Analyzing Diabetes Care Providers’ Perspectives on Type 2 Diabetes Management Among Immigrant Women in Hamilton, Ontario: A Qualitative Study

**Analyzing Diabetes Care Providers’ Perspectives on Type 2 Diabetes Management Among Immigrant Women in Hamilton, Ontario: A Qualitative Study**

A Thesis Submitted to the School of Graduate Studies in Fulfillment of the Requirements for the Degree Master of Science (Global Health).

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# **ABSTRACT**

**Purpose**: To investigate the factors influencing diabetes management from the perspectives of Diabetes Care Providers (DCPs) practicing in Hamilton, Ontario, focusing on the relationships they have established with their patients/clients who are immigrant women.

**Method**: Using a qualitative content analysis approach, interviews were conducted with six DCPs who practiced in Hamilton, ON. Respondents were affiliated with either the Boris Clinic, St. Joseph's Healthcare Hamilton, or the Hamilton Family Health Team.

**Results**: Factors influencing diabetes self management for immigrant women as perceived by DCPs encompassed aspects related to DCPs, the immigrant women, and the healthcare system. From the insights of the DCPs, factors that impeded them from delivering effective DSM education included *challenges in patient-provider communication, issues of cultural and ethnic concordance, the significance of trust in the provider, and language barriers*. The factors influencing immigrant women's participation in DSM based on the insights of DCPs encompassed *knowledge and awareness, language barriers, gender roles, socioeconomic considerations, acculturation, and social isolation*. Factors influencing the healthcare system in providing DSM education according to DCPs involved the *availability of interpretation services, deficiencies in training, a lack of diversity in clinical research and diabetes care teams, and inadequate promotion of DSM awareness.*

**Conclusion**: Drawing from the findings, it is advisable to enhance diversity within diabetes care teams, emphasizing the inclusion of professionals from various disciplines. Increasing cultural competency in DSM guidelines and raising awareness to diabetes screening can help decrease the prevalence of Type 2 Diabetes among immigrant women. Future studies focusing on the perspectives of immigrant women residing in Hamilton, ON, can offer deeper insights into this health concern.

# **ACKNOWLEDGEMENTS**

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I would also like to acknowledge the women in my life who ignited my curiosity to delve deeper into understanding the underlying barriers hindering the well-being of immigrant women. Their influence has inspired me to adopt a more holistic perspective when considering the health of others.

This research would not have been possible without the generous contributions of the diabetic care providers who willingly shared their valuable experiences with me. They placed trust in me to utilize their stories to improve the health and wellbeing of many immigrant women diagnosed with diabetes.

Thank you to my friends and family for having been my greatest supporters in all my endeavors.

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# **LIST OF ABBREVIATIONS**

Cardiovascular Disease - CVD

Diabetes Care Provider - DCP

Diabetes Self Management - DSM

Gestational Diabetes Mellitus - GDM

Glycated Hemoglobin - A1C

Patient-Provider Ethnicity Concordance - PPEC

Primary Care Provider - PCP

Qualitative Content Analysis - QCA

Self-Monitoring Blood Glucose - SMBG

Socioeconomic Status - SES

Type 2 Diabetes - T2D

# **DECLARATION OF ACADEMIC ACHIEVEMENT**

The following is a declaration that the content of the research in this document has been completed by Kasthuri Satgunanathan and recognizes the contributions of Dr. Lydia Kapiriri and Dr. Elizabeth Alvarez in both the research process and the completion of this thesis.

# **CHAPTER 1: INTRODUCTION**

 Type 2 Diabetes (T2D) is one of the leading causes of disease burden globally affecting more than 200 million individuals (Rathmann et al., 2004). Over the past decade, the prevalence rate of T2D has increased by 72% in Canada, adversely affecting the health of over 11 million Canadians who are either diagnosed with diabetes[[1]](#footnote-1) or are determined to be pre-diabetic (Association CD, 2016). However, it is important to recognize that minority populations, especially immigrant women, are disproportionately affected by diabetes (Spanakis & Golden, 2013). Immigrant women from southeast and south Asian countries and those with Hispanic and African descent have high rates of diabetes and the highest morbidity and mortality rates from diabetes-related cardiovascular disease (DiabetesCanada, 2023). A study conducted in Ontario, Canada compared the immigration and administrative health records to identify that immigrant women face an increased likelihood of developing T2D in comparison to Caucasian women (Creatore, et al., 2010). If this health disparity is left unaddressed, this can result in increasingly adverse socioeconomic and health consequences including increased healthcare costs and premature mortality (Association CD, 2016). The financial burden of managing T2D, which encompasses expenses related to medications, hospital visitations, and treatment plans, imposes a considerable economic disparity for vulnerable populations and Canada's healthcare system (Association CD, 2016). In order to reduce the health complications and alleviate the economic burden of T2D it is important to advocate for effective self-management practices.

 T2D is a chronic metabolic disorder that results from poor secretion of insulin and increased resistance to insulin (Deshpande et al., 2008). This results in chronically elevated blood glucose levels which increases the risk of cardiovascular problems, retinopathy, neuropathy, foot ulcers, and kidney damage (Deshpande et al., 2008). To effectively prevent and manage T2D, Canadian clinical practice guidelines emphasize a patient-centered approach, which encompasses a combination of lifestyle modifications and medical interventions (Haas et al., 2013). With the support of Diabetes Care Providers (DCPs), individuals with diabetes are expected to follow recommended self-care behaviors including maintaining a healthy diet, engaging in physical activity, adherence to prescribed medications, monitoring of blood glucose levels and engaging in routine foot care (Shrivastava et al., 2013). Compliance with these diabetes self-care practices has been found to enhance glycemic regulation, reduce risk of premature morbidity and mortality rates, increase insulin sensitivity, and mitigate the risk of developing foot ulcers (Shrivastava et al., 2013). However, it is also important to understand the role of effective communication between DCPs and their patients to tailor self-management practices based on the individual’s unique needs.

 In the current literature, it is evident that from the perspectives of both the patients and DCPs, there are many factors that influence the commitment to effective self-management of diabetes (Nam et al., 2011). From the patients’ viewpoint, factors such as low socioeconomic status, limited social support, religious and cultural influences, limited health literacy, and other mental health illnesses like depression can hinder individuals from managing their diabetes (Nam et al., 2011). In contrast, some providers recognize that they lack effective communication tools and skills, are constrained by time to explain self-care practices, and believe to have differing knowledge and attitudes from their patients/clients, which may potentially lead to poor health outcomes (Nam et al., 2011). Studies have found that patients and healthcare providers hold different perspectives on the barriers to adhering to self-care practices and that providers may recognize barriers that patients may not (Kwame et al., 2021; Kennedy et al., 2017). Previous studies have identified that DCPs play a pivotal role to encourage the practice of DSM strategies for patients aiming to reduce the detrimental health effects of diabetes. Many studies have analyzed the different factors influencing DSM among immigrant women by interviewing immigrant women with diabetes. However, there are very limited studies considering the perspectives of DCPs on the factors influencing their immigrant women patients. A study examined the differences in DSM between men and women and identified that the risk of cardiovascular disease (CVD), stroke is higher among women diagnosed with diabetes compared to men with diabetes (De Melo et al., 2013). Another study identified that women spend less time managing their diabetes at home compared to men (Szalat and Raz, 2008). Given the high risk of T2D among immigrant women in Ontario and the effectiveness of diabetes self-management, an understanding of the barriers from the perspective of DCPs may help to reduce the burden of T2DM on the Canadian health care system and immigrant women (Spanakis et al., 2013; Hyman et al., 2017; Nam et al., 2011).

## **1.1 Research Question**

 What are the factors influencing diabetes self-management among immigrant women in the Greater Hamilton Area as perceived by diabetes care providers?

## **1.2 Study Purpose**

 This study took a qualitative approach to investigate the factors influencing the management of diabetes from the perspectives of DCPs practicing in Hamilton, Ontario, focusing on the relationships they have established with their patients/clients who are immigrant women. Most studies trying to identify the barriers to diabetes management fail to acknowledge the perspectives of DCPs, however this is important as they are often the first contact in assessing and supporting those diagnosed with diabetes (Adu et al., 2019; Rushforth et al., 2016). This study would benefit from a qualitative analysis as it helps to uncover multi-faceted factors, offering a holistic view of the obstacles to diabetes management. Participants include DCPs practicing in Hamilton, ON as the Social Planning and Research Council of Hamilton discovered that the city has the highest percentage of recent immigrants. Among new immigrants in Hamilton, ON particularly those in low-income areas, there is often an observable and predictable maladaptive pattern in dietary and physical activity adaptations.

## **1.3 Thesis Structure**

This thesis is organized into six chapters to provide a comprehensive exploration of the underlying factors impacting diabetes self-management among immigrant women in Hamilton, Ontario. The first chapter serves as an introduction to the study, presenting the research topic and outlining its purpose. The second chapter offers a detailed literature review, delving into diabetes self-management, the role of diabetes care providers, the unique intersection of diabetes and migration, and the relationships to global health pertaining to patient education on diabetes. The third chapter describes the thesis methodology, including study procedures, data collection and analysis approaches used. In the fourth chapter, the results of the interviews with the DCPs are presented, along with major themes that emerged from their perspectives. The fifth chapter discusses the study's findings, emphasizing its strengths and limitations, and provides recommendations to improve awareness and adherence to diabetes self-management for immigrant women. The final chapter offers a conclusive summary of the thesis.

# **CHAPTER 2: LITERATURE REVIEW**

## **2.1 Adherence to Diabetes Self-Management Practices**

 Diabetes Self-Management (DSM) refers to the ongoing practices and behaviors individuals adopt to manage their health condition and prevent further illness (Camargo-Plazas et al., 2023). DSM practices include adopting a healthy diet, being physically active, monitoring blood glucose levels, committing to prescribed medications and ensuring proper foot care (Camargo-Plazas et al., 2023). Compliance to the DSM practices can help many individuals diagnosed with diabetes to reduce the chances of developing long-term complications. In a study conducted by Yuan et al., (2014), it was identified that adherence to DSM practices are effective in controlling blood glucose, cholesterol, and triglycerides levels. In addition, other studies also showed that consistent DSM practices can improve glycemic control, body weight and BMI control (Marincic et al., 2019). To ensure progressive health improvements, individuals must incorporate DSM practices into their daily life by modifying their current routines and habits (Fritz, 2014). However, adherence to DSM practices has been found to be low, especially among immigrant women diagnosed with diabetes (Farid et al., 2022). Research has demonstrated that the reasons for poor adherence are multifactorial and encompass personal, interpersonal, environmental and contextual barriers, however to understand the severities of these barriers more informed analyses are required (Ahola & Groop, 2013). A failure to understand the barriers and their severities to proper DSM for a targeted population like that of immigrant women, can prevent diabetes care providers from developing tailored interventions thereby amplifying the risk of continued disease progression (Martinez-Cardoso et al., 2020).

 Poor adherence to DSM can result in adverse health outcomes and can impede an individual from participating in meaningful daily activities and within their society (Hill-Briggs et al., 2020). This can negatively impact an individual’s overall quality of life in terms of future planning, maintaining healthy relationships, self-efficacy, and attaining proper education and employment (Hill-Briggs et al., 2020). Personal factors that may prevent an individual from engaging in DSM include, limited motivation, unwillingness, poor coping skills, stress, depression, differing health beliefs, and denial of long-term health risks (Hill-Briggs et al., 2020). Socio-cultural factors, such as social and family support, ethnicity and gender can also hinder individuals from consistent practicing of DSM (Hill-Briggs et al., 2020). For instance, if an individual's daily routine includes traditional family meals rich in carbohydrates, it can pose challenges when attempting to transition to the prescribed diet regimen (Hill-Briggs et al., 2020). Moreover, contextual and environmental factors such as accessibility to and quality of the healthcare system, the presence and knowledge of diabetes education programs, and the individual's Socioeconomic Status (SES) can also reflect an individual's ability to effectively manage diabetes and adhere to the recommended intervention plan (Hill-Briggs et al., 2020).

## **2.2 Positive Effects of Self-Management on Diabetes**

### *Healthy Eating*

 Nutrition is important when managing diabetes, specifically considering the type and quantity of food, as it directly impacts blood glucose levels and can worsen the body’s regulation of insulin (Sami et al., 2017). Dietary recommendations for individuals with diabetes typically emphasize calorie restrictions in order to manage a healthy weight especially for individuals who are obese or overweight (Sami et al., 2017; Mayo Clinic, 2022). Maintaining a well-rounded diet that incorporates whole grains, high fiber, lean protein sources, healthy fats, and addition of vegetables contributes to stabilizing daily blood glucose levels and enhances insulin sensitivity (Mayo Clinic, 2022). Gaining knowledge about appropriate food options is important in order to identify areas where dietary adjustments are necessary, particularly if an individual's typical diet is carbohydrate-rich (Diabetes Canada, 2018). Limited awareness about dietary management can result in adverse health consequences associated with diabetes (Diabetes Canada, 2018). A recent study by Zhuang et al., (2021) evaluated the correlation between quality of diet and the incidence of developing diabetes among individuals with a higher genetic risk. The study found that those with a greater genetic risk for diabetes are more advantageous in terms of disease prevention by adhering to a healthy diet (Zhuang et al., 2021). However, the idea of following a “healthy diet” for a chronic health condition can deter many individuals, as it poses challenges in terms of understanding what to consume and maintaining sustainable dietary choices especially when external factors are in play (Johnston et al., 2014).

Dietary practices among individuals with diabetes can be significantly influenced by their cultural backgrounds. In an explanatory qualitative study conducted by Scott (2005), it was identified that West Indians encountered greater difficulties in adhering to dietary recommendations for managing diabetes compared to their White British counterparts. This was because the dietary recommendations failed to incorporate West Indian traditional foods or their methods of cooking (Scott, 2005). Economical and physical accessibility factors can also influence an individual's dietary choices, given that the costs of nutritious food choices are found to be more expensive or less accessible compared to processed foods (Schulz et al., 2005). Many research studies like that of Schulz et al.,(2005) found instances where patients struggled to adhere to a prescribed diabetic diet due to social factors such as limited education, financial constraints, and cultural misunderstandings regarding the significance of diet in managing type II diabetes.

### *Physical Activity*

 Engaging in regular physical activity is associated with enhancing the lipoprotein profile, lowering blood pressure, maintaining a healthy weight, improving insulin sensitivity, and managing glycemic control (Diabetes Canada, 2018). These changes are significant because they independently contribute to lowering the risk of developing diabetes or its complications (Diabetes Canada, 2018). Notably, randomized control trials have found that participants who underwent an exercise intervention showed significantly improved in cholesterol, triglyceride and glycated hemoglobin (A1C) levels when compared to the control group that did not engage in exercise (Colberg et al., 2010). Moreover, cohort studies have further underscored the benefits of regular physical activity for individuals with diabetes, revealing a reduced risk of cardiovascular events and overall mortality, and a decreased likelihood of developing peripheral neuropathy (Wake, 2022; Warburton et al., 2006). Although physical activity has positive effects on diabetes management, it is concerning that 34.4% of Canadians diagnosed with diabetes reported to be physically inactive, engaging in less than 10 minutes of moderate to vigorous-intensity exercise per week (Diabetes Canada, 2018). On a global scale, a comprehensive analysis of data from 358 surveys across 168 countries in 2016 revealed that 27.5% of the population had insufficient physical activity, emphasizing the need for greater attention and awareness to increase physical activity (Guthold et al., 2018). Guthold et al., (2018) also highlight that the highest levels of insufficient physical activity were found among women from Latin America and the Caribbean and South Asia. Thus, this illustrates the disparity among ethnic populations and women, stressing the urgency of promoting and supporting physical activity as an integral part of diabetes management worldwide.

### *Blood Glucose Monitoring*

 Regular Self-Monitoring Blood Glucose (SMBG) levels using traditional devices can be valuable in measuring glycemic levels (Lori et al., 2018). Many studies have found people diagnosed with diabetes find it advantageous to use SMBG levels for many beneficial reasons. SMBG gives individuals an insight into the positive health outcomes of lifestyle and behavioral adjustments and can also increase their motivation to adhere to adjusted food intake, physical activity, and medications (Pleus et al., 2022). For example, an epidemiological cohort study found that SMBG was associated with a 32% reduction in risk of myocardial infarction, stroke, foot amputation, blindness or end-stage renal failure and a 51% reduction in mortality over a one year observation period (Martin et al., 2006). SMBG along with diligent tracking not only empowers individuals but also equips their diabetes care team with the necessary information to make informed treatment adjustments, thereby optimizing health outcomes (Lori et al., 2018). The decisions made by the diabetes care team, supported by SMBG data, play a pivotal role in delaying or preventing diabetes-related complications such as heart attacks, strokes, kidney disease, blindness, and amputations (Lori et al., 2018).

 Blood glucose monitoring is most impactful when coupled with a diabetes education program that helps to guide individuals to make healthy behavioral adjustments in response to blood glucose levels (Weinstock et al., 2020). In a randomized clinical trial conducted by Franciosi et al., (2011), patients with T2D were randomly selected to SMBG levels supplemented with education on how to modify behaviors based on the SMBG readings during monthly meetings or to receive usual care. After six months, the study found that the mean A1C, which is the average blood glucose of an individual over three months, and body weight of those in the intervention group were significantly lower compared to those who received usual care (Franciosi et al., 2011).

### *Medication Adherence*

 Medication adherence refers to the act of following medical recommendations by taking the prescribed medications as part of the DSM treatment plan (Anghel et al., 2019). Typically, adherence to medication is measured through self-reporting of patients, evaluating if they have taken or administered at least 80% of the prescribed medications within a specified timeframe as advised by their physician (Anghel et al., 2019). Studies have found that high adherence to prescribed medications is associated with improved metabolic control, lower risk for hospitalizations, lower healthcare costs, and lower mortality (Sahoo et al., 2022; Sendekie et al., 2022). Unfortunately however, poor medication adherence is a prevalent issue among individuals with diabetes. According to a WHO report (2003), the typical adherence to long-term therapy for chronic conditions, diabetes included, is approximated to be 50% in developed countries, and found to be much lower in developing countries. The report (2003) also illustrated that inadequate medication adherence results in increased risk of disease progression, heightened mortality rates, and increased financial strain on the individual and healthcare system with diabetes contributing to 11% of the total healthcare expenditures globally. Social support and self-efficacy also had direct and indirect effects on medication adherence in patients with diabetes (WHO, 2003). A cross-sectional study conducted by Sendekie and colleagues (2022) demonstrated that low levels of medication adherence was observed in 76.9% of the participants. Findings also illustrated that the significant contributing factors of poor medication adherence included medication cost coverage, number of medications and SMBG practice (Sendekie et al., 2022). In contrast, the participants following high medication adherence were found to be less likely to have poor glycemic control compared to those with low adherence (Sendekie et al., 2022). Thus, although the body of knowledge addressing the negative health consequences to medication non-adherence continues to expand, it is illustrated that medication adherence is an ongoing problem for both patients and DCPs to manage. Based on these studies and reports it is evident that DCPs should comprehensively develop intervention programs in accordance to their patients’ beliefs and barriers to improve medication adherence and overall health outcomes.

### *Foot Care*

Diabetes can result in nerve damage and can reduce blood circulation to the legs and feet which is known as peripheral arterial disease (Soyoye et al., 2021). Individuals with diabetes may also have diminished sensation in their feet, making them less likely to notice even a minor foot injury like a blister or cut (Soyoye et al., 2021). When these injuries are left untreated they can become infected leading to severe complications, as diabetes can further complicate the healing process (Soyoye et al., 2021). Studies have found that those with diabetes are at a heightened risk of developing foot ulcers and infections, which can ultimately lead to lower-extremity amputations (Soyoye et al., 2021; Lin et al., 2020). Unfortunately, the occurrence of amputations is 20 times more likely for individuals with diabetes compared to those without diabetes. Foot care is vital to prevent severe complications and it refers to regular foot inspections, maintaining good hygienic practices and wearing suitable footwear (CDC, 2023). Early detection and treatment of foot problems, along with proper education and self-care, can significantly reduce the risk of foot-related complications and amputations (CDC, 2023).

## **2.3 Diabetes Education and Utilization of Diabetes Education Programs**

Inadequate knowledge of the health condition and its associated health outcomes among diabetic patients results in frequent emergency room visits and an increased likelihood of experiencing long-term health complications (Cauch-Dudek et al., 2013). Hence, comprehensive diabetes education is vital for patients to understand the importance of proper DSM and incorporate them into their daily practices but also ensure that patients are utilizing appropriate health services (Cauch-Dudek et al., 2013). According to a large population based cohort study involving type 2 diabetes patients, it was observed that active participation in DSM education programs was associated with a 44% decrease in mortality, 20% decrease in the occurrence of the first cardiovascular disease episode and a 30% reduced risk in experiencing a stroke (Wong et al., 2015). In addition, these participants had sustained weight loss, improved self-efficacy and decreased diabetes related stress levels in the long term. Another study conducted by Dalal et al., (2014) identified that individuals who attended at least one diabetes education session experienced reduced diabetes related healthcare costs after one year compared to those who did not receive diabetes education (Dalal et al., 2014).

Although it is important to understand how to follow a healthy lifestyle prior to a diabetes diagnosis, it is crucial that once diagnosed, patients immediately receive DSM education from their general practitioners, nurses or be directed to DSM education programs (Hyman, 2011). This is crucial because post-diagnosis, patients embark on the journey of understanding what it takes to manage this new health condition (Hyman, 2011). They can often be overwhelmed by the many behavioral changes they may be asked to adopt immediately and maintain life-long (Hyman, 2011). However, given the diverse distribution of diabetes education programs across Ontario, a recent cohort study identified disparities in the utilization of DSM education programs (Cauch-Dudek et al., 2013). Despite the fact that these services are available some without direct patient charges and some without requiring physician referral, only one in five newly-diagnosed diabetes patients attended a DSM education program (Cauch-Dudek et al., 2013). In particular the study found that recent immigrants and people with lower SES were 40% less likely to attend self-management education programs than non-immigrants and those with higher SES (Cauch-Dudek et al., 2013). Interestingly, the study also identified that patients with many general practitioner visits prior to diagnosis were also less likely to attend (Cauch-Dudek et al., 2013).

## **2.4 Diabetes Care Providers Delivery of DSM Education**

 As mentioned previously, diabetes affects the health and overall wellbeing of an individual (Diabetes Canada, 2018). Therefore, to promote adherence to DSM practices, it is important to tailor these practices to meet the patient’s needs in a holistic approach which requires a diabetes care team comprising specialists from different fields (CDC, 2023). DCPs who typically form part of a care team encompass primary care providers, endocrinologists, registered dietitians and nurses, diabetes care specialists and pharmacists (CDC, 2023). Typically, the primary care physician is the first point of contact responsible for confirming diagnosis of diabetes or pre-diabetes (CDC, 2023). Primary Care Providers (PCPs) will establish a foundation for the patient by providing initial education about diabetes, how to manage it through lifestyle modifications and self-management (CDC, 2023). Their role is crucial in building a strong patient-DCP relationship and ensuring that patients receive timely referrals to specialists when required (CDC, 2023). The interaction between patients and DCPs involves a multifaceted psychosocial dynamic characterized by elements of vulnerability, trust, and authority within a health care setting (Honavar, 2018). The quality of health communication between the PCP and their patients can profoundly influence how patients interact with other diabetes care providers they encounter on their healthcare journey (Bohlman, Panzer, & Kind, 2005).

In cases of complex diabetes management, patients may be referred to an endocrinologist, a specialist in hormonal disorders, since diabetes affects how the body produces and uses the hormone insulin (CDC, 2023). Endocrinologists will work alongside diabetes educators to provide in-depth evaluation and develop individualized care plans (CDC, 2023). Diabetes educators, including nurse educators and dietitians, are essential members of the diabetes care team since they typically work with the patient one-on-one to help them change and maintain DSM practices while also tailoring recommendations to ensure they meet the patients’ health needs and beliefs and to ensure that the practices are sustainable for the long-term (Burke et al., 2014). This includes guidance on blood glucose monitoring, making informed decisions about dietary choices, and lifestyle modifications (Burke et al., 2014). Moreover, prescribed medications or insulin therapy, if necessary, are offered and administered by pharmacists under the supervision of healthcare providers (Burke et al., 2014). Pharmacists also help to ensure that patients fully understand their prescriptions, potential side effects, and how to take their medications correctly (Burke et al., 2014).

The collaborative efforts of an interprofessional healthcare team can help identify potential situational and dispositional barriers that may interfere with an individual's capacity to make beneficial changes to their daily routine (Gillani et al., 2022). A systematic review indicated that having access to an interprofessional care team for DSM education is associated with improvements in glycemic control, lipid profiles and blood pressure (Worswick et al., 2013). DSM plans that were collaboratively developed by diverse DCPs exhibited greater success in improving glycemic control for individuals with diabetes compared to DSM plans exclusively supervised by nurses or non-nursing personnel (Klein et al., 2013).

## **2.5 Immigrant Women and DSM**

 While T2D is typically more prevalent in developed countries, it is increasing more rapidly in developing countries (Khan et al., 2020). It is predicted that in the next 25 years there will be the greatest increase in diabetes cases in the Middle Eastern crescent, sub-Saharan Africa, and India (Khan et al., 2020). In Canada, the prevalence of diabetes is increasing rapidly among recent immigrant women with notable discrepancies based on ethnicity and country of origin (Creatore et al., 2010). Recent immigrants, particularly women of South Asian and African origin, face a risk of developing diabetes that is two to three times higher than their counterparts from western Europe or North America (Creatore et al., 2010). Research indicates that diabetes management programs may not address the needs of immigrants, and this is evident in the poor level of adherence to DSM practices and utilization of health services for diabetes-related information (Hyman et al., 2012). A study conducted by Hyman and colleagues (2012) found that recent immigrants were significantly less likely than Canadian-born participants to perform SMBG and routine foot care. The study's results also demonstrated that individuals born in Canada were more inclined to partake in regular physical activity and make efforts to reduce dietary fat intake (Hyman et al., 2012). Furthermore, recent immigrants were less likely than their Canadian-born counterparts to seek the assistance of specialists, alternative healthcare providers, or dietitians in the effective management of their diabetes. A qualitative study found that economic barriers and not having health insurance, loss of self-control, poor social support and lack of resources prevented immigrants from DSM (Goldenberg et al., 2023). Additionally, research has attributed differences in DSM adherence between recent immigrants and Canadian-born or long-term immigrants to the "Healthy Immigrant Effect" (Elshahat et al., 2022). This phenomenon suggests that the health gap between immigrants and the host population narrows with increasing duration of stay, eventually resembling or even deteriorating beyond the host population's health status (Elshahat et al., 2022). While these studies have made strides in understanding the barriers to effective DSM, there remains a notable gap in health literature regarding the intersectional challenges faced by immigrant women with diabetes as well as the barriers to providing DSM education by DCPs.

## **2.6 Global Health Relevance**

 Migration is acknowledged to be one of the most visible and significant components of globalization as allowing the movement of people from one country to another helps to contribute to sustainable development and increased participation in the labour force supporting national welfare systems in the host country (Tacoli and Okali, 2001). Although for many immigrants the primary pull factors are better access to employment and education opportunities and an overall improved lifestyle, following migration there are other social determinants of health that can impede the health of immigrants including low socioeconomic status, psychosocial stressors, limited access to quality health care, lack of social networks and cultural factors (e.g. definition of health, language barriers) (Tacoli and Okali, 2001). Post-migration, it is found that immigrant women are more susceptible to diabetes compared to their Canadian born counterparts. Rapid urbanization increases in sedentary lifestyle among adults and the elderly populations, and unhealthy dietary changes have led to a surge in the number of people living with diabetes, requiring effective self-management strategies (Khan et al., 2020). Disparities in healthcare access and resources exacerbate the burden. In many parts of the world, particularly in low- and middle-income countries, there is limited access to DSM education, healthcare services, and medications essential for proper DSM (Khan et al., 2020). This lack of resources hinders individuals from effectively managing diabetes and preventing further health complications (Khan et al., 2020). Thus, understanding the barriers to DSM practices among immigrant women can help to achieve the Sustainable Development Goal (SDG) 3, good health and wellbeing, by enforcing significance for the formulation of effective DSM treatment plans tailored to high-risk communities.

# **CHAPTER 3: METHODOLOGY**

## **3.1 Study Design**

 This study took a qualitative approach to understand the facilitators and barriers that influence proper DSM among immigrant women by interviewing DCPs. Qualitative Content Analysis (QCA) aims to understand individuals’ societies and cultures through individual experiences, beliefs and values of a problem (Sutton and Austin, 2015). Semi-structured interviews were conducted to help identify the underlying factors influencing the adherence to proper DSM practices among immigrant women, aiming to enhance and refine these practices (Sutton and Austin, 2015). For example, by learning about the factors from the DCPs, who are usually the primary contact when individuals are diagnosed with diabetes, can help to develop tailored plans and health policies. Another strength of this method is that it is suitable for exploring new lines of research through interviews with key informants (Sutton and Austin, 2015). This helped to support the study purpose as it helped researchers to understand what changes need to be made at the policy and implementation level and how to go about improving it (Sutton and Austin, 2015). It helped to solve the underlying causes for poor DSM practice among a vulnerable community by asking questions like ‘What type of a problem do we have?’, ‘What is being done currently that has improved the health outcomes of patients?’, ‘How do the factors addressed by the DCPs change the perspective of the problem (is it due to lack of infrastructure and programs, lack of motivation to engage in physical activity and healthy diets, or lack of physical and/or financial access to available resources)?’, and ‘What does that tell us about the changes that need to be made at the political, community, and/or individual level?’.

## **3.2 Philosophical Orientation**

 This study adopts a constructivist philosophical orientation, reflecting the study’s nature of constructing multiple truths. The constructivist approach actively seeks to derive meaning through engaging experiences and interactions with the surrounding environment (Burns et al., 2022). This philosophical orientation best fits the study purpose and question as it seeks to explore the facilitators and barriers to proper DSM practices through the experiences of DCPs toward immigrant women. DCPs regularly interact with individuals managing diabetes and observe patient behaviors, challenges, and successes, providing a firsthand perspective on the practical aspects of DSM. Constructivism also values transitive knowledge, which is the modification of prior knowledge about a subject by new information (Burns et al., 2022). To avoid proving a self-fulfilling prophecy, our study uses inductive reasoning which looks for meaning from within the subjects, where interview questions are structured to genuinely learn about the factors influencing DSM from the DCPs themselves. To ensure unbiased participant perspectives, the interviewer consistently adhered to the "Interview Guide” as much as possible and avoided personal opinions during the interview process.

## **3.3 Conceptual Framework of Barriers and Facilitators to DSM**



**Figure 1: This diagram was used by Ross et al., 2015 to illustrate the barriers and facilitators to access primary care for individuals with mental health and substance abuse issues.**

Ross, L. E., Vigod, S., Wishart, J., Waese, M., Spence, J. D., Oliver, J., Chambers, J., Anderson, S., & Shields, R. (2015). Barriers and facilitators to primary care for people with mental health and/or substance use issues: A qualitative study. BMC Family Practice, 16(1). https://doi.org/10.1186/S12875-015-0353-3

The conceptual framework outlined in the research conducted by Ross et al., (2015), helps to understand the factors that promote or hinder a specific health concern, such as access to primary care, considering the perspectives of service providers, clients, and the healthcare system. The Venn diagram aspect of this framework helps provide clarity in tracing the intersections among the three key groups that play a role in either influencing or being subject to influence by the major health concern. Ross et al., (2015) uses this diagram to illustrate how service providers, clients and the health care system intersect to impact an individual's access to primary care. For the purpose of this study, this framework will be adapted to assign the role of "Clients" to immigrant women diagnosed with Type 2 Diabetes, "Service Providers" as DCPs and keep the "Health System" category unchanged. Rather than focusing on how the three groups impact access to primary care, our study will investigate the influence that these three groups exert on DSM. By identifying and understanding the facilitators and barriers to proper DSM practice among immigrant women and proper delivery of DSM education by DCPs and the healthcare system it can help to improve patient adherence to DSM but also yield better health outcomes (Gawlik et al., 2023). Understanding the overlap and interactions between the three key groups forms the foundation for a patient-centered approach, empowering healthcare providers and the health system to involve patients in decision-making processes (Gawlik et al., 2023). Recognizing both individual and systemic facilitators and barriers allows for tailored health interventions promoting a more holistic healthcare experience.

## **3.4 Study Procedures**

### **3.4.1 Study Population**

Six interviews were conducted in total, with the point of saturation being reached by the fifth interview. The population of interest for this study was diabetic care providers who played a role in the self-management of diabetes among immigrant women in Hamilton, ON.

*Eligibility Criteria*

1. Diabetes Care Provider: Primary care providers, registered dieticians and nurses, diabetic care specialists, endocrinologists, and registered dietitian nutritionists.
2. Practicing with immigrant women (including recent and long-term)
3. Fluent in English
4. Practicing in Hamilton, ON

DCPs who practiced in Hamilton, ON, specifically those affiliated with the Boris Clinic, St. Joseph's Healthcare Hamilton, or the Hamilton Family Health Team, were recruited for the study. Hamilton is a Canadian port city situated on the western edge of Lake Ontario and home to a population exceeding 500,000 dwellers. The Social Planning and Research Council of Hamilton discovered that the city had the highest percentage of recent immigrants. Among new immigrants in Hamilton, ON, particularly those in low-income areas, there is often an observable and predictable maladaptive pattern in dietary and physical activity adaptations. Due to the increasing immigrant population in Hamilton, ON it was chosen as the region for recruiting DCPs.

###  **3.4.2 Recruitment and Sampling Strategy**

The recruitment process started by gathering contact information from the websites of the Boris Clinic, St. Joseph's Healthcare Hamilton, and the Hamilton Family Health Team. Subsequently, email outreach and phone calls were made to initiate contact with these institutions, seeking permission to approach their diabetics care teams for potential participation in the study. The institutions were provided with the research proposal and consent form, which they, in turn, shared with the diabetes care teams. Contact details of the student investigators were provided for interested DCPs to initiate communication. Furthermore, to broaden the recruitment scope and achieve saturation while adhering to eligibility criteria, a snowball sampling technique was implemented, encouraging referrals from initial participants to other eligible diabetes care providers.

### **3.4.3 Ethical Considerations**

Ethics approval for this study was obtained from the Student Research Committee of the Hamilton Integrated Research Ethics Board (HiREB) of McMaster University's Faculty of Health Sciences in September 2023 (Project Number 16210).

### **3.4.4 Data Collection**

Prior to the scheduled interview date, participants were provided with a written informed consent form, the research proposal and the interview question guide through email. Upon obtaining approval from the participants, a Zoom invitation was sent by email to facilitate the virtual interview process. Before starting the interview, the student investigator introduced themselves, provided an overview of the research and obtained verbal consent from the participants for their participation and the recording of the interview. The interview, taking approximately 35-45 minutes, used a semi-structured interview guideline prepared by the student interviewer and reviewed by the committee members. The Auris software was used to transcribe the interviews which were verified for correctness. NVivo software was used to organize, code, and analyze the transcribed interviews. To protect participant identities, each individual was assigned a unique code which was added to the codebook.

### **3.4.5 Data Analysis**

Data analysis encompassed both deductive and inductive methods. Deductively, themes were identified using the conceptual framework, while inductively, additional codes were generated based on the data to uncover meaningful sections of the text. Following the correction and de-identification of transcripts, themes were developed concerning the facilitators and barriers to DSM practices among immigrant women. This analysis considered the three groups outlined in the conceptual framework: immigrant women with diabetes, DCPs, and the health system. After going through the interview transcripts and extracting the relevant content, NVivo software was used to initiate codes, describe, organize, and facilitate coding the relevant portions of the data. Other codes were based on NVivo coding, capturing participants' own words, and a few interpretative codes were based on the interpretation from the student researcher. Some of these codes/themes include ‘medication adherence’, ‘dietary modifications’, ‘medical expenses’ and ‘provider-patient communication’.

# **CHAPTER 4: RESULTS**

## **4.1 Introduction**

This section will explore the perspectives of DCPs regarding the factors influencing DSM among their immigrant women population in Hamilton, ON. The interviewees included six DCPs, comprising family physicians, nurse clinicians, registered dietitians and diabetes educators, pharmacists, and diabetes care specialists. The findings will present the themes identified by the student researcher using NVivo. These themes are derived from both facilitators and barriers to DSM for immigrant women, as well as facilitators and barriers to delivering DSM education by DCPs within the Canadian health system. The identified themes have been categorized into three groups based on the Access to Mental Care conceptual framework outlined in Chapter 3 of the thesis: diabetes care providers, health care system, and immigrant women with T2D. Under "Diabetes Care Providers," the factors considered encompass both facilitators and barriers that influence the provision of DSM education for immigrant women with T2D. Within the category of "Immigrant Women with T2D," the examined facilitators and barriers pertain to those influencing their ability to engage in DSM practices. Lastly, under "Health Care System," the facilitators and barriers encompass systemic factors that impact both diabetes care providers and immigrant women, affecting the provision of DSM education and the practice of DSM, respectively. Below is a modified conceptual framework illustrating the facilitators and barriers identified from the interviews.



**Figure 1: This diagram was modified to illustrate the Conceptual Framework for Barriers and Facilitators to Self-Managing Diabetes among Immigrant Women.**

## **4.2 Demographics**

The table below includes the demographics of each interview for this study. This includes the type of DCP interviewed, their ethnicity, gender and the number of years they have been providing diabetes care. The identification codes in the left column will be used to ensure interviewee anonymity and protect their identity.

**Table 1: Demographic Information for the Interviewed Diabetes Care Providers**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Identification**  | **Type of DCP** | **Ethnicity**  | **Gender** | **Years of Experience**  |
| FP1 | Family Physician  | Indian | Male | 20  |
| FP2 | Family Physician | Asian  | Female  | 5 |
| NC1 | Nurse Clinician  | Indian | Female  | 11 |
| DE1 | Registered Dietitian and Diabetes Educator  | Caucasian | Female  | 15 |
| PA1 | Pharmacist  | Caucasian  | Female  | 13 |
| DS1 | Diabetes Care Specialist  | Caucasian | Male  | 6 |

## **4.3 Factors Influencing DCP’s Ability to Provide DSM Education**

### **4.3.1 Facilitators**

In total there were two facilitators that were identified. The first is “patient-provider communication”, which refers to the discussions held between immigrant women with diabetes and their DCP. The second is “culture and ethnicity concordance” referring to when the patient shares the same cultural values and ethnicity as their DCP.

#### *Patient - Provider Communication*

During the conversation with the dietician, it was identified that proper and regular communication between patients and providers was associated with improved diabetes management. It was crucial for DCPs to genuinely understand the patients’ needs and barriers in order to work around them, ensuring that they were effectively implementing and adhering to the provided guidelines. As DCPs, it was very important to ensure patients were properly practicing and adhering to provided guidelines. The dietician shared a noteworthy anecdote about one of her patients, highlighting the significance of such communication:

…I had a patient yesterday and her husband translated, his English wasn't great either. And so for sure, it was very helpful for me to ask, "What is your first language and can I provide you with a resource in your first language?” (DE1)

A family physician also recognized that physical and economic accessibility posed challenges for many immigrant women in accessing DCPs. In response to this issue, the family physician engaged in conversations with their patients, proposing the option to do their three month check-ups remotely. A considerable number of these patients expressed satisfaction with the remote follow-ups, as reflected by the family physician:

… I realize that for people to come and see me they sometimes have to take time away from work for the whole half day even though the appointment might be half an hour long and that is not conducive… when we moved to the remote touch base it was so much better, patients were so much happier because 15 minutes and it's done. (FP1)

With more engaged interactions with their family physicians, patients exhibited increased initiative and dedication to avoid disappointing both their family and healthcare providers before the next follow-up. The family physician observed a noteworthy trend where patients were more inclined to make positive changes in their eating habits and address other unhealthy behaviors. This commitment was driven by the patients' desire to see improvements in their A1C values before the next scheduled visit, as highlighted by the family physician:

… When COVID-19 came we were able to do an A1C and follow up with our patients every three months remotely which helped many to manage their daily sugar levels because they are constantly thinking that okay you know what I want to make sure that I don't disappoint anybody. (FP1)

#### *Culture and Ethnicity Concordance*

Half of the participants found that when they shared similar ethnicities and cultural values as the patients, the patients were more likely to trust and feel more comfortable talking about factors influencing their ability to manage their diabetes at home. The family physician mentioned:

…Because I have an Asian name, and I am Asian myself, a lot of Asian patients come to find me. I find that a lot of people who once they see that the physician is similar in terms of ethnicity, it becomes easier to kind of discuss with them. (FP2)

…I have not had much of a problem with my immigrant women because the dietitians that I've had have been immigrants themselves, so they tend to relate to their immigrant population a lot more. (FP1)

### **4.3.2 Barriers**

There were two barriers identified hindering immigrant women from practicing DSM as perceived by the DCPs. These include mistrust in DCP by the immigrant women and language barriers, where both the DCP and immigrant women speak different languages, hindering communication.

####  *Mistrust in Provider*

According to FP2, they suggested that some immigrant women with diabetes expressed a preference for getting care from doctors in their home countries when they went to visit their home countries. This choice was often rooted in the belief that healthcare practices in their home countries aligned better with their cultural understanding (FP2). In these cases, patients found comfort in the familiarity of their native language and cultural background when communicating with healthcare professionals (FP2). Additionally, they trusted that medical providers in their home countries possessed a better grasp of cultural nuances, dietary habits, and lifestyle factors specific to their background (FP2). This was also mentioned by the nurse clinician:

…The fact that they can talk to their physician much more frankly when they're back home. And they have a better understanding of what's going on. They're being explained better and therefore they trust their provider. (NC1)

#### *Language*

Language barriers tended to lead to misunderstandings, misinterpretations, and the delivery of crucial health information and was found to be a barrier for both immigrant women and DCPs, according to DE1’s perspectives. This could impede the ability of DCPs to accurately assess and address the health needs of immigrant women with T2D (FP1). Moreover, limited language proficiency could result in challenges in understanding complex medical information, treatment plans, and dietary guidelines (PA1). This was emphasized by the pharmacist:

…Language is going to be a huge barrier to access and care, especially with all the explanations of why they're on medications and what the medication side effects are and how to take the medications. So that is a big barrier I have with some of my patients. (PA1)

While interpretation services were accessible in certain health centers and diabetes clinics, not all facilities were adequately equipped with such services. In many cases where interpretation services were unavailable, translations were conducted by untrained family members or friends which were not accurate and could lead to misinterpretations. The nurse clinician explained this by using one of her patients who was an immigrant woman as an example:

… I just had a patient come in with her husband, the patient does not speak English at all. So the husband was there to translate for the patient. And the husband said something that really is looked down upon, that he will allow his wife to test her blood sugars. And culturally, to them, it's essentially meaning that, yes, she's okay to do that on her own. But to interpret in our North American language it would be considered something very different. (NC1)

The diabetes care specialist highlighted that the composition of the care team did not adequately reflect the diversity of the population they served. This mismatch could indirectly impact the engagement of immigrant women in diabetes self-management (DSM) practices as they mentioned:

…Part of it is the language barrier as well. Many of the specialists that work in those clinics do not speak the same language as the residents in that area, as their patients.

## **4.4 Factors Influencing Immigrant Womens’ Ability to Engage in DSM**

### **4.4.1 Facilitator**

DCPs identified that some immigrant women were well aware and knowledgeable about DSM.

#### *Knowledge and Awareness*

Family physicians found that some of their immigrant women with T2D were able to manage their diabetes at home properly, demonstrating a strong understanding of the potential consequences and detrimental health complications that could arise from poor DSM. They found that the cause of awareness came primarily due to a familial history of individuals with diabetes (FP1). This was further noted by the family physician:

…Some of our immigrant women are highly educated and have a very good understanding of diabetes. Many of them have very strong family history, so this is not something new to them or of surprise. (FP1)

Some individuals were found to be more aware about their health problems and demonstrated a remarkable commitment to their well-being, making deliberate decisions to instigate positive changes in their habits and behaviors for the long run. (FP1) This conscientious approach stemmed from a sense of personal responsibility, where individuals recognized the impact their lifestyle and behavioral choices had on their health. In embracing a long-term perspective, they understood the cumulative impact of their decisions on their overall quality of life. (FP1) This was further addressed by the family physician who reflected upon one of their patients:

…I have a patient from India who has been in Canada for about 35-40 years. She got diagnosed with diabetes and now it's been I think 30 years she’s had diabetes but the good thing about her is that she's not caught into any complications of diabetes and that's due to number one her understanding and number two is the follow-up that she's had through my pharmacist and through my dietitian. (FP1)

###  **4.4.2 Barriers**

In total there were five barriers identified to hinder immigrant women from adequately practicing DSM. These included some immigrant women with limited knowledge and awareness on the topic of DSM, being limited by their gender roles or socioeconomic factors, struggling to adapt to a different cultural environment, and social isolation.

#### *Knowledge and Awareness*

While certain family physicians noted that their patients were knowledgeable and proactive about their health conditions, a contrasting perspective emerged during interviews with DCPs. The dietician (DE1) found that some of their immigrant women clients seemed to lack awareness about their health status and the available services. The dietician (DE1) also found that some of their immigrant women clients were not that well educated. This educational gap presented difficulties in conveying the significance of embracing healthy, active lifestyles and adopting practices related to disease self-management. The dietician explained further about how the clients’ lack of awareness of interdisciplinary diabetes care teams could impact their experience in DSM:

…At the beginning, they're overwhelmed by the whole experience, because traditionally people are used to seeing a doctor, despite where they're from. And they don't really get a lot of the dietician, the nurse or the social worker or kinesiologist support, right? And then the other thing is, they come in, and then they think that their health is really bad. Because now they're seeing four different providers other than their doctor. Right? So it takes a lot of, you know, education, for that matter, before we can actually get to the whole point of the conversation about diabetes management. (DE1)

It was noted that certain immigrant women neglected to educate themselves about diabetes because they perceived their family members with diabetes as being in good health without experiencing complications. This belief system and attitude towards the health issue acted as barriers, hindering them from seeking information about potential health consequences that could adversely affect their well-being over the long run. As NC1 said:

…They take less of a self- responsibility for the diagnosis, because it's just something that happens in the family and it's always going to happen and nothing I can do can change it.

#### *Gender Roles*

Gender roles could serve as significant barriers to effective DSM for immigrant women as mentioned by a few DCPs. Traditional societal expectations often assigned specific roles and responsibilities to women, influencing their access to diabetes information and decision-making autonomy (FP2). In many cultures, women may prioritize familial duties and caregiving over their personal health, leading to a lack of awareness or attention to their own well-being. The diabetes specialist emphasized this point:

…For us to explain things can be a bit of a challenge. So for instance, we always say, okay, when you take your insulin, you make sure you take it 15 to 20 minutes before your meal, and then you sit down and eat. But for them, they might be waiting on their husband and children to finish the food first, before they actually sit down. So we have to cater to that as well. (DS1)

 Additionally, societal norms may limit women's mobility and participation in activities that promote healthy living, further impeding their ability to engage in DSM practices. DE1 claimed:

…I also find that typically in a lot of immigrant populations, women tend to do most of the housework. And so they have a lot more on their plate in terms of tasks that they need to do for their home and for the family. They don't really have much time to be physically active.

#### *Socioeconomic Factors*

 Socioeconomic factors are the social and economic conditions that influence immigrant women from practicing DSM. These factors encompass a range of elements, including income, education, employment, social class, and access to resources. One of the most common barriers to proper DSM was the lack of financial access to DSM education resources. According to the diabetes care specialist, many immigrant women faced challenges affording essential equipment, medications, and participation in diabetes education workshops—expenses that were not covered by their health insurance. This financial barrier, as highlighted by DS1, created a substantial impediment for these women in effectively managing their diabetes at home:

…The government covers the insulin, but they don't cover the needles to get the insulin into your body. Okay. They cover the strips to test your blood sugars, but they don't cover the needle to get the blood out of your body to put it on the strip. So there is still a cost to patients even though they have insurance.

DS1 underscored that financial constraints extended beyond education resources, impacting immigrant women's ability to access diabetes clinics and attend regular follow-ups. The challenges encompassed various aspects, such as the costs associated with transportation to and from the clinic, parking expenses, and the need to take time off from home or work for appointments.

DS1 highlighted the efficacy of conducting DSM education workshops in hard-to-reach areas, referencing the workshop they held at the East Mountain of Hamilton. During the workshop they found that immigrant women were more likely to attend these workshops as the workshops were located at a place the women visited more often than the diabetes clinic. DS1 addressed this experience during their interview:

…I think there's still many barriers to some of those individuals coming to our diabetes program. We've even been to a mosque up on the East Mountain which helped to reach the hard-to-reach populations in the east end of Hamilton.

With the growing housing crisis in the Greater Hamilton Area, immigrants encountered considerable challenges in securing affordable and suitable housing. The dietician noted that some immigrant women, facing financial constraints, found it difficult to access gym memberships or even perform at home workouts due to limited space. It was identified that some immigrant women found it to be an economic challenge to purchase nutritious foods. Integrating healthy dietary choices with cultural foods posed a particularly challenging task for many immigrant women patients, as conveyed by the family physician. The following was claimed by FP1:

…The cost of healthy food is definitely a barrier. I remember having a visit with a patient…the dietician…said to the patient, what do you have at home? She's like potatoes. That's what she had in her cupboard.

#### *Acculturation*

A significant finding from the interviews was that acculturation emerged as a significant barrier to DSM among immigrant women. One contributing factor was the impact of varying weather patterns, discouraging immigrant women from engaging in outdoor activities, such as walking, as they did in their home countries. This observation was highlighted by FP1:

…They don't like the winter, so they don't want to go outside. And so that really makes it hard to exercise.

Another major reason was the perception that engaging in physical activity outdoors or at the gym was unfamiliar, as it was not a customary practice in their home countries. This cultural difference posed a challenge, with many immigrant women finding it unusual to participate in such activities, impacting their willingness to incorporate physical exercise as part of their DSM routine. NC1 raised this issue in their interview:

…I still find culturally they (immigrant women) are a little averse to physical activity.

The dietician highlighted that immigrants who have been residing in Canada for the long term tend to adopt unhealthy food choices and behaviors. Upon arriving in Canada, many immigrant women often consume a significant amount of processed foods. This shift in dietary habits over the long term was a concern identified by the dietician, indicating a potential impact of acculturation on nutritional choices among immigrant communities. This was claimed by DE1:

… I know that in the first ten years of coming to Canada as a new immigrant, many new immigrants gain significant weight. And so it is hazardous to their health to come to North America. You know, they're less active. They're eating foods that they're not used to, that are maybe processed and high in fat.”

#### *Social Isolation*

 Social Isolation was a major concern for many recently migrated women. The experience of being socially disconnected from their home country and family posed challenges for individuals who had recently moved to a new environment. Fostering a sense of belonging was also a primary challenge for many immigrant women with diabetes that came to FP2’s clinic as they felt uncomfortable. This impacted their ability to go out and perform physical activity or seek available DSM educational resources. The following was mentioned by DS1:

…They might feel very socially isolated. So going out to an exercise program or even to the mall, they might not feel comfortable doing that.

The experience of social isolation not only contributed to feelings of loneliness but could also lead to heightened stress levels, significantly impacting the mental health of immigrant women. The diabetes care specialist emphasized this point:

… And they're stressed. Stress has a huge impact on women's overall health. So I think their health really can deteriorate. And all of those are then barriers to a healthy lifestyle. And having a healthy lifestyle is what is, you know, a big part of managing or preventing type 2 diabetes.

## **4.5 Factors Influencing the Health Care System to Provide DSM Education**

###  **4.5.1 Facilitator**

The use of interpretation services in diabetes services and programs has been found to be helpful in providing DSM education by DCPs.

#### *Interpretation Services*

The communication between patients and DCPs, in particular the ability to understand and listen to their patients’ needs, is crucial in order to deliver the most appropriate care and support them with DSM. Interpretation services are now available in many diabetes clinics and health centers which allows for more effective communication when language barriers are present. The diabetes care specialist finds that the interpretation services available at their clinic are very helpful for their immigrant women to understand the guidelines recommended for them to follow. DS1 mentioned:

But we do have the interpreter services that usually come in, or that are booked along with the appointment so that you know, at least we're overcoming that particular barrier. And surprisingly they get used very often by patients in our clinic with language barriers.

###  **4.5.2 Barriers**

The identified barriers that hinder DSM among immigrant women and providing DSM education among DCPs include the lack of training regarding cultural sensitivity, the lack of diverse and interdisciplinary diabetes care teams in Hamilton, and very limited advertising of the importance of DSM among immigrant women.

#### *Lack of Training Regarding Cultural Sensitivity*

The family physician mentioned that one of the barriers to providing care to intersectional groups of people varying in gender, ethnicity, age, and health conditions, is the lack of physicians’ training in delivering individualized guidelines and health promotion strategies. Overcoming this barrier involves enhancing medical education to ensure that healthcare professionals are well-equipped to provide personalized and culturally sensitive care to individuals with varied backgrounds and health circumstances. FP2 claimed:

… I think for different cultures, there's probably better approaches, and we're not all trained in the different approaches that would be helpful for this study.

#### *Lack of Diversity in Clinical Research and Diabetes Care Teams*

One of the physicians, when asked about the barriers preventing them from educating their immigrant women population, mentioned the importance of having a diverse and interdisciplinary diabetes care team. FP2 mentioned that an interdisciplinary team can offer a range of perspectives, cultural competency, and specialized knowledge, thereby enhancing the effectiveness of diabetes education initiatives and overcoming cultural barriers. FP2 noted that when the diabetes care teams in Hamilton reflect the population they serve, the communication between patients and their provider will be improved resulting in improved health overall. F2 said:

… But I will say that in Hamilton, it's a bit of a struggle in terms of like the population in medicine and the population in diabetic care tends to like the providers tend to be much more white focused. And so specialists in general tend to be more white men. Just as it's changing, more women are involved, but they're usually more white.

F2 mentioned that not only is it important to have a diverse diabetes care team but also it is equally important to include participants with different ethnicities, age groups, and genders in clinical research, especially pertaining to diabetes. This broader representation in research ensures that findings are more applicable and generalizable to diverse populations. FP2 raised this issue in their interview:

… But I do feel like the medical and scientific literature that is currently available for the medications for diabetes tend to be done on white men. And I know that most of the scientific articles do try to explain, to get a wide variety of diverse populations. But I do find that it can be hard to extrapolate research when it's done primarily on a population that you don't serve…So if the guidelines are telling you that you should have this much protein a day and this much fiber a day and this much exercise a week, that data comes from research for 65-year-old white men that may not be applicable to the immigrant women population.

#### *Lack of Publicizing Awareness*

The lack of publicizing awareness about DSM within immigrant populations poses a significant challenge. Many individuals within these communities may not be adequately informed about the importance of DSM practices, leading to a potential gap in knowledge regarding diabetes management. This was raised as a primary concern by the nurse clinician who found that some of their immigrant women patients were not aware of the importance of DSM and were not sure where to start. Thus NC1 mentioned that if DSM was more advertised and targeted towards immigrant populations, there could be a greater attendance rate at their DSM education workshops. NC1 claimed:

… Well, the first being the whole publicity of it, right? Like, it's not advertised very well. People, and I'm not just going to talk about diabetes, like people with anything, if it's not really important to them, they're not going to look into it, right?

# **CHAPTER 5: DISCUSSION**

## **5.1 Introduction**

 This chapter will examine the study’s findings and provide insights into the findings and suggest recommendations that will benefit immigrant women, DCPs and the overall health care system, aiming to enhance DSM practices and education. It will also critically assess the study’s limitations and strengths and end with a conclusion.

## **5.2 DCP Related Factors**

 The study found that the primary facilitators to providing DSM education are effective communication and ethnic concordance between patients and providers. Effective communication between the patient and DCP is identified as the cornerstone to successful practice and maintenance of DSM behaviors. The manner in which physicians deliver self-care recommendations and ongoing support may have influenced how patients adapt to their health condition. Studies have shown that the quality of communication patients have with their care provider is associated with improved DSM and self-efficacy, and improved adherence to diabetes guidelines (Nam and Song, 2014; Baig et al., 2015). Although the dietician mentioned clear communication with clients helped improve the client's understanding of their health condition, several studies have indicated a concerning trend among DCPs. Some studies suggest that DCPs often fall short in spending adequate time explaining DSM to their patients (Abu et al., 2019; Adam et al., 2018). Due to perceived power imbalances, some immigrant women may be reluctant to get care and education from different DCPs who are not considered their family physician (Ramos-Roure et al., 2021). Considering the possibility for mistrust, it is recommended for DCPs to invest more time and effort into building rapport and a sense of security with their immigrant women. In addition, there is a notable gap in understanding the barriers that hinder patients from actively engaging in DSM practices. This existing communication gap may impact patient engagement, presenting a challenge to effective DSM (Krist et al., 2017). Building a connection and fostering trust is a gradual process that requires activities explicitly tailored to immigrant women (Ramos-Roure et al., 2021).

Establishing a safe environment for immigrant women to openly discuss their challenges, as highlighted by DCPs and supported by prior research, necessitates the facilitation of social activities. This includes organizing group workshops, offering one-on-one mentorship, and conducting regular check-ins.(Ramos-Roure et al., 2021).

 Many interviewed DCPs mentioned that having shared ethnicities with their patients was helpful to tailor DSM guidelines. Patient-Provider Ethnicity Concordance (PPEC) was identified to be a valuable factor that cultivates a sense of comfort among patients and facilitated open discussions about cultural barriers that could hinder effective DSM practices. PPEC has the potential to overcome interpersonal barriers in caring for minority patients (Rawlinson et al., 2021). PPEC is associated with increased patient trust in health care providers and increased utilization and satisfaction with health services (Rawlinson et al., 2021). A recent study aimed to investigate the impact of PPEC and language concordance on medication adherence among a cohort of diabetic patients (Ratanawongsa et al., 2013). The findings of this study demonstrated that PPEC and language concordance both improved medication adherence for African American and Spanish-speaking patients (Ratanawongsa et al., 2013). Therefore, more research is needed in order to gain a deeper understanding of how ethnic concordance between patients and healthcare providers can improve DSM.

Many DCPs cite language as a significant barrier preventing effective patient education about the importance of DSM. Language barriers can interrupt the clear and accurate communication of sensitive information, making it challenging for DCPs to convey the details of DSM practices and their significance. Even if some immigrant women spoke some English, conducting a meaningful discussion in which they communicate their emotions and opinions with their DCPs would be difficult (Okrainec et al., 2015). According to a study in *Diabetes Care*, language barriers do not directly increase the risk for diabetes complications in a diverse immigrant population (Okrainec et al., 2015). However, the study findings did indicate that the likelihood of diabetes complications could vary based on factors including age, migration period, education level, marital status and neighborhood of settlement (Okrainec et al., 2015). Recently, Hamilton Health Sciences (HHS) piloted a new service called “Voyce” (HHS, 2023). Voyce provides access to real-time interpreters who are trained in medical terminology within seconds, ensuring that patients and their care providers are engaging in effective communication (HHS, 2023). Several family members and physicians at HHS have highlighted the utility of this service in facilitating communication during health checkups (HHS, 2023). Evaluating the effectiveness of this service, particularly within diabetes care teams at HHS, may help enhance communication between healthcare providers and immigrant women. Addressing language barriers is integral to ensuring that individuals with diabetes are empowered to actively engage in their self-care practices.

## **5.3 Immigrant Women Related Factors**

 DCPs have highlighted a number of factors positively and negatively impacting the ability of immigrant women to manage their diabetes. A significant factor influencing the health outcomes of individuals was their understanding and awareness of their health conditions, including the potential risks if not managed properly. Some DCPs mentioned that some of their patients were very well informed about diabetes and were aware of the potential complications that could arise from it if not properly managed. This was primarily due to family history of diabetes. However, there were some DCPs that mentioned some of the immigrant women lacked awareness about available diabetes services and struggled with diabetes management. One study examined the knowledge and awareness immigrant women had about diabetes and found that a lower educational level was associated with reduced women's comprehension of diabetes (Houle et al., 2016). Non-caucasian women were found to show a higher risk of insufficient self-care due to limited health literacy and a poorer understanding of gestational diabetes according to a previous survey (Houle et al., 2016). These findings illustrate the interconnected and complicated nature of health literacy, revealing its relationship to other concepts including seeking help and using available services (Houle et al., 2016). Thus, this exemplifies the importance to ensure adequate knowledge and awareness to immigrant women especially when they are diagnosed to be pre-diabetic to prevent the progression to diabetes. Understanding the condition enables immigrant women to take proactive steps to manage their health and prevent further complications.

Gender roles can serve as formidable barriers to immigrant women in effectively managing diabetes at home. Societal expectations often position women as primary caregivers, shifting attention towards maintaining a household and away from their own health needs. Findings from two studies suggest that female immigrants face greater challenges in managing diabetes compared to their male counterparts (Chesla et al., 2014; Creatore et al., 2010). This is primarily because post-immigration, both men and women work extended hours, placing many diabetic immigrant women in the struggle to balance traditional roles with the demands of work outside the home (Chesla et al., 2014; Creatore et al., 2010). Thus to overcome these challenges, interventions must be culturally sensitive, fostering an environment supportive of self-care and providing resources for informed decision-making.

DCPs highlighted the negative impact low SES had on post-migration. This acknowledgment underscores the multifaceted challenges that individuals from immigrant communities may encounter, including financial barriers that hinder access to essential resources for DSM. The level of education and income among immigrant patients with diabetes may contribute to the difficulties in understanding and controlling their condition (Hill-Briggs et al, 2020). Especially as inflation continues to increase in today’s economy, the elevated costs of medications and disease-specific care supplies pose further limitations on adequate DSM within the Hamilton region (Hill-Briggs et al, 2020). Previous studies have both directly and indirectly associated low SES to poor health outcomes (Gonzalez-Zacarias et al., 2016; Hill-Briggs et al, 2020). The stress stemming from economic inequality can increase the risk of poor control of glucose levels and diabetes complications (Gonzalez-Zacarias et al., 2016). This is manifested through challenges such as the inability to afford appropriate food, engage in healthy active living or recreational activities, manage glucose levels at home, and to access the healthcare system to receive proper treatment (Gonzalez-Zacarias et al., 2016). A study conducted by Gupre et al., (2015) investigated the differences in education levels and its association to glycemic levels and the factors contributing to the survival differences in older adults with diabetes. The findings of the study identified that those who attained high school or greater education were associated with better glycemic control and higher survival rates at follow-up in comparison to the participants with lower education (Gupre et al., 2015). This illustrates that the intersectionality of factors such as migration, socioeconomic status, and health is crucial for developing tailored strategies to support immigrant women in effectively practicing DSM.

For immigrant women, acculturation is a significant barrier to practicing DSM. The process of adjusting to a new environment can pose challenges, influencing different aspects of health, including the management of chronic conditions including diabetes. For example, a study conducted by Engelman and Ye (2019) discovered that although foreign-born Latinos started with a health advantage of having a lower prevalence rate of diabetes compared to their U.S born counterparts, with increased time of stay in the United States, their health deteriorated. It was also identified that the immigration and acculturation processes can elevate the risk of both diabetes and depression among foreign-born individuals (Engelman and Ye, 2019). The prevalence rates of depression are found to be three times higher in patients with type 1 diabetes and twice as high in people with T2D compared with the general population worldwide (Roy and Lloyd, 2012). Additionally, anxiety is reported in 40% of individuals with type 1 or T2D (Roy and Lloyd, 2012). The coexistence of depression and anxiety in diabetic patients worsens the prognosis of diabetes and increases the likelihood of non-adherence to medical treatment (Bădescu et al., 2016). Another study has supported that those with depression are less likely to engage in physical activity compared to those without depression (Nyboe and Lund, 2013). Understanding the link between diabetes and depression is critical to comprehend the role of comorbidities in DM.

Social isolation can significantly impact the ability of immigrant women to effectively manage diabetes. Immigrants often face the challenge of adapting to a new culture and society, which can result in feelings of loneliness and isolation. For immigrant women with diabetes, social isolation may exacerbate existing barriers to self-management. Limited social networks and language barriers can make it difficult to access essential resources and support systems (Pandey et al, 2022). Immigrant women often experience a profound sense of loss attributed to the absence of support to preserve their traditional practices (Pandey et al, 2022). Findings of this study align with earlier work, in that immigrant women in their study described a disconnection from the support networks they once had in their home countries (Pandey et al, 2022). Many women from this study also articulated being overwhelmed by motherhood, highlighting the impact of lacking adequate support when bearing a child (Pandey et al, 2022). It is noteworthy that loneliness is associated with various health issues, including cardiovascular disease, high cholesterol levels, high blood pressure, and heightened morbidity and mortality (Xia and Li, 2018). Thus, this illustrates the further research needed to understand how clear and effective communication with DCPs can help to overcome barriers as such and assess the risk for loneliness and social isolation.

## **5.4 Health Care System Related Factors**

 DCPs have found that the availability of interpretation services within their healthcare setting makes it much easier for them to communicate with their patients. Interpretation services bridge this gap, ensuring that healthcare information is accurately conveyed, and patients can fully comprehend their diagnosis, treatment plans, and self-management strategies. It has been found that when using language interpreters, including bilingual DCPs and staff, patients have positive health outcomes (Heath et al., 2023). These include increased rates of preventive screening, increased likelihood of receiving lifestyle counseling, greater healthcare satisfaction, improved medication adherence and reduced emergency department return rates (Heath et al., 2023). According to Pandey et al., (2021) the presence of language interpreters in health settings goes beyond linguistic translation to bridge cultural gaps, facilitating a more comprehensive understanding of health advice for immigrant women. This not only fosters trust and positive patient-provider relationships but also empowers immigrant women to actively engage in discussions about their health, ask questions, and make informed decisions (Pandey et al, 2021). This not only cultivates trust between DCPs and their patients, but also works to empower these women to actively participate in discussions about their health, pose questions, and make informed decisions (Pandey et al, 2021). The use of interpreters has been consistently linked to improved cultural sensitivity, patient empowerment, and enhanced adherence to DSM practices (Pandey et al, 2021).

 Lack of training in providing specialized care for diabetes pertaining to immigrant women is something DCPs found to be a barrier. Based on the responses of DCPs highlighting the importance of tailoring diabetes management guidelines as there is not a ‘one-size-fits-all’ approach to DSM. Specifically enhancing cultural competence and sensitivity is crucial when delivering care to individuals with different intersections varying in age, gender, ethnicity, etc. (Shiyanbola et al., 2022). However, it is widely acknowledged that cultural discordance may contribute to ethnic disparities in healthcare access, potentially impacting the quality of patient–practitioner communication (Shiyanbola et al., 2022). Despite healthcare professionals perceiving their cultural knowledge as lacking, the cultural beliefs and practices discussed in relation to the patient groups they serve align with those reported in the literature (Shiyanbola et al., 2022). Addressing culture within education has proven beneficial for diabetes self-management and glycemic control, underscoring the significance of practitioner knowledge, and our data further emphasize the importance of cultural confidence (Shiyanbola et al., 2022).

 The lack of diversity in both clinical research and diabetes care teams is a notable concern in the healthcare landscape. It can pose challenges in understanding and addressing the distinct needs of patients, particularly those from minority or marginalized communities (Haw et al., 2021). Despite the higher prevalence of diabetes in racial and ethnic minorities, these individuals are less likely to receive recommended preventive care for diabetes. The prevalence rates of diabetes are approximately twice the amount among Black, Hispanic, and Indigenous populations when compared to their white counterparts (Briskin, 2022). Recognizing and addressing these gaps are essential for promoting inclusivity in research, enhancing cultural competence in healthcare teams, and ultimately improving the quality of diabetes care for all individuals, regardless of their background.

 The lack of DSM promotion among immigrant women is a notable challenge that has implications for their health outcomes. Limited awareness campaigns targeted specifically at immigrant communities may contribute to gaps in knowledge about diabetes prevention, management, and available resources. To develop effective interventions, program developers must identify an audience-centered planning process that provides a foundation for culturally innovative interventions. The purposes and functions of social marketing align with the movement to create culturally innovative interventions (Martinez-Cardoso et al., 2020). Specifically, social marketing aims to identify and respond to cultural mores, norms, and social intricacies within a target audience (Martinez-Cardoso et al., 2020). By promoting public awareness, health authorities and organizations can empower immigrant women with the knowledge necessary for effective diabetes prevention and management, ultimately contributing to improved overall health within these communities.

## **5.6 Recommendations**

 Based on the findings of this study there are three major recommendations for DCPs immigrant women and the health system to improve DSM among immigrant women living in Hamilton, ON. These include developing interdisciplinary and diverse diabetes care teams, developing culturally competent DSM guidelines and the final suggestion is to advertise community health screenings.

### *Interdisciplinary and Diverse Diabetes Care Teams*

Many individuals usually find out that they are either pre-diabetic or have diabetes after visiting their family physician, however with limited time and increased wait times, patients find it a struggle to thoroughly discuss DSM effectively with their physician (Fritz, 2017). In order to successfully care for the psychosocial and medical needs of the expanding diverse diabetes population requires innovative and tailored strategies. One strategy is developing interdisciplinary diabetes care teams by having family physicians work with dieticians, nurse clinicians, diabetes specialists, and pharmacists. This can help achieve more informed decision making among the immigrant women population (McGill et al., 2016). For adults with T2D, the interdisciplinary team approach involving specialists such as nurses, dietitians, and primary care physicians has shown better results in A1C, blood pressure, lipids, and overall care compared to receiving care from only a family physician (McGill et al., 2016). Hamilton Health Sciences and The Hamilton Family Health Team have incorporated interdisciplinary care teams for diabetes and it encouraged other diabetes care centers to do so as well. Equally crucial is guaranteeing inclusivity across all genders, ages, ethnicities, and other social determinants within the team. A diverse and inclusive team has the potential to enhance the health outcomes of varied population groups. DCPs are encouraged to broaden their knowledge by challenging themselves to understand diverse cultural perspectives on health, illness, dietary practices, and Western medicine.(Kelly et al., 2022). During their professional training, many DCPs are instilled with the notion that the Western standard for a healthy lifestyle should be the benchmark against which all others are measured. It is imperative to shift this mindset, as such a perspective can inadvertently impede the provision of effective care, particularly for those who adhere to traditional and holistic practices (Kelly et al., 2022). For example, The Hamilton Urban Core Community Health Centre has been addressing health inequities such as poverty, racism, discrimination, unemployment & homelessness, faced by people living in Hamilton (Mission., n.d.). They have also been conducting a virtual program where a diverse and interdisciplinary diabetes care team works to educate those with diabetes using health activities, short excursions and guest speakers (Mission., n.d.). This serves as a positive illustration of how to address the diabetes prevalence issue in Hamilton.

### *Culturally Competent DSM Guidelines*

 Culturally tailored guidelines can address the unique needs, beliefs, and practices of various cultural groups, fostering better understanding in DSM. By incorporating cultural competence into these guidelines, DCPs can establish trust and effective communication with patients, leading to improved adherence to DSM treatment plans (Goff et al., 2020). In a qualitative study conducted by Goff et al., (2020) it was identified that patients perceived racially concordant DCPs to be more capable of building trust. However, for non-racially concordant practitioners, the utilization of culturally tailored resources was found to be instrumental in establishing rapport with patients. There are also some DSM education programs that fail to address psychosocial, medical and sociocultural factors influencing DSM among immigrant women (Goff et al., 2020). This includes crucial elements highlighted in previous research, such as self-efficacy and the impact of racial discrimination and mistrust in the health system (Goff et al., 2020). Acknowledging and integrating these factors into DSM education programs and guidelines is important to ensure a more comprehensive and effective approach to proper DSM practices.

### *Advertise Community Health Screenings*

 Screening for diabetes involves an assessment of individuals to detect the presence of the condition, especially in cases where individuals may be unaware of their diabetic status or not displaying noticeable symptoms (Diabetes Canada, 2018). This process can also identify individuals who are found to be pre-diabetic. The strategies for screening depends on the type of diabetes (ie. Type I, Type 2, Gestational) and the evidence supporting effective interventions to prevent the progression of prediabetes to diabetes or reduce the risk of complications associated with diabetes. According to a meta-analysis conducted by Barry et al., (2017), interventions for individuals identified through screening as having prediabetes show some effectiveness in preventing or delaying the onset of type 2 diabetes. This underscores the importance of proactive screening measures and targeted interventions to address the complex landscape of diabetes and promote better health outcomes.

## **5.7 Study Strengths**

One of the major strengths of this study is that it addresses significant gaps in the existing literature. There are significantly few studies that focus on immigrant women and diabetes in particular and even fewer studies examining the perspectives of DCPs within the Hamilton region, which is becoming largely populated by minorities and newcomers. This study tackles this by examining different DCPs including primary care providers, a dietician, a nurse clinician, a diabetes specialist, and a diabetes educator in order to grasp factors influencing DSM among immigrant women from a range of provider perspectives. A thorough exploration of DCP’s perspectives regarding proper DSM practices offers local insights into existing strengths and areas that require attention for the formulation of forthcoming initiatives and programs. A strength regarding the methodology is that the use of semi-structured interviews helps provide a framework for the interview, ensuring key topics are covered, while allowing room for the exploration of unanticipated insights. The questions were aimed to learn from the participants and reduce researcher bias.

## **5.7 Study Limitations**

A major limitation to this study was the lack of obtaining perspectives on the factors influencing DSM from the immigrant women themselves. Thus, for future research it may be very interesting to investigate the perspectives of immigrant women to better understand the factors and ensure the implementation of effective policies and programs within the Hamilton region. Many of the DCPs also mentioned factors influencing women with diabetes rather than specific to those who immigrated to Canada thus, there may be some reporter bias as well. We conducted interviews with DCPs at Boris Clinic, St. Joseph's Healthcare Hamilton, and the Hamilton Family Health Team which may be a limitation as the perspectives gathered from these three diabetes services may not completely represent the viewpoints of all DCPs in Hamilton, ON especially given that these organizations have diabetes supports available. Other physicians in the Hamilton area do not have the same access to these resources.

## **5.8 Conclusion**

 In conclusion, the purpose of this study was to understand the factors influencing DSM among immigrant women in Hamilton, ON from the perspectives of DCPs. The findings highlighted several factors that can be used to advertise screenings, and policies and programs to improve prevalence of diabetes among this vulnerable population. The reflections from the DCPs can improve areas of personal, structural and institutional spaces of diabetes care. As mentioned previously, DSM is very important to decrease the prevalence of diabetes in Ontario and this can be achieved by ensuring the implementation of culturally competent services. Enhanced collaboration among DCPs supporting newcomers could enhance access to diabetes education programs and alleviate DSM challenges. Moreover, building on interdisciplinary and diverse diabetes care teams can help improve connectivity and trust required for immigrant women to openly discuss their concerns and needs, facilitating the effective direction towards the appropriate services.

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 **Appendix A**

**Interview Discussion Guide for Providers**

**Demographics**

Gender:

Type of healthcare provider:

Number of years working in the diabetes clinic:

Age:

**General questions**

**I would like to ask some general questions relating to the self-care support you provide to type 2 diabetes patients who visit this clinic**

1. Please describe your responsibilities with regard to type 2 diabetes care. 2. What type of self-care behaviours do you usually recommend to type 2 diabetes patients?

3. What type of advice or assistance do you usually offer to type 2 diabetes patients to help them manage their diabetes? Probe: advice, education or information

4. How often do you talk to type 2 diabetes patients about their self-care behaviours?

**Provider attitude**

**Now I would like to ask you questions regarding what you think about your role in providing self-care support and the benefits of patients’ adherence to self-care behaviours**

5. Do you think it is part of your health care professional role to provide self-care support to type 2 diabetes patients? Probe for reasons

6. How important do you think it is that type 2 diabetes patients perform self-care behaviours?

**Patient level barriers**

**Next, I would like to ask you about what your encounter with patients who identify as woman and are immigrants to Canada when they are trying to manage their diabetes.**

7. How well do you think your immigrant women understand type 2 diabetes?

8. What type of self-care advice do your immigrant women ask for most frequently? Probe to find out whether patients have misconceptions regarding self-care behaviours.

9. How well do you think your immigrant women with type 2 diabetes follow self-care advice?

Prompt regarding each of:

• Dietary

• Exercise

• SMBG

• Medications

• Foot care

10. (If non-adherence): What do you think are the reasons why some type 2 diabetes immigrant women do not follow self-care advice?

11. How do you think culture influences your type 2 diabetes immigrant woman patient’s ability to self-care for their disease?

12. To what extent do you think your type 2 diabetes immigrant woman patient get support from their family and/or society to self-care for their disease? Probe for explanations

**Provider level**

**Now I would like to know the barriers you experience in providing diabetes self-care support to type 2 diabetes patients who identify as an immigrant woman.**

13. What things assist you with providing diabetes self-care support to immigrant woman with type 2 diabetes?

14. What do you think are some things that make it difficult for you to provide diabetes self care support to immigrant woman with type 2 diabetes?

15. What barriers do you encounter when providing self-care support to immigrant woman with type 2 diabetes in terms of the following (allow participant to provide barriers to each of the items listed below)

a. During the consultation when providing self-care support

b. In accessing comprehensive and up-to-date information about self-care support c. Seeking advice and support from other healthcare providers

d. Any other areas that were not covered above

**Practice level**

**Next our discussion will focus on barriers you experience at the institutional level when providing self-care support to type 2 diabetes patients.**

16. What barriers do you encounter at the practice level while providing self-care support for your type 2 diabetes immigrant woman patients (e.g. barriers with organization of diabetes care, insurance policies, guidelines for diabetes self-care, etc)?

**Email/Telephone to Diabetic Care Providers from the Student Researcher:**

Greetings,

Thank you so much for reaching out to me with your interest in joining me for an interview regarding the communication barriers between diabetic care providers and immigrant women diagnosed with diabetes. My name is Kasthuri Satgunanathan from the faculty of Health Sciences at McMaster University. I am currently engaged in a research project supervised by Dr. Lydia Kapiriri. As mentioned, our study aims to explore patient-diabetic care provider communications related to diabetes management among immigrant women in the Greater Hamilton Area.

We are particularly interested in understanding the experiences of care providers when communicating the health benefits of proper diabetes management to migrant women residing in Hamilton, ON. Additionally, we seek to gain insights into the factors influencing diabetes self-management according to diabetic care providers and immigrant women diagnosed with diabetes, from the perspectives of the care providers.

The interview process will involve a virtual session conducted over Zoom, with a duration of approximately 45 to 60 minutes. We will schedule the interview at a time that is convenient for. We greatly value and appreciate the participation of your diabetes care team in this study, as their insights will significantly contribute to our understanding of this important issue.

If you are still interested in participating in this study or have any inquiries or require further clarification about the study, please feel free to reach me via email at satgunk@mcmaster.ca or by phone at (647) 507-0807 and we can chose a date and time that works best for you. Thank you for your valuable time and consideration.

Cheers,

Kasthuri Satgunanathan



**LETTER OF INFORMATION / CONSENT**

**Diabetic Care Providers Perspectives on Type 2 Diabetes Management Among Immigrant Women in Hamilton, Ontario: A Qualitative Study**

**Investigators:**

**Local Principal Investigator:** **Student Investigator:**

Dr. Lydia Kapiriri Kasthuri Satgunanathan

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**Purpose of the Study**

This study aims to understand how Diabetic Care Providers (DCPs) practicing in the Greater Hamilton Area interact and engage with immigrant women to manage Type 2 Diabetes. DCPs will encompass a range of professionals, including endocrinologists, primary care providers, certified diabetes educators, registered dieticians, diabetes nurse specialists, and exercise physiologists specialized in diabetes care. Despite the availability of evidence-based guidance to deliver effective diabetic care, many patients fail to follow recommendations, especially newcomers to Canada. Thus, this study will also aim to identify the barriers DCPs find their female immigrant clients/patients face to adopt healthy diabetes management practices through the perspective of their providers.

You are invited to take part in this study on managing type 2 diabetes. We want to understand how DCPs communicate ways to managing type 2 diabetes among immigrant female patients. We are hoping to learn how to improve adherence to healthy diabetes management practices among immigrant women. We also hope to find out ways to tailor the delivery of health recommendations taking into consideration different social determinants of health that may inhibit behaviour change.

**Procedures involved in the Research**

This study will be conducting 45-60 minutes semi-structured individual interviews with diabetic care providers meeting the eligibility criteria. We will be contacting DCPs working at either the Boris Clinic or St. Josephs Healthcare Hamilton. We hope to interview 10 DCPs, however through snowball sampling more interviews will occur to reach saturation if unmet. All interviews will be completed virtually using the Zoom online platform to collect data, which is an externally hosted cloud-based service. A link to their privacy policy is available here (https://explore.zoom.us/en/privacy/). While the Hamilton Integrated Research Ethics Board has approved using the platform to collect data for this study, there is a small risk of a privacy breach for data collected on external servers.

If you are concerned about this, we would be happy to make alternative arrangements for you to participate, perhaps via telephone. Please talk to the student investigator if you have any concerns.

We will be asking you questions that prompt discussion surrounding your communication to immigrant women with type 2 diabetes about diabetes management recommendations as well as the barriers you have identified your patients to experience that hinders them from undergoing behaviour change. With your permission, the interviews will be audio-taped and additional notes will be typed through a laptop. We will also ask you for some demographic/background information like your age and education.

Sample questions:

1. Share your experience as a diabetic care provider with immigrant woman in Hamilton, Ontario. What are the challenges and successes you have encountered?
2. Describe your thoughts on immigrant women’s experiences of having diabetes education delivered in the health facilities and clinics? What were the advantages or disadvantages?
3. Are there any specific changes you make to the way you or other diabetic care providers practiced/delivered care to women who are newcomers?

**Potential Harms, Risks or Discomforts:**

The risks involved in participating in this study are minimal. **I**t is not likely that there will be any harms or discomforts from attending the interview. One potential risk is the fear of being judged if perceived to be talking negatively about immigrants/diabetics care providers.

You do not need to answer questions that you do not want to answer or that make you feel uncomfortable, and you can stop to take a break during anytime of the interview. You can withdraw (stop taking part) at any time. We describe below the steps we are taking to protect your privacy.

**Potential Benefits**

The research will not benefit you directly. We hope to learn more about your interactions with your patients/clients who identify as women and newcomers to Canada who are trying to manage their diabetes. I hope that what is learned as a result of this study will help us to better understand the barriers experienced by diabetic care workers when working with immigrant women with diabetes. This could help to develop future programs, services and/or policies aimed to tailored diabetic care in the Hamilton region.

**Confidentiality**

You are participating in this study confidentially. We will not use your name or any information that would allow you to be identified. To safeguard your identity, we will employ generic terminology like "participant," or "respondent," to refer to you in the study. Additionally, a unique number will be assigned to you when making comparisons (e.g. Participant 1 and 2) and be consistently used throughout the paper. The same de-identification process will apply if we use direct quotes that you state to protect your identity. This approach supports anonymity while facilitating differentiation between participants. No one but the student investigator (Kasthuri Satgunanathan) and the Principal Investigator (Dr.Lydia Kapiriri) will know you participated. The employer will not know if you participated or not, and that it would have no effect on staff performance evaluations.

For the purposes of ensuring proper monitoring of the research study, it is possible that representatives of the Hamilton Integrated REB (HiREB), this institution, and affiliated sites or regulatory authorities may consult your original (identifiable) research data to check that the information collected for the study is correct and follows proper laws and guidelines. By participating in this study, you authorize such access. By participating in this study, you do not waive any rights to which you may be entitled under the law.

The de-identification process includes:

1. The student investigator transcribes the interview recordings, capturing the spoken words by you. Once the recording has been transcribed and edited to be accurate, the recordings (identifiable data) will be destroyed.
2. The student investigator will carefully review the transcripts and remove any personal identifiers, such as names, addresses, specific locations, or any other information that could directly identify the participants. De-identifiable data will be used for the manuscript and will be kept in the McMaster University OneDrive, which the principal investigator will have access to, until the student investigator graduates (ie. most probably June of 2024).
3. You will be assigned a unique number. This ensures that your identities are protected while still allowing for differentiation within the study.
4. If necessary, data may be combined to further anonymize the information especially when diabetic care providers raise similar themes.

The interviews will be conducted using the online video communications software, Zoom, and the sessions will be recorded. We will utilize the transcription feature available through Zoom's closed captioning service. To ensure the accuracy of the transcriptions, the student investigator will review the verbal captions. Once the transcriptions are confirmed to be accurate, they will be de-identified, and the recorded interviews will be deleted. The transcriptions will be securely transferred to McMaster University OneDrive as soon as they are deemed accurate. The confidentiality and privacy agreement of Zoom can be found at the following link: <https://explore.zoom.us/en/privacy/>.

During the interviews, you will have the choice to keep your cameras on or off based on your preference. It is important to note that the recording is solely for transcription purposes and will be deleted once the transcription process is complete.

**Participation and Withdrawal**

Your participation in this study is voluntary and there will be no compensation provided. It is your choice to be part of the study or not. If you decide to be part of the study, you can decide to stop (withdraw) at any time, even after signing the consent form or part-way through the study. If you decide to withdraw, there will be no consequences to you. You have the option of removing your data from the study OR information provided up to the point where you withdraw will be kept unless you request that it be removed. If you do not want to answer some of the questions you do not have to, but you can still be in the study.

**Information about the Study Results**

We expect to have this study completed by approximately *September 2023.* If you would like a summary of the results, please let me know how you would like it sent to you.

**Questions about the Study**

If you have questions or need more information about the study itself, please contact me at:

satgunk@mcmaster.ca or 647.507.0807.

This study has been reviewed by the Hamilton Integrated Research Ethics Board (HiREB). The HiREB is responsible for ensuring that participants are informed of the risks associated with the research, and that participants are free to decide if participation is right for them. If you have any questions about your rights as a research participant, please call the Office of the Chair, HiREB, at 905.521.2100 x 42013.

**CONSENT**

I have read the information presented in the information letter about a study being conducted by Kasthuri Satgunanathan, MSc Global Health graduate student of McMaster University.

I have had the opportunity to ask questions about my involvement in this study and to receive additional details I requested.

I understand that if I agree to participate in this study, I may withdraw from the study at any time.

I will not make an unauthorized recording of the interview session held over Zoom.

I will be given a signed copy of this form. I agree to participate in the study.

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Name of Participant (Printed) Signature Date

Consent form explained in person by:

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Name and Role (Printed) Signature Date

1. For the purpose of this thesis, the terms Type 2 Diabetes (T2D) and diabetes will be used interchangeably. [↑](#footnote-ref-1)