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Service Provider Perspectives on Exploring Social Determinants of Health Impacting Type 2 Diabetes Management for South Asian Adults in Peel Region, Canada

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Key Messages

- Individuals from South Asian communities are known to have a higher likelihood of developing type 2 diabetes (T2D).
- Service providers attribute the high prevalence to T2D in South Asian adults to social, economic and systemic factors.
- Equitable employment policies and culturally appropriate recommendations are needed to support South Asian adults with T2D.

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ABSTRACT

Objectives: Individuals from South Asian communities are known to have a higher likelihood of developing type 2 diabetes (T2D), which is often attributed to individual lifestyle and behavioural factors. This focus on individual responsibility can position communities as complicit in their illness, compounding stigmatization and systemic discrimination. In this article we explore the social determinants of health (SDOH) that influence health behaviours among South Asian adults with T2D from a service provider's perspective.

Methods: Using a qualitative descriptive design, we conducted semistructured interviews with 12 community, social and health-care service providers. We used thematic analysis and the analytical concept of intersectionality to explore how different social locations and SDOH impact T2D management for South Asian adults.

Results: Three themes were identified including: 1) managing challenges with settlement process, labour policies and job market disparities take priority over T2D management; 2) poor working conditions and low socioeconomic status reduce access to health care and medication; and 3) there are social, economic and cultural barriers to implementing diet and exercise recommendations.

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Conclusions: Service providers identified social, economic and systemic factors as influencing the higher prevalence of T2D among South Asian individuals. They also identified their important roles in providing culturally appropriate supports to address SDOH and described advocacy for changes to policies and practices that reinforce systemic racism. The providers further suggested that more equitable employment policies and practices are needed to address the systemic factors that contribute to the higher risk of T2D among South Asian adults in the Peel Region.

Mots clés:
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RÉSUMÉ

Objectifs : Les personnes des communautés sud-asiatiques sont connues pour être davantage susceptibles d'avoir le diabète de type 2 (DT2), qui est souvent attribué aux facteurs individuels liés au mode de vie et comportementaux. L'importance accordée à la responsabilité individuelle peut faire des communautés les complices de leur maladie, contribuer à la stigmatisation et à la discrimination systémique. Dans le présent article, nous explorons les déterminants sociaux de la santé (DSS) qui influencent les comportements de santé chez les adultes sud-asiatiques atteints du DT2 du point de vue des prestataires de services.
Méthodes : À l'aide d'un modèle descriptif qualitatif, nous avons mené des entrevues semi-structurées auprès de 12 prestataires de services communautaires, sociaux et de soins de santé. Nous avons eu recours à l'analyse thématique et au concept analytique de l'intersectionnalité pour explorer la façon dont les différentes situations sociales et les DSS ont une incidence sur la prise en charge du DT2 des adultes sud-asiatiques.
Résultats : Nous avons exploré les 3 thèmes suivants : 1) la prise en charge des enjeux du processus d'établissement, les politiques de l'emploi et les disparités du marché du travail ayant la priorité sur la prise en charge du DT2; 2) les mauvaises conditions de travail et le faible statut socioéconomique contribuant à réduire l'accès aux soins de santé et aux médicaments; 3) les obstacles sociaux, économiques et culturels à l'application des recommandations en matière d'alimentation et d'exercice.
Conclusions : Les prestataires de services ont établi que les facteurs sociaux, économiques et systémiques influencent la prévalence accrue du DT2 chez les personnes sud-asiatiques. Ils ont aussi relevé l'importance de leurs rôles dans l'offre de soutien adapté à la culture pour s'attaquer aux DSS et ont préconisé des changements aux politiques et aux pratiques qui renforcent le racisme systémique. Les prestataires ont en outre indiqué que des politiques et des pratiques d'emploi plus équitables sont nécessaires pour s'attaquer aux facteurs systémiques qui contribuent au risque plus élevé de DT2 au sein des adultes sud-asiatiques de la région de Peel.

Introduction

The prevalence of type 2 diabetes (T2D) is expected to rise from an estimated 536 million people in 2021 to 783 million people worldwide by 2045 (1). Prediabetes, the precursor to T2D, is also increasing worldwide (2). It is estimated that 318 million people globally had prediabetes in 2012, and the prevalence is projected to increase to 482 million by 2040 (2). T2D has been identified as a significant health concern in Peel, a regional municipality in southern Ontario, where the prevalence of diabetes has increased from 5.9% in 1996 to 9.2% in 2005 (3,4). This increase is partially due to an aging population and often attributed to the many South Asian communities in the region that are considered to be at higher risk of developing T2D (5,6).

"South Asian" is a term encompassing many countries and regions, including India, Pakistan, Bangladesh, Bhutan, Maldives, Nepal, Sri Lanka, Afghanistan and the West Indies, which are made up of diverse regions, ethnicities, languages, cultural identities and religions (7). South Asian adults are 4-fold more likely than people of Western European and North American descent to have T2D (5,8), indicating genetic and nongenetic risk factors (9).

The social determinants of health (SDOH) include built environment, migration, socioeconomic status, employment insecurity, racialization and marginalization. SDOH are known to impact T2D management by determining affordability, availability and access to supportive resources (10,11). There is a higher prevalence of T2D among those with lower incomes (12–14), and job insecurity is positively associated with incidence of T2D (15). Stressors associated with social, economic and political marginalization and discrimination during migration and settlement have been theorized as risk factors for T2D among South Asians (16,17). The COVID-19 pandemic has further highlighted inequities by pointing to precarious employment practices, systemic racism and the impacts of the pandemic on racialized communities across Canada (18).

Because South Asian communities are a heterogeneous group, there is variability between families based on the interconnected nature of SDOH and the need for tailored services (16,19). Interventions addressing individual behaviours related to T2D, such as diet and exercise, in South Asian populations have had minimal success, whereas community-based interventions that are culturally tailored have shown greater promise in assisting with screening, prevention and management (11). There is a need for culturally appropriate and accessible health promotion and prevention strategies to support South Asian individuals and their families in modifying risk behaviours associated with T2D, such as diet and physical activity (4,20,21).

Community agencies in the Peel Region identified the need for research on the topic of diabetes management in South Asian families in relation to SDOH. Therefore, the present study was carried out in partnership between researchers, a community-based hospital and 2 multiservice community agencies providing

health, settlement and family and social services in Peel serving a large South Asian adult population. The aim of this research was to capture health-care and community service providers' perspectives about how the SDOH may impact T2D management among South Asian adults and recommendations for action and policy change to address systemic barriers and racism. In the effort to develop a more holistic and intersectional view of T2D management for South Asian adults, this project is, to our knowledge, the first to reimagine the meaning of "service provider" to include clinicians responsible for diabetes management and community service providers whose primary role may be to address SDOH by providing settlement and social services to South Asian service users.

This qualitative study uses the analytical concept of intersectionality (22,23) to understand diasporic identities as diverse and interconnected with other social identities, including sexuality, gender, racialization, religions, socioeconomic and immigration status. Intersectionality provides a means to identify the complexity of social identity and to understand its impact on variable experiences of health and illness, as well as experiences of systemic power and oppression (23,24).

Methods

Setting

This study took place in the Peel Region of Ontario, Canada. Approximately 37.8% of immigrants living in Peel were born in South Asian countries, 50.6% of recent immigrants were born in South Asian countries and 31.9% of the population in Peel have ethnic origins in South Asia (25). Research suggests that in Brampton, a city in the Peel Region, areas in which there are high rates of T2D are also areas with high concentrations of South Asian residents and lower socioeconomic status (5). Peel Region residents have a median income of $33,467 and an employment rate of 61.8% (26). Research shows that Caucasian, university-educated Peel residents were, on average, paid more than their racialized minority counterparts for full-time work, and South Asian immigrants are most overrepresented in lower income brackets (27,28).

In this study we focussed on service provider perspectives from 3 organizations in the Peel Region supporting a large South Asian population; a community health service organization, a community social services organization and a diabetes management centre at a large community hospital. Data collection for this study took place during the COVID-19 pandemic when there was a shift from in-person to virtual care and increased strain on employment and health-care services (29).

Study design

This exploratory qualitative study was intended to respond to local needs and draw on the strengths of community knowledge in the research design (30,31). To increase accountability for institutional and social barriers to health equity we used a community-based approach by engaging service providers from local organizations to inform the study design, provide feedback on study recruitment materials and interview guides and contribute to interpreting and validating the findings (32). We utilized a qualitative descriptive design (33,34), an inquiry approach based on observational data that describes participants' experiences and perspectives in relation to their everyday social contexts (35,36). Qualitative descriptive designs also allow for theoretical approaches, such as intersectionality, to inform interview guides and analysis while simultaneously allowing informationally rich data and flexibility throughout the research activities (37).

Recruitment and data collection

Our study was granted approval from the research ethics board of Trillium Health Partners. We held stakeholder meetings with the 3 organizations to collaboratively determine the most appropriate recruitment strategies at each site. All 3 sites determined that the best recruitment strategy was to disperse recruitment materials via e-mails or bulletins to staff in specific programs that support adults with T2D, and thereafter to all staff members if needed. Team members from each site provided feedback on the wording of questions for the interview guide to ensure that the items were culturally safe and relevant. A recruitment poster that included a brief description of the study and information about how to contact the research team was electronically distributed to staff at all 3 organizations. Participants' inclusion criteria were: 1) >18 years of age; 2) currently employed at one of the collaborating community organizations; and 3) working directly with South Asian community members in the Peel Region. We sought maximum variation in type of service providers (i.e. community health, social services, and health-care clinicians) to elicit diverse perspectives. This sampling strategy aligned with the goal of a qualitative descriptive study, which is to gather rich informational data (34). Service providers can provide key insights about factors influencing T2D management across various South Asian communities based on their professional and lived experiences supporting clients. Those who directly provided diabetes-related care could offer perspectives specific to T2D management, whereas those who did not provide direct "diabetes care," but worked with many South Asian clients living with T2D, could speak to the social determinants of health. Verbal, audio-recorded consent was obtained before the interview.

In summer 2021, 12 service providers participated in a 1-hour online, audio-recorded qualitative semistructured interview over the virtual platform Zoom. The interview guide (see Supplementary Appendix) focussed on the following topic areas: 1) providers' background and work with South Asian communities in Peel; and 2) community-specific challenges, opportunities and assets related to preventing and managing T2D in relation to SDOH. Demographic data, including age, gender, education level, race or ethnicity and language spoken in the home, and service provider roles were also collected to support an intersectionality analysis. We applied the concept of information power to determine adequate sample size—the more information the sample holds relevant to the research question, the lower the number of participants required (38). The project team, including community partners, determined when an adequate sample size was obtained for the study through continuous reflection about the diversity of participants, richness of the data and the study aim.

Data analysis

Audio recordings were transcribed and de-identified. Pseudonyms are used in what follows to protect the identity of participants. We used a thematic analysis approach to identify common themes across the data (39). Thematic analysis offered the possibility to orient experiential data to focus on patterns of meaning (40). The flexibility of thematic analysis allowed us to understand the lived experiences of service providers who work with South Asian families with T2D while also locating these experiences within the context of the SDOH in the Peel Region. Engaging with the research team members, many of whom self-identify as South Asian, and/or provide services to the South Asian community helped to increase the trustworthiness and credibility of the findings as multiple perspectives from various disciplines and social identities were accounted for.

To ensure rigour, a subsample of 3 distinct transcripts based on service provider type were reviewed independently and

Table 1
Adapted version of Bilge's (22) intersectionality analysis template

Social categories	Discrete considerations (step 1)	Intersectional considerations (step 2)
Race	How **race** informs this individual account?	How **race** interacts/intersects with other social categories in this individual account? *OR* which dimensions of the experience are interacting with **race**?
Ethnicity/ethnocultural	How **ethnicity** informs this individual account?	How **ethnicity** interacts/intersects with other social categories in this individual account? *OR* which dimensions of the experience are interacting with **ethnicity**?
Religion	How **religion** informs this individual account?	How **religion** interacts/intersects with other social categories in this individual account? *OR* which dimensions of the experience are interacting with **religion**?
Language	How **language** informs this individual account?	How **language** interacts/intersects with other social categories in this individual account? *OR* which dimensions of the experience are interacting with **language**?
Citizenship status	How **citizenship status** informs this individual account?	How **citizenship status** interacts/intersects with other social categories in this individual account? *OR* which dimensions of the experience are interacting with **citizenship status**?
SES	How **SES** informs this individual account?	How **SES** interacts/intersects with other social categories in this individual account? *OR* which dimensions of the experience are interacting with **SES**?
Education	How **education** informs this individual account?	How **education** interacts/intersects with other social categories in this individual account? *OR* which dimensions of the experience are interacting with **education**?
Age	How **age** informs this individual account?	How **age** interacts/intersects with other social categories in this individual account? *OR* which dimensions of the experience are interacting with **age**?
Social support (living arrangements, family and informal support networks)	How **social support** informs this individual account?	How **social support** interacts/intersects with other social categories in this individual account? *OR* which dimensions of the experience are interacting with **social support**?
Geography	How **geography** informs this individual account?	How **geography** interacts/intersects with other social categories in this individual account? *OR* which dimensions of the experience are interacting with **geography**?
Abilities	How **abilities** informs this individual account?	How **abilities** interact/intersect with other social categories in this individual account? *OR* which dimensions of the experience are interacting with **abilities**?
Sexuality/body image	How **sexual orientation** informs this individual account?	How **sexuality/body image** interacts/intersects with other social categories in this individual account? *OR* which dimensions of the experience are interacting with **sexuality/body image**?
Other	Are there **other relevant social categories/relations** informing this account?	How **other relevant social categories/relations** interact/intersects with other social categories in this individual account?

SES, socioeconomic status.

open-coded by 3 team members (C.D., N.H. and E.M.) to begin familiarization with the data and labelling key concepts. The 3 team members met to discuss their independent findings and develop a coding framework, including labels and definitions, to apply to the data to reflect similar concepts. The framework was refined as the analysis proceeded. Two team members (C.D. and N.H.) then coded the remaining transcripts while holding analysis meetings with the team to discuss the findings as analysis progressed and any differences in interpretation. Our analytic discussions and memos reflected upon our own positionalities and we shared this as context-informing data interpretation during team analysis meetings (41). Concurrently, 2 team members (C.D. and N.H.) tailored Bilge's (22) intersectionality analysis template by adding employment and socioeconomic status fields (Table 1), and then completed the template and discussed the influence of intersectional identities on T2D management with the larger team (C.D., N.H., E.M. and I.Z.). This approach allowed for a more nuanced understanding of the influence and interaction of individual characteristics (i.e. gender, ethnicity, etc) and perspectives on power, privilege and oppression.

Reflecting on the codes and the intersectionality analysis, we then developed themes during a series of team meetings where the relationships between the themes were explored and summarized. Although there were additional data pertaining to each category in the intersectionality analysis, not all aspects of the analysis could be included in this article. Through discussions with our project team, and with guidance from our community partners, we chose to focus on the employment- and income-related intersections because these perspectives were prevalent throughout all service provider interviews.

Results

A total of 12 service providers (Table 2) were interviewed, including clinicians (endocrinologist, dietician), community service providers (settlement workers, mental health counsellors, community ambassadors, care managers) and leaders at community service agencies. Service providers had experience working with various populations in the South Asian community, including women, men, youth, seniors and 2SLGBTQ+ populations. The average age of participants was 45 (range, 22 to 71) years, and 8 identified as female and 4 identified as male. Ten participants identified as South Asian and were bilingual. Service providers emphasized the significant role of employment and income on T2D management in the South Asian community. We identified the following 3 key themes related to the how social determinants impact T2D management: 1) managing challenges with the settlement process, labour policies and job market disparities taking priority over T2D management; 2) poor working conditions and socioeconomic status reducing access to health care and medication; and 3) social, economic and cultural barriers to implementation of diet and exercise recommendations.

Managing challenges with the settlement process, labour policies and job market disparities taking priority over T2D management

Service providers described how clients and patients experience challenges with attaining employment and income during the settlement process. Some described their lived and client experiences of racism that prevented South Asian newcomers from

Table 2
Characteristics of participants

Demographic	Frequency (n=12)
Gender, n	
Male	4
Female	8
Age, years	
Mean	45
Range	22–72
Race:	
South Asian	10
Middle Eastern	1
White—North American	1
Language spoken at home*	
Arabic	1
Bengali	1
English	12
Gujarati	1
Hindi	4
Malayalam	1
Punjabi	5
Tamil	2
Urdu	1
Highest education level in Canada or internationally	
Undergraduate university degree	2
College diploma/professional school	2
Graduate degree	8
Service provider role	
Leader of nonprofit organization	2
Health-care clinician	2
Community health service provider	4
Community social service provider	4

* Four participants spoke more than 2 languages.

obtaining employment equivalent to their education and experience. These inequities often cause precarity, underemployment and stress for families, preventing them from being able to focus on managing their health because of their preoccupation with more immediate concerns. One leader of a community agency spoke about the impact of racism on employment conditions in relation to T2D prevention and management:

> So housing is a bigger issue, immigration is a bigger issue, poverty is a bigger issue, domestic violence, addictions, mental health, these are all bigger issues (than diabetes) in the community. The biggest issue for our community is the fact that Canada has been unable to address racism within the job market. If you come from back home to Canada with your education, they look at that degree as if you have literally no experience whatsoever. …You are left with this lingering recollection of this trauma over and over again, for a long time. Coupled with when you send out your resume and not a single call comes in for you. (Baladhi)

Baladhi further explained that South Asians migrating through the Federal Skilled Worker Program, a program for skilled workers with foreign experience who want to immigrate to Canada permanently, report feeling "hopeless," particularly when coming from wealthier backgrounds and respected positions back home:

> That sense of helplessness and hopelessness is what drives other people to have heightened T2D in our culture in Canada… Racism is so insidious that it eats you inside… How do you rationalize when you have a PhD and people are not giving you the due? (Baladhi)

Participants emphasized the importance of reversing long-standing policies that discriminate against internationally trained professionals. A community service leader described the significance of addressing core challenges related to SDOH, such as immigration and racism, which may help prevent T2D and support T2D self-management. However, there was recognition of the lack of direct government investment into prevention programs. The same leader observed, "Prevention is key upstream, but zero dollars for it." A settlement counsellor highlighted that their role is to think about how SDOH, such as food security, employment status, immigration status, housing conditions and racism related stress, may impact a client's T2D self-management capacity and how they can support clients in addressing these challenges:

> They have difficulty finding the culturally appropriate food, so financial hardships, all this adds up. … If one thing is overwhelming this will affect the other. They will be in a kind of vicious circle. What is affecting the other and just getting worse. So, we try to take (each) component and try to resolve each one to improve their overall physical and mental health and to ease their settlement. (Halla)

Poor working conditions and socioeconomic status reduce access to health care and medication

Employment status, type and precarity often influence T2D health-care and medication access. A community service leader described the South Asian communities as "very hard working" and reported that many individuals "will go to work sick, sometimes because they have to." A clinician described barriers to health-care access, including medication costs, inability to access or afford transportation and inability to take time off work to attend in-person appointments. Another clinician, who works at a hospital-based diabetes management program with a high proportion of South Asian clients, observed the potential benefit of virtual care throughout the COVID-19 pandemic to alleviate some of these barriers when in-person consultations are not required:

> Another barrier that affects many of our patients is medication access, it's medication cost-related issues especially for adults who are sort of in that kind of 19 to 64 range and are working, but either have benefits or limited benefits and maybe don't qualify for a Trillium drug benefit plan … so when it comes to an appointment with a health-care provider, that involves taking time off work a lot of the time, it involves transportation to our site, parking associated fees or multiple bus routes if you're using public transportation. It involves, necessarily, a little bit of a wait sometimes … so it's a tall ask for someone who doesn't have coverage or an employer that provides coverage or access to those services without jeopardizing someone's income. So that's a little bit different than, I'm going to take 10 minutes out of my day for a phone call. (Ryan)

Drawing from both their lived and client experiences, service providers suggested that taking alternative medicine and food remedies were common practices among South Asian clients because they are more affordable and familiar than T2D medications. Clients may be resistant to adhering to recommendations for costly medications, and it can be challenging for seniors, who reside in multigenerational households (common in South Asian communities), do not have health benefits and are reliant on family members to obtain medications. A support worker rationalized why clients use alternative medicine:

> They have more stress, they have more diabetes … "Oh I do too many home remedies to control because I cannot go for a walk, I cannot do this, I cannot buy the stuff I used to buy." When they

> tell the (family members), you guys can buy for us, (they) sometimes bring it, sometimes they don't bring it right? So that's why they are facing all kinds of problems and they start using more home remedies. (Gunjun)

A settlement counsellor providing services to South Asian clients, who are not eligible for health benefits due to their precarious immigration status, emphasized the inaccessibility of health services for newcomers. They described referring South Asian clients to available government subsidy programs for prescription medication coverage when finances were identified as a concern:

> Let's say immigrants that don't have proper status in Canada, they don't qualify for any health benefits in Canada … So that's where I try to educate them on a Trillium Drug Program (means-tested subsidy for Ontario residents with high prescription drug costs) or Seniors Co-Payment Program (Ontario insurance copayment program for seniors) by which they can maybe get a reduced amount on their prescription. (Radhana)

Social, economic and cultural barriers to implementing diet and exercise recommendations

Service providers described social, cultural and economic factors that are often intertwined influencing health behaviours related to T2D management, including healthy eating and physical activity. A South Asian service provider with prediabetes described the social and cultural importance of food as a source of honour in many South Asian cultures. These traditions and cultural values have made their way into workplaces and may create decision-making tensions with adherence to diet and exercise recommendations:

> Someone in the office will bring a thing of sweets … It would either be sweet, or deep fried and salty—and preferably both! ... "Look, Eid (religious holiday) is coming up and, you know, would you like a sweet?" I hated the—the barriers for me to say, "No," are huge, because I don't want to insult you. I'm honoured you're considering me. You're offering me a gift of food, you know, a tiny thing. And it's like, "Screw it. I'm eating the damn thing." (Gulshan)

Several service providers also highlighted the importance of cultural sensitivity. A settlement worker described how there are limited culturally appropriate food options available to clients with food insecurity, which can complicate implementing dietary recommendations for T2D management:

> When they did have to go to the food bank you know they would get canned (food) and they had absolutely, no use for it … so it's hard because even when you do seek support and services to get some food and you go to a food bank, the food that is there is not culturally appropriate and so it becomes wasteful … I see that it's difficult for us to purchase healthy, wholesome foods because there's a cost price (associated) with it. (Krithika)

Several participants explained that clients often need to choose between the expenses associated with implementing dietary and exercise recommendations and providing the basic needs for their families. Service providers reported that these decision-making processes were stressful and further exacerbated throughout the COVID-19 pandemic. A service provider outlined the difficult choices families living on a limited budget experience and the lack of available options to meet the dietary needs for individuals with T2D:

> If my clients want to go to a diabetic's diet, you try to do it, do you think that it's going to be more expensive or less expensive than the general food? If my client has 2, 3 children, the family to support, do you think that they're going for vegetable, vegetable is most costly? ... If you live on a very limited budget, there are no options for individuals who are experiencing diabetes. (Thomma)

Participants further highlighted that the opportunities and barriers to T2D management are better understood by South Asian service providers, who are more familiar with their social and cultural context including employment, income, dietary and exercise restrictions: "It's so nice to speak to somebody who knows the language, you understand our culture" (Halla).

Service providers further recognized that long work hours, multiple jobs and employment precarity can impact health behaviours such as times of eating and ability to exercise due to competing priorities. This lack of time associated with a culture of long work hours prevents clients from engaging in recommended health behaviours, such as eating earlier and exercising. Although this was suggested for all adults in caregiving roles, it was specifically highlighted in relation to women (especially mothers and grandmothers), who are traditionally responsible for caregiving and household duties in South Asian families:

> They have to pay bills so some of them are working like 12 hours a shift or they are working long hours. They have to come home and make food. I'm talking about women. They have to come home, make food, take care of their kids. They don't have time to do these exercises. (Radhana)

One settlement worker stated that policy interventions are needed to ensure that positive health behaviours are accessible and affordable. The worker also suggested that the government should provide subsidies to encourage healthier behaviours: "I think people want to eat healthy, but the government needs to make it easier for us to make healthier choices" (Krithika).

Discussion

Through an intersectional lens, this study has offered service provider perspectives on the influence of the social determinants of health, specifically employment and income, on T2D management in South Asian communities in the Peel Region. This is particularly important in Peel, given the large South Asian population, high T2D rates and prominence of lower income households (5). Service providers highlighted how racism can impact access to stable, well-paying jobs with benefits for South Asian adults, and thus impact T2D prevention and management. Participants described suboptimal employment conditions, such as working multiple jobs, long hours, limited health benefits, and lack of access to health-care services, exercise facilities and affordable medication, as barriers to successful T2D management in Peel. Service provider recommendations for actions to address the identified SDOH are summarized in Table 3.

Many marginalized communities across Ontario have employment barriers, including low-income workers with precarious jobs and their families, women, people with disabilities, racialized communities, Indigenous people, youth and immigrants, and are often disproportionately impacted, which can lead to health inequities (42,43). Evidence from before the pandemic implicated shift work as being associated with a higher risk of T2D than daytime work schedules (44). Furthermore, there is a positive association between working long hours (>55-hour per week vs working <40 hours per week) and higher incidence of T2D in adults with lower

Table 3
Participants' recommendations

Theme	Participants' recommendations
Managing challenges with the settlement process, labour policies, and job market disparities take priority over type 2 diabetes management	• Funding and policy interventions needed to prevent systemic racism related to employment • Service providers should aim to understand how the social determinants of health are impacting clients and aim to address these concerns
Poor working conditions and socioeconomic status reduce access to health care and medication	• Service providers should highlight financial subsidies to support clients all clients to ensure that those that need financial support are aware of resources available to them
Social, economic and cultural barriers to implementing diet and exercise recommendations	• Governments should move forward with policies to make healthier options more affordable

incomes but not for adults with higher incomes (45). A recently published employment equity report recommends reforming employment legislation and proactive programs to target systemic racism in hiring practices while also ensuring that protective standards are widely enforced and monitored across Ontario and Canada (42,43). Service providers and organizations can potentially engage in advocacy efforts aimed at creating more equitable employment practices. For individual patients or clients, this could include providing documentation to employers about accommodations that clients may need to manage their chronic conditions (46). On a larger scale, this could include lobbying at various levels of government for financial and legislative reform for employment standards (46). We have seen this act of advocacy increase throughout the COVID-19 pandemic with community agencies and health-care providers lobbying for more equitable policies and practices (47). To date, Canada's health policies have failed to adequately address the SDOH, and therefore changes are required in the approach to funding allocation to address the SDOH and more equitable employment practices (48,49).

Although participants highlighted the need for culturally adapted T2D management interventions for South Asians, such interventions have had inconsistent effectiveness. One systematic review showed that these interventions tended to focus on providing programs in participants' preferred languages and incorporating culturally relevant dietary information often provided by a South Asian service provider (50). These programs are often adapted from existing efficacious programming for the general population (51). However, innovative and culturally appropriate T2D management program and policy interventions that address the SDOH and are codesigned alongside South Asian adults with a lower income and T2D are lacking. Consistent with our findings, evidence has shown that offering diabetes-appropriate foods at food banks increases fruit and vegetable intake levels for lower income households (52). For example, an innovative program in the Peel Region, Langar on Wheels, an adaptation of the Meals on Wheels program, provides culturally and T2D-appropriate food options for South Asian families. There is a need for continued investment in culturally appropriate programming that considers values across the South Asian diaspora, such as the importance of food in South Asian culture, while also considering the heterogeneity of South Asian communities. Future research should explore the experiences of South Asian adults with T2D to codesign potential interventions that meet their social, economic and cultural needs.

Service provider participants identified that they have a role in assisting clients with overcoming barriers related to SDOH by providing referrals to supports and services. Previous research showed significant associations between increased diabetes distress, perceived stress and access to care, with both lower income and social supports (53,54). In addition, the rate of depression and total diabetes-related stress has been reported at 15% and 52.5%, respectively, for South Asian adults with T2D (55). It is important that service providers consider the impacts of SDOH on T2D management and provide appropriate resources including financial supports, such as the medication copayment plans suggested in this study (54,56). Providing service providers with training about available social and financial resources could give service providers a better understanding of the available culturally appropriate recommendations and referrals to meet their clients' intersectional needs and assist clients with T2D management (56,57). Most service providers interviewed for this project were also South Asian and/or had T2D or prediabetes and felt that they were able to better understand their clients' needs, values and beliefs through their own lived experience. This highlights the need to hire racially diverse service providers who identify from the same communities as their clients to better understand and address the social contexts of their clients (58). Such hiring practices may help to reduce discrimination and structural inequalities to lessen oppression (59). In circumstances where service providers do not identify with the communities they serve, additional anti-oppression training could enhance their understanding of sociocultural factors to improve service provision (58).

Participants in our study suggested that virtual care, which has gained popularity during the COVID-19 pandemic, offers greater flexibility and minimized the barriers associated with attending health-care appointments in person. Evidence indicates that virtual care increases accessibility and attendance at T2D health-care appointments by removing time constraints and transportation barriers (60). Recent data also highlight that Brampton, a city in the Peel Region, has the lowest per-capita health-care funding in the province, which equates to fewer resources for much needed programming (61). This lack of health-care funding may be especially impactful on South Asian patients who have health-care access barriers related to time and transportation due to work commitments or a lack of health benefits. However, as discussed by the participants, there is a need for flexible appointment times because precariously employed individuals may not have the autonomy to choose their break times or shift schedules. When offering virtual care, clinicians should consider the benefits and challenges, including technology literacy, hesitancy and accessibility (60). For appointments when in-person attendance is required, health-care organizations should consider potential transportation barriers, financial constraints and the time required to attend appointments and offer appropriate supports to ensure better health-care access.

Strengths and limitations

A strength of this study is that it adds to the limited literature by describing service provider perspectives about how SDOH, specifically employment and income, impact T2D management for South Asian communities. The study was developed and initiated in the South Asian community based on local needs identified by community members and local agencies. A community-based approach enabled collaborative development and guidance to ensure all study activities were culturally safe. In addition, most service providers (83.3%) had lived experience of being South Asian and/or had diabetes or prediabetes, which allowed them to relate better to their South Asian clients. One service provider noted that clients found it easier to receive services from service providers who speak the same language and understand their sociocultural contexts.

Future studies could explore whether similar perspectives would be observed by providers who do not have lived experiences of being South Asian or have diabetes. A limitation of this study is that it is a qualitative descriptive study with a small sample size. A larger sample size would allow us to compare the perspectives of different types of services providers. Although this study specifically explored service provision perspectives for South Asian clients, it is also important to understand the needs of other under-resourced communities given the high rates of T2D in the Peel Region.

In conclusion, service providers attribute the high prevalence of T2D in South Asian adults to the interconnected relationship between social, cultural, economic and systemic factors. Service providers play a major role in providing culturally appropriate supports to identify and address the SDOH impacting their clients' T2D management while also advocating for changes to employment policies and practices rooted in systemic racism. More equitable employment policies and practices are needed as well as culturally appropriate and contextually adapted T2D prevention and management to address the systemic issues facing South Asian adults with T2D in Canada. Although this was a local study, we believe that our approach and findings will be valuable to researchers and clinicians in other jurisdictions who are committed to advocating for more equitable employment policies and practices and developing culturally appropriate services to address the systemic issues facing South Asian adults with T2D in Canada.

Supplementary Material

To access the supplementary material accompanying this article, visit the online version of the *Canadian Journal of Diabetes* at www.canadianjournalofdiabetes.com.

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Author Contributions

I. Zenlea, S. Martel, R.Y. Nooraie, C. D'Silva, G. Malhotra, B. Mutta, P. Dhillon, A. Parikh, F. Chaze, E. Mansfield and D. Fierheller conceptualized and designed the study; N. Hafleen coordinated and conducted all interviews; C.D., S.M. and I.Z. supported protocol development; C.D., N.H., I.Z. and E.M. analyzed the data; C.D. and N.H. conceptualized and developed the first draft of the manuscript. All authors contributed to data interpretation and critically revised and approved the final manuscript submitted for publication.

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Supplementary Appendix: Service Provider Interview Guide

Section 1: Introduction

Let's start by having you share a bit about yourself and your organization.

- Can you tell me about your current work at [organization]? (*prompt:* What is your title? What does your work mainly entail?)
- How many years have you been with the organization?
- How do you see your organization or your work specifically supporting your clients' health?

Section 2: T2D in Peel

Okay great, we'll shift gears now to talk about type 2 diabetes in Peel. Can you tell me anything that you know about prediabetes and type 2 diabetes as health issues in Peel?

- Do you work with type 2 diabetes management or prevention directly in your role? If so, how?
- Are there prediabetes or type 2 diabetes health conditions that you hear your clients mentioning? If so, without giving any identifying information, like names, etc, can you give some examples of the kinds of concerns, questions or comments you have heard about prediabetes or type 2 diabetes in the community?
- Do you have any personal experience with prediabetes or T2D yourself or in your family? How do you think these experiences inform your work with clients?
- Although type 2 diabetes is genetic, some risk factors include high fat and sugary diets, a lack of physical activity and even stress. With these risk factors in mind, can you describe some challenges you see your clients potentially facing in limiting these risks? (*prompt:* based on their environments, their socioeconomics, stress points, etc).
- How do you see things that we would call social determinants of health impacting the high rates of type 2 diabetes in Peel? (*prompt:* income levels, immigration, racialization, marginalization, environment, education).
- What are some of the ways you have seen or heard clients managing their diabetes outside of common health-care recommendations like diet or exercise? (*prompt:* alternate medication, home remedies, cultural practices).
- Can you share some of the prediabetes or type 2 diabetes supports or resources you are aware of being available in Peel?
- If you could wave a magic wand, what are some of the resources you would like to see put in place for your clients in relation to prediabetes or type 2 diabetes support?
- Can you describe any ways that COVID-19 has impacted your clients' abilities to manage prediabetes or type 2 diabetes?