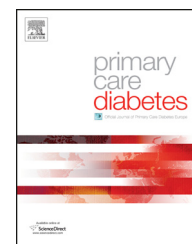




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Original research

Family physician ethnicity influences quality of diabetes care for Chinese but not South Asian patients



Baiju R. Shah^{a,b,c,*}, Jeremiah Hwee^a, Sonia S. Anand^d, Peter C. Austin^{a,b}, Douglas G. Manuel^{a,e}, Janet E. Hux^{a,1}

^a Institute for Clinical Evaluative Sciences, Toronto, ON, Canada

^b University of Toronto, Toronto, ON, Canada

^c Department of Medicine, Sunnybrook Health Sciences Centre, Toronto, ON, Canada

^d McMaster University, Hamilton, ON, Canada

^e University of Ottawa, Ottawa, ON, Canada

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ABSTRACT

Aims: To determine whether sharing the same ethnicity as their family physician influenced the quality of diabetes care for Chinese and South Asian patients in Ontario, Canada.

Methods: We conducted two related studies: a population-based cohort study of Chinese and South Asian patients with incident diabetes using health care administrative data ($n=49,484$), and a cross-sectional study of Chinese and South Asian patients with established diabetes using data collected directly from their family physicians' clinical records ($n=416$). In both studies, quality of care measures were compared between patients whose family physicians were or were not from the same ethnic group.

Results: In the cohort study, Chinese patients whose family physicians were also Chinese were more likely to have a diabetes-related family physician visit and appropriate HbA1c and cholesterol testing. In the cross-sectional study, they were more likely to have foot examinations, to have microalbuminuria testing, and to achieve recommended treatment targets for HbA1c and for LDL-cholesterol. In contrast, for South Asian patients, most quality measures in either study did not differ by physician ethnicity.

Conclusions: Having a family physician from the same ethnic group was associated with better quality of diabetes care for Chinese but not for South Asian patients.

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* Corresponding author at: G106 – 2075 Bayview Avenue, Toronto, ON, Canada M4N 3M5. Tel.: +1 416 480 4706; fax: +1 416 480 6048.
E-mail address: baiju.shah@ices.on.ca (B.R. Shah).

¹ Present address: Canadian Diabetes Association, Toronto, Ontario, Canada.

1. Introduction

Disparities in chronic disease care for ethnic minority populations are well documented [1-3], but the modifiers of these disparities are uncertain. For example, the ethnicity of their primary care physician may influence the quality of care received by minority patients [4]. Physicians from the same ethnic group may be able to overcome language barriers to care, and may have a better understanding of the patient's dietary practices or cultural norms. American studies have shown that minority patients with physicians report greater satisfaction and fewer unmet care needs with physicians from the same ethnic group [5,6]. This literature has also suggested better access to and utilization of care, and improved quality of care [7-9]. However, a study specifically of patients with diabetes found that physician ethnicity had no impact on glycemic, blood pressure or lipid control for African-American and Hispanic patients [10]. There are no studies on the impact of physician ethnicity for minority patients from other countries, and limited data for other ethnic groups.

Diabetes, an archetypal and increasingly prevalent chronic disease [11], leads to reduced quality of life and premature mortality [12,13]. Research in many jurisdictions has found that quality of care at a population level falls short of recommended targets [14-16]. Ethnic minorities may be particularly vulnerable [17-19], although in our jurisdiction, minorities receive similar quality of care to the general population, albeit still below recommended goals [20]. We conducted two related studies with an objective to determine whether sharing the same ethnic origin as their family physician influenced the quality of diabetes care for Chinese and South Asian patients in Ontario, Canada.

2. Methods

2.1. Design, data sources and patient selection

We conducted these studies in Ontario, Canada's most populous province, using different study designs, data sources, patient populations and outcome measures. First, we conducted a population-based cohort study. The study used health care databases from the government-funded health insurance program of the Ontario Ministry of Health and Long-Term Care, which provides coverage to all permanent residents of Ontario. The data used in the study included demographic information for all Ontario residents, demographic and practice information for all licensed physicians in Ontario, claims data from physicians and clinical laboratories for fee-for-service reimbursement, and abstracts of all hospitalizations and emergency department visits. We also used the Ontario Diabetes Database (ODD), a registry derived from administrative data that identifies all people with physician-diagnosed non-gestational diabetes in Ontario. When validated against chart review, the ODD was found to have a sensitivity of 86% and a specificity of 97% [21]. Although the database does not distinguish between types of diabetes, the vast majority of cases would have type 2 diabetes. Individual patients and physicians are linked between all the

databases and across time through unique but anonymous numbers.

Using the ODD, all individuals in Ontario newly diagnosed with diabetes between January 1, 2000 and December 31, 2008 were identified. Inclusion criteria were age ≥ 20 years, eligibility for provincial health insurance for ≥ 2 years (to ensure that new immigrants with prevalent diabetes were not inadvertently included as incident cases due to a lack of prior data), and Chinese or South Asian ethnicity. Because Canadian health care data do not contain ethnic identifiers, we identified Chinese and South Asian patients by identifying all those whose earliest known surnames (i.e., before name changes through marriage) matched two lists of surnames validated in this population to have excellent positive predictive values when compared to self-reported ethnicity (91.9% for Chinese and 89.3% for South Asian) [22]. In Ontario, virtually all primary care is delivered by family physicians. Each patient was assigned to their regular family physician based on ambulatory billing claims [23]; those patients who could not be assigned to a family physician were excluded.

Although population-based health administrative data are comprehensive for examining health service utilization, they lack the detailed clinical information needed to more broadly assess quality of care. To overcome this limitation, we also conducted a cross-sectional study of clinical quality of care measures by reviewing patients' clinical records in their family physicians' offices. We enrolled randomly selected family physicians practicing in neighborhoods where $\geq 25\%$ of the population reported either Chinese or South Asian ethnicity in the 2006 Canadian census. (These neighborhoods are all in Toronto or its suburbs.) Enrolment was stratified by self-reported physician ethnicity. In each participating physician's practice, we randomly selected up to 10 patients who were age ≥ 18 years, had type 2 diabetes for ≥ 2 years, and had Chinese or South Asian ethnicity (based on recorded ethnicity in the clinical record, or reported by the physician). Details of the abstraction are presented elsewhere [20].

2.2. Exposure and quality of care measures

In the cohort study, physicians were identified as Chinese or South Asian based on their surnames as noted above. To improve sensitivity in identifying ethnic minority physicians, we also included as Chinese or South Asian those who had graduated from a medical school in (respectively) China, Taiwan or Hong Kong; or India, Pakistan, Bangladesh or Sri Lanka. This additional surrogate information for ethnicity was available through the physician registration data. In the cross-sectional study, physician ethnicity was self-reported.

Patients in the cohort study were followed using the claims data for 2 years after diabetes diagnosis to determine the following process measures of quality of care, derived from recommendations in national diabetes clinical practice guidelines [24]: at least one family physician claim for an ambulatory diabetes-related care visit, at least one ophthalmologist or optometrist claim for a retinal screening visit, at least four laboratory claims for HbA1c tests, and at least two laboratory claims for cholesterol tests. The clinical quality of care measures evaluated in the cross-sectional study were glycemic control (most recent HbA1c $\leq 7.0\%$ [53 mmol/mol]),

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