Type II Diabetes Mellitus Care for patients with Limited English Proficiency: Assessment of patient outcomes and barriers to optimum care

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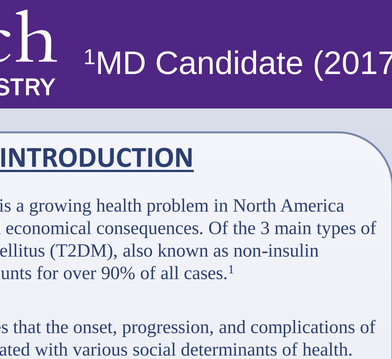
INTRODUCTION

Diabetes Mellitus (DM) is a growing health problem in North America with serious medical and economical consequences. Of the 3 main types of DM, Type II Diabetes Mellitus (T2DM), also known as non-insulin dependent diabetes, accounts for over 90% of all cases.[1]

Recent evidence indicates that the onset, progression, and complications of T2DM is strongly associated with various social determinants of health. There have been great advances in the treatment and management of T2DM however, self-management remains to be a key component of the treatment regime, which further highlights the importance of considering the social determinants of health. Self-management involves adherence to prescribed medications, dietary control, regular exercise, monitoring blood glucose, and attending regular follow-up appointments. Thus, not surprisingly, language barrier is cited as one of the main determinants of poor disease management.[2] Ethnicity has also been associated with T2DM where certain subpopulations in Canada such as refugees/immigrants of South Asian and African ancestry have higher rates of T2DM.[3] Furthermore, there are several lifestyle choices that can affect the onset of the disease and its progression. Major lifestyle risk factors for T2DM are obesity (BMI ≥ 25), sedentary lifestyle, unbalanced diet, and smoking.[4] Therefore, it is essential for the physician to consider the various social determinants of health to provide optimal care to the patient.

Figure 1: Prevalence of DM by province/territory, Canada 2008/09[3]

	Age-standardized prevalence (%)
Newfoundland and Labrador	6.5
Prince Edward Island	5.6
Nova Scotia	6.1
New Brunswick	5.9
Quebec	5.1
Ontario	6.0
Manitoba	5.9
Saskatchewan	5.4
Alberta	4.9
British Columbia	5.4
Yukon	5.4
Northwest Territories	5.5
Nunavut	4.4



OBJECTIVES

There has been extensive research on the impact of social determinants of health on T2DM, however, patient outcomes and barriers to care in refugees/immigrants with T2DM and Limited English Proficiency (LEP) are yet to be assessed. We aimed to assess patients' adherence to the recommended testing and treatment as outlined by the Canadian Diabetes Association - Clinical Practice Guidelines and analyse common barriers to care. The project will enable us to better understand how care is currently delivered to this subpopulation and assess how well a subset of patients are doing with T2DM management on a local scale.

MATERIALS AND METHODS

This study is a retrospective chart review of 12 adult patients (age ≥ 18 years) with T2DM and communication barriers, namely LEP who are immigrants/refugees and seen in the community family practice in the preceding twelve months in London, Ontario, Canada. The patients who met the inclusion criteria were selected by the family physician from the clinic database using purposive sampling. The diagnosis of T2DM was made based on the Canadian Diabetes Association - Clinical Practice Criteria. The study was approved by Western University's Health Sciences Research Ethics Board.

Data collected from the patients' charts was organized into seven broad categories: i) Demographics (age, sex, country of origin, and primary language spoken), ii) Basic Diabetes parameters (Body Mass Index, smoking status, and blood pressure), iii) Glycemic control (Hemoglobin A1c, random blood glucose, and fasting blood glucose), iv) Lipid profile (HDL, LDL, and total cholesterol), v) Kidney function (ACR), vi) Social history (use of interpreter, mention of lifestyle modifications, and barriers to care), vii) Administrative data (number of total visits for Diabetes-related problem, no-shows/cancellations of appointment, and referral to the Diabetes clinic).

Data was analysed using descriptive statistics (Microsoft Excel) for quantitative variables such as age, hemoglobin A1c, blood pressure etc. and content analysis for qualitative variables such as use of interpreter, barriers to care or challenges patients encountered with disease management.

RESULTS AND DISCUSSION

All 12 patients were refugees/immigrants to Canada, of which 75% of the patients did not speak English as their primary language. Several measures of Diabetes management and risk factors for complications such as Body Mass Index (BMI), blood pressure, glycemic control (measured by hemoglobin (Hb) A1c and fasting blood glucose), and LDL were above the recommended target in the study population (Table 1). None of the 12 patients had a healthy/normal BMI (< 25) and 75% of the patients had elevated blood pressure above the recommended target during the study period. A similar trend was observed with glycemic and lipid control as 50% of the patients did not meet the recommended Hb A1c target and 64% of the patients failed to the meet the LDL target, both of which are important markers for Diabetes-related complications.

Table 1: Summary of descriptive analysis for quantitative variables

Variable	Mean	Range
Age (years)	57	37 – 78
BMI	30.9*	25.7 – 46.7
Smokers (%)	25%	
Interpreter use (% of patients)	75%	
Blood Pressure (mmHg)	130/77	
Hb A1c	0.070	0.049 – 0.113
Hb A1c (most recent)	0.073*	0.052 – 0.082
Fasting blood glucose (mmol/L)	8.99*	6.5 – 15.7
LDL (mmol/L)	2.41*	0.84 – 3.67
% of total visits for Diabetes-related problems	30%	0% - 67%

** denotes values above Canadian Diabetes Association's clinical targets[5]*

Self-management is an essential component of the Diabetes treatment regime, which is highlighted in our results as 83% of the patients had 1 or more discussions with the family physician regarding lifestyle modifications (Table 2). These discussions emphasized the importance of adherence to medications, monitoring blood glucose, and maintaining a healthy BMI through regular exercise and healthy eating. However, less than 25% of the patients actually reported making significant lifestyle changes and non-adherence to glycemic control was reported by 64% of the patients. The most common reasons for non-adherence were misconceptions regarding medications, poor knowledge/education about Diabetes, and cultural barriers. Language barrier, as hypothesized, seemed to be a major barrier preventing optimal care in our subpopulation (Table 2). Patients reported difficulty understanding their medication regime, using the home glucometer, and asking questions about their condition because of LEP. These results further highlight the importance of effective communication between the patient and physician, specifically with regards to T2DM education, to improve adherence and overall therapeutic outcomes.

Social factors are an important component of chronic disease management because poor support systems have a negative impact on the patient's overall health. Our results indicate that 55% of the patients reported social instability because of stressful marital life, poor support system, traumatic exit from their home country, cultural shift, or poverty as a major barrier which further complicates their T2DM management (Table 2).

Table 2: Summary of content analysis for qualitative variables

Variable	Major themes	% of patients
Lifestyle modifications discussion	Weight loss	80%
	Healthy eating	40%
	Importance of glycemic control	20%
Barriers to care	Language barrier	75%
	Non-adherence to medications	64%
	Social instability	55%
	Financial constraints (including transportation)	35%

The main limitations of the study were low sample size and the use of purposive sampling. However, it must be noted that our study was designed as a framework for larger projects to further explore the results. In order to minimize confounding and subjective biases arising from a chart review, we created the data sheet with all the study variables before reviewing the chart and all the charts were reviewed by the same person.

CONCLUSION AND FUTURE DIRECTIONS

Patients with Limited English Proficiency living in Canada face several challenges (language, social, and financial barriers) which prevent them from receiving optimal care and adhering to the management regime. Our results highlight the importance of effective communication and consideration of social determinants of health to improve overall therapeutic outcomes.

The ultimate goal would be to develop culturally adaptable interventions, which can be feasibly implemented in family practices for patients with language barriers by using this project as the foundation. One example of an adaptable intervention would be the implementation of a cultural food guide (Figure 2) outlining the nutritional content and a diet plan from the common food types of each culture. These strategies would aid the family physician in achieving common grounds with the patient in hopes of increasing adherence to disease management. Future studies can further explore the barriers to care and adherence to disease management in this subpopulation with the addition of a language-specific Diabetes educator as an intervention.

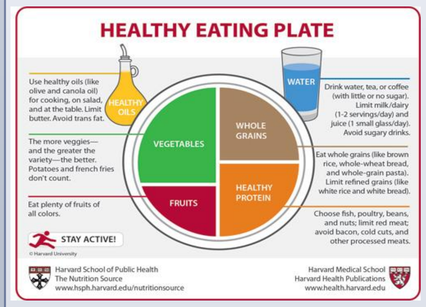


Figure 2: Modifiable Diabetes food guide based on language/culture[6]

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