplay between the built environment and food behaviours, aiming to improve nutritious food access and reduce food insecurity[61]. Additionally, the Urban Diabetes Toolbox, another component, includes a Diabetes Vulnerability Assessment that identifies social factors and cultural determinants that impact diabetes vulnerability, guiding the design of local interventions[62].

Although this scoping review did not include a risk of bias assessment to assess the quality of the literature, several methodological gaps were evident. Almost all the research examining diabetes management and complications drew from qualitative methodologies. While this provides rich insights into individual experiences of social determinants of health in relation to diabetes, there is a need for more empirical evidence to provide a clearer understanding of how inequities in social determinants of health (e.g., food or housing insecurity) contribute to the development of the disease and associated complications. Moreover, studies that relied on health administration databases to assess population-level trends may underestimate diabetes prevalence among groups such as immigrants and refugees who face significant barriers accessing healthcare and thus may not have a diagnosis.

The ways in which South Asian-origin and Black populations were defined varied across the studies, with some using country of birth as a proxy for ethnicity, while others relied on immigration data or administrative records. Most studies also failed to disaggregate findings by racial or ethnic sub-groups, but the studies that did found differences in the associations between the social determinants of health and diabetes[29,31,32,37,59]. Studies also did not provide clarity on the immigration status of the populations of interest (e.g., where they immigrated from, whether they were first- or second-generation immigrants, or immigration visa type). Greater disaggregation will be crucial for creating tailored social determinants of health interventions for specific sub-populations within Black and South Asian-origin populations.

Strengths and limitations

A key strength of this review was the inclusion of both peer-reviewed and grey literature, as well as engagement with diverse stakeholders, which brought multidisciplinary perspectives from both an individual and systems level. However, there are some limitations which must be considered. First, this review focused on findings from Ontario, and thus excluded literature from other jurisdictions that have similar health and social systems, including other parts of Canada, the United Kingdom or Australia. Second, although the search strategy was developed by a social work librarian and peer-reviewed, articles that did not specify a geographic location within Ontario may have been missed.

Conclusion

> **There is a need to decrease the risk and progression of diabetes and increase access to diabetes care by addressing the social determinants of health.**

This scoping review highlights the intersectionality of social determinants and their impact on diabetes outcomes among Black and South Asian-origin populations in Ontario. The findings emphasize the need for decreasing the risk of illness, decreasing the progression of illness and increasing access to disease management care by addressing the social determinants of health, which increase the risk of diabetes and then impede effective action to control blood sugar. Black and South Asian-origin populations, particularly immigrant populations, were more likely to hold precarious employment that prevented them from attending to their diabetic care needs in a timely manner. They also faced limited access to nutritious food due to availability and cost. There is a need for targeted interventions that address not only the healthcare access barriers but also the sociocultural, environmental and economic factors that contribute to diabetes risk among these populations. While progress is being made, particularly in cities like Mississauga, further research is required to better understand the intersectionality of these factors and to improve approaches for effective diabetes prevention and management. The insights gained from this review can inform the development of culturally tailored programs and policies that support equitable healthcare access, promote healthier environments, and empower communities to improve diabetes outcomes.

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