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ORIGINAL PAPER

Regular Dental Care Utilization: The Case of Immigrants in Ontario, Canada

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Abstract

Considering the critical role of oral health on people's well-being, access to regular dental care to improve oral health may be a useful medium for improving immigrant integration and settlement in Canada. Using the 2013–14 Canadian Community Health Survey, this study contributes to the literature and policy by examining if there are disparities in regular utilization of dental care among recent immigrants, established immigrants, and the native-born in Ontario, Canada. Adopting Andersen's behavioural model of health services use as a conceptual framework, we introduce three sets of variables in our statistical analysis including predisposing, need, and enabling factors. At the bivariate level, recent (OR = 0.42, $p < 0.001$) and established immigrants (OR = 0.81, $p < 0.001$) are less likely to use dental care at least once a year than their native-born counterparts. Once accounting for enabling characteristics, however, we observe that the direction of the association becomes positive for established immigrants (OR = 1.15, $p < 0.05$). The difference between recent immigrants and the native-born is partially attenuated when we control for enabling characteristics but remains statistically significant (OR = 0.73, $p < 0.05$). Based on these findings, we provide several implications for policymakers and future research.

Keywords Dental care · Oral health · Immigrants · Ontario · Canada · Canadian community health survey

Introduction

Commonly referred to as the 'healthy immigrant effect', immigrants are often observed to have better physical and mental health than the native-born at the time of their arrival although their initial health advantage tends to disappear within five to 10 years [1]. In addition to physical and mental health, there is a growing yet scanty body of the literature that investigates the oral health of immigrants in large immigrant-receiving societies including Canada [2]. According to Calvasina, Muntaner, and Quiñonez [3], for example, the proportion of adult immigrants with dental problems is nearly tripled after two years of their arrival to Canada. Research also observes that recent immigrants have a similar level of oral health to the native-born; however, immigrants report worse oral health after staying in Canada for more than 10 years [4].

Representing more than 20% of Canada's population, it is concerning that immigrants are at risk of developing poor oral health. Evidence points to the systemic linkage between periodontal diseases and chronic diseases such as hypertension, diabetes, respiratory disease, coronary heart disease, and cardiovascular disease [5]. Thus, poor oral health is a potential factor that may partly unpack the complex nature of the 'healthy immigrant effect'. In addition, oral health is closely related to the ability to eat, swallow, smile, speak, and kiss, which influences people's social, economic, and psychological well-being [6]. In this context, poor oral health is one of the potential barriers to immigrants' successful integration and settlement into the host society.

While there are a wide range of behavioural and social characteristics that shape oral health, the literature often points to the lack of regular dental care use as a critical determinant of poor oral health [7]. Reflecting on the importance of regular dental care, research and practitioners have

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recommended every adult to use dental care at least once year, with variation on their oral health needs and medical history [8]. Despite its universal health care system, Canada treats dental care almost exclusively private and market-based [9]. Consequently, 56% and 38% of dental care is covered by private insurance and out-of-pocket expenditures respectively [10]. It is estimated that one in six Canadians reports cost as a primary reason to avoid or decline necessary dental care treatment [11]. Indeed, access to dental care has persistently been difficult for many Canadians including the middle-income population [12].

Yet, there are several reasons why disadvantaged populations such as immigrants may face additional unique barriers to regular access to dental care in Canada. For example, research shows that immigrants, particularly recent immigrants, often face labour market challenges in the host society, leading to economic vulnerabilities such as poverty, low income, underemployment, and unemployment [13, 14]. Research also notes that some immigrants may continue to struggle economically even after staying in Canada for more than 10 years [15]. In addition to economic barriers, immigrants may be exposed to social and cultural barriers to regular use of dental care. Contemporary immigrants predominantly come to Canada from non-European regions such as Asia, Africa, Middle East, and Latin America, sharing distinctively different cultural characteristics from the native-born. As a result, communication and language barriers may act as an obstacle for some immigrants to use dental care services [16]. Similarly, recent immigrants may lack comprehensive knowledge on Canada's healthcare system including dental care [17]. Research also points to racial discrimination as a barrier to health care utilization in Canada [18].

Despite these potential economic, cultural, and social barriers, there are only few studies that investigate adult immigrants' dental care utilization in Canada. Using the 1996–97 National Population Health Survey, for example, it is observed that immigrants are more likely to use dental care services than their native-born counterparts [19]. By contrast, Bedos, Brodeur, Benigeri, and Olivier find that recent (10 years or less in Canada) and established female mid-aged immigrants (more than 10 years) are both less likely to use preventive dental care services than their native-born counterparts in Quebec [20]. Another research also shows that 32% of very recently arrived immigrants (4 years after their arrival to Canada) have dental problems for which they did not receive dental care [21]. The current study advances the literature by 1) examining whether recent (less than 10 years in Canada) and established immigrants (10 years or more in Canada) are less likely to have access to regular use of dental care than the native-born, and if so, 2) identifying which factors may explain such disparities.

Method

This study uses data from the 2013–14 Canadian Community Health Survey (CCHS). The CCHS was made available publicly by Statistics Canada. Therefore, ethical approval was not required for this study. The CCHS uses the three sampling frameworks (e.g., an area frame, a list frame, and a random digit dialling) to obtain a representative sample of respondents aged 12 and above from 10 provinces and three territories. The sampling frameworks excluded residents living on reserves, full-time members of the Canadian Forces, and institutionalized populations. In the 2013–14 CCHS, the variables on oral health and its related behaviours were available as an optional module and collected only in Ontario. Given the focus on adult population in this study, this study also limited the sample to those aged 18 years or older. To this end, this study includes the weighted sample of 667,170 recent immigrants, 2,537,924 established immigrants, and 6,420,345 native-born Canadians. As a secondary analysis of the public use microdata file from the CCHS, this study did not require any ethics review.

Dependent Variable

The dependent variable for this study is 'regular use of dental care'. Respondents were asked the frequency of their dental care visit (0 = more than once a year for check-ups; 1 = about once a year for check-ups; 2 = less than once a year for check-ups; 3 = only for emergency care). According to the Canadian Dental Association, there is no standardized time frame for dental check-ups, stating that there may exist wide variations in the frequency in the use of dental care based on practitioners' assessments of individuals' oral health conditions [22]. However, it has been observed that for early detection and treatment, some practitioners and researchers have recommended regular dental check-up at least once a year [8].

Independent and Control Variables

The independent variable is 'length of residence in Canada'. This variable indicates how immigrants have been in Canada [0 = native-born; 1 = recent immigrants (less than 10 years); 2 = established immigrants (10 years or more)]. This coding strategy is largely consistent with the literature on the 'healthy immigrant effect' in Canada [1]. In addition to length of residence in Canada, we included a wide range of control variables to account for potential confounding factors. Control variables are informed by Andersen's behavioural model of health services use [23]. According to this framework, there are three sets of potential factors that affect people's health care utilization including predisposing, need,

and enabling factors. Predisposing factors capture social structure and demographic characteristics. Accordingly, we include visible minority status, gender, marital status, age of respondents, employment status, and level of education. Moreover, the cause of dental care services access may include functional and oral problems that lead to the need for dental care utilization. To account for this need factor, we include self-rated oral health in the analysis. Finally, enabling factors reflect economic and financial resources that enable people to use health care services. There are two enabling factors in the analysis, namely household income and dental insurance.

Statistical Analysis

There are two separate analyses in this study. For one, we employed the cross-classification analysis of the dependent and independent variables by length of residence in Canada. In addition, we employed the regression analysis to estimate the relationship between the dependent and independent variables. For the regression analysis, we employed the logistic regression analysis due to the binary nature of the dependent variable [24]. Models are built sequentially. In Model 1, we estimate the bivariate relationship between immigrant status and regular dental care utilization while Models 2, 3, and 4 further account for predisposing, need, and enabling factors. For the ease of interpretation, we reported findings with odds ratios (ORs). ORs larger than 1 imply that people were more likely to use dental care at least once a year, while those smaller than 1 indicate lower odds of doing so. We used sampling weights provided by Statistics Canada to account for survey representativeness and non-response.

Results

Table 1 shows findings from the cross-classification analysis. It is interesting that only 57% of recent immigrants use dental care regularly although this figure sharply rises to 72% and 76% for established immigrants and the native-born, respectively. We also observed different demographic characteristics across three groups. For example, the majority of recent immigrants (83%) was visible minority although it was only 27% and 10% for established immigrants and the native-born respectively. The proportion of those who were older than 65 years old was the smallest for recent immigrants (4%), followed by the native-born (15%) and established immigrants (26%). In addition, 18% of established immigrants rated their oral health to be poor, while it was 14% for both recent immigrants and the native-born. It is also noteworthy that both recent and established immigrants had lower levels of income and dental insurance coverage than their native-born counterparts.

Findings from logistic regression analysis are shown in Table 2. At the bivariate level, we found that both recent ($OR = 0.42$, $p < 0.001$) and established immigrants ($OR = 0.81$, $p < 0.001$) were less likely to use dental care at least once a year than their native-born counterparts in Model 1. Interestingly, its impact for established immigrants ($OR = 1.05$, $p > 0.05$) became no longer significant once predisposing factors, particularly age of respondents, were adjusted for in Model 2, although its impact for recent immigrants remained statistically robust ($OR = 0.52$, $p < 0.001$). The relationship between immigrant status and regular use of dental care remained consistent after controlling for self-rated oral health in Model 3. However, when household income and dental insurance status were taken into consideration in Model 4, the difference between recent immigrants and the native-born was largely attenuated ($OR = 0.73$, $p < 0.05$) although the difference between established immigrants and the native-born was rather suppressed ($OR = 1.15$, $p < 0.05$).

In addition to immigrant status, several control variables were significantly associated with regular use of dental care. For example, visible minorities ($OR = 0.70$, $p < 0.001$) and males ($OR = 0.63$, $p < 0.001$) were both less likely to use dental care at least once a year than their white and female counterparts. Similarly, people with some post-secondary education ($OR = 0.75$, $p < 0.05$), secondary education ($OR = 0.70$, $p < 0.001$), and less than secondary education ($OR = 0.40$, $p < 0.001$) were all less likely to use dental care at least once a year than those with post-secondary education. People with poor self-rated oral health were also less likely to use dental care than those with good oral health ($OR = 0.36$, $p < 0.001$). Moreover, people with lower income were less likely to use dental care than those with higher income. Finally, people with government-assisted dental insurance ($OR = 0.67$, $p < 0.01$) and no insurance ($OR = 0.25$, $p < 0.001$) were less likely to use dental care than those with employer-based dental insurance.

Discussion and Conclusions

Considering the critical role of oral health on people's social, economic, physical, and psychological well-being, access to regular dental care to improve oral health may be a useful medium for improving immigrant integration and settlement in Canada. This study contributes to the literature and policy by examining if there are disparities in regular utilization of dental care among recent immigrants, established immigrants, and the native-born in Ontario, Canada. We found at the bivariate level that recent and established immigrants are less likely to use dental care regularly than their native-born counterparts. This is consistent with Bedos et al. [20], observing in Quebec that recent and established

Table 1 Cross-classification analysis of dependent and independent variables by immigrant status

	Native-born	Recent immigrants	Established immigrants	p value
Regular access to dental care				***
No	24	43	28	
Yes	76	57	72	
Visible minority status				***
White	90	17	73	
Visible minority	10	83	27	
Gender				
Female	51	52	51	
Male	49	48	49	
Marital status				***
Currently married	59	67	71	
Formerly married	12	4	15	
Never married	29	29	14	
Age of respondents				***
18–24	15	15	5	
25–34	18	34	11	
35–44	17	35	16	
45–54	19	8	21	
55–64	16	4	21	
> 65	15	4	26	
Employment status				***
Employed	58	55	49	
Self-employed	11	8	12	
Unemployed	31	37	39	
Level of education				***
Post-secondary	61	69	61	
Some post-secondary	6	6	3	
Secondary	23	18	22	
Less than secondary	10	7	14	
Self-rated oral health				***
Good	86	86	82	
Poor	14	14	18	
Household income				***
$80,000 or more	50	30	40	
$60,000-$79,999	15	11	16	
$40,000-$59,999	15	24	18	
$20,000-$39,999	14	25	18	
$20,000 or less	6	10	8	
Dental insurance status				***
Employer-based	50	45	44	
Government-assisted	7	3	4	
Privately purchased	5	6	6	
No insurance	38	46	46	
Weighted Ns	6,420,345	667,170	2,537,924	

*p < 0.05, **p < 0.01, ***p < 0.001

Results shown in percentage

Table 2 Logit models of 'regular use of dental care' in Ontario, Canada

	Model 1 OR (SE)	Model 2 OR (SE)	Model 3 OR (SE)	Model 4 OR (SE)
Focal independent variable				
Immigrant status				
Native-born	1.00	1.00	1.00	1.00
Recent immigrants	0.42 (0.05)***	0.52 (0.07)***	0.50 (0.07)***	0.73 (0.10)*
Established immigrants	0.81 (0.05)***	1.05 (0.07)	1.08 (0.07)	1.15 (0.08)*
Predisposing factors				
Visible minority status				
White		1.00	1.00	1.00
Visible minority		0.65 (0.05)***	0.67 (0.05)***	0.73 (0.05)***
Gender				
Female		1.00	1.00	1.00
Male		0.70 (0.03)***	0.72 (0.04)***	0.63 (0.03)***
Marital status				
Currently married		1.00	1.00	1.00
Formerly married		0.59 (0.04)***	0.61 (0.04)***	0.91 (0.07)
Never married		0.67 (0.05)***	0.71 (0.05)***	1.08 (0.08)
Age of respondents				
18–24		1.00	1.00	1.00
25–34		0.47 (0.05)***	0.50 (0.05)***	0.57 (0.06)***
35–44		0.56 (0.07)***	0.63 (0.08)***	0.68 (0.08)**
45–54		0.72 (0.09)**	0.83 (0.11)	0.93 (0.12)
55–64		0.70 (0.08)**	0.79 (0.09)	0.89 (0.11)
> 65		0.57 (0.07)***	0.59 (0.07)***	0.93 (0.11)
Employment status				
Employed		1.00	1.00	1.00
Self-employed		0.62 (0.06)***	0.63 (0.06)***	1.08 (0.11)
Unemployed		0.60 (0.04)***	0.66 (0.05)***	1.03 (0.07)
Level of education				
Post-secondary		1.00	1.00	1.00
Some post-secondary		0.65 (0.08)***	0.69 (0.08)**	0.74 (0.11)*
Secondary		0.58 (0.04)***	0.61 (0.04)***	0.70 (0.05)***
Less than secondary		0.26 (0.02)***	0.28 (0.02)***	0.40 (0.03)***
Need factor				
Self-rated oral health				
Good			1.00	1.00
Poor			0.31 (0.02)***	0.37 (0.03)***
Enabling factors				
Household income				
$80,000 or more				1.00
$60,000-$79,999				0.63 (0.05)***
$40,000-$59,999				0.55 (0.04)***
$20,000-$39,999				0.43 (0.04)***
$20,000 or less				0.29 (0.03)***
Dental insurance status				
Employer-based				1.00
Government-assisted				0.67 (0.08)**
Privately purchased				0.86 (0.11)
No insurance				0.25 (0.02)***
Log pseudo-likelihood	− 5,527,418.83	− 5,132,383.63	− 4,957,088.24	− 4,588,543.10
Wald X2	61.43***	867.21***	1160.12***	1779.03***
Pseudo R2	0.01	0.08	0.11	0.19

OR odds ratio; *SE* standard error

*p < 0.05, **p < 0.01, ***p < 0.001

female middle-aged immigrants are less likely to use preventive dental care services than the native-born. Recent studies reveal that the oral health of immigrants tends to decline over time after their arrival to Canada [3, 4]. Consequently, it is possible that immigrants' transition into poorer oral health over time may be due to structural barriers that limit their regular access to health care, including dental care [16].

To explore the factors contributing to the disparity in the regular use of dental care between immigrants and native-born, we employed multivariate logistic regression analysis. We observed that several enabling and predisposing factors explained the lower utilization rate of recent and established immigrants in comparison to their native-born counterparts. For example, enabling factors, dental insurance and household income in particular, partly explained the disparity in dental care utilization between recent immigrants and the native-born. This result may be explained by previous research [11, 12], suggesting that recent immigrants' economic precarity may be preventing them from regular dental care utilization as financial constraints have been reported as a major barrier to using dental care, particularly among vulnerable and economically deprived populations in Canada [25]. As our analysis shows that employer-based dental insurance is useful for accessing dental care regularly, it is possible that recent immigrants, who are more likely to experience labour market and economic challenges than the native-born, may be exposed to additional barriers to pay for dental insurance. However, it is noteworthy that the significant disparity in regular dental care access between recent immigrants and the native-born was not fully explained by predisposing, need, and enabling factors. As most recent immigrants to Canada are originating from Asia, Middle East, Latin America, and Africa, it is possible that their underutilization of dental care is further shaped by linguistic and cultural issues such as language barriers, and lack of cultural competence of dentists and dental hygienists. This problem may further be compounded by immigrants' lack of knowledge of Canada's dental care system [16, 17].

We also found that established immigrants' lower rate of regular dental care utilization relative to the native-born was first largely explained by age. This result may be explained by previous research [25, 26], which documents that older people are often exposed to financial challenges, leading to their underutilization of dental care. As our cross-classification analysis indicates that established immigrants are older than the native-born on average, the negative impact of age on dental care utilization may be particularly impactful to them. Moreover, this relationship was suppressed by enabling factors, possibly implying that established immigrants have similar level of regular dental care utilization to the native-born, when age is taken into consideration, despite their financial disadvantages, namely low household income and dental insurance coverage. There are at least two possible explanations for this trend. For one, immigrants are likely to acculturate over time and learn behaviours that are common in the host society after their arrival to Canada [27]. For instance, although dental care infrastructure is documented to be scarce in many immigrant origin regions, it is possible that immigrants adopt the value that dental care is important to oral health. For another, research suggests that immigrants' oral health often deteriorates with an increasing length of stay in Canada [3]. This negative oral health trajectory may inform a positive attitude towards taking care of oral health and maintaining oral hygiene among established immigrants, which possibly promotes regular access to dental care, despite their persistent socioeconomic disadvantages.

There are two findings that are particularly important for providing important suggestions for policymakers. First, recent immigrants' lower dental care utilization was largely explained by their inadequate household income and dental insurance coverage. This is likely a reflection of the exclusion of dental care from Canada's universal healthcare system, treating dental care as a privilege. As a result, socioeconomic disadvantaged groups such as recent immigrants can be structurally exposed as they experience barriers to accessing regular dental care. Second, despite their relative socioeconomic disadvantages, established immigrants have similar level of regular dental care use as the native-born. Previous research suggests that some economically disadvantaged households incur dental care debts when they have to take care of uninsured dental care expenses [28, 29]. This pattern may be particularly relevant for established immigrants. Considering these findings, it is clear that recent and established immigrants are exposed to unique financial issues for dental care access, although it is certainly an issue for many middle-income Canadians as well [3, 11]. If dental care is not to be part of Canada's universal healthcare system, it is recommended that affordable dental care is provided for immigrants with limited financial resources. In addition, it is possible that recent immigrants are uniquely exposed to cultural and linguistic barriers to dental care utilization. As immigrants come from many world regions, policymakers should pay attention to implementing culturally and linguistically competent dental care in Canada.

There are some limitations to this study. For example, it is ideal to account for the cohort effect, in addition to the duration effect, to understand the role of length of stay in Canada on dental care utilization. This is because immigrants in earlier cohorts are likely to share different cultural and economic characteristics than more recent ones [30]. Specifically, it has been argued that human capital characteristics such as education and professional experiences tend to differ between immigrants from earlier cohorts and more recent immigrants [31, 32]. However, the cross-sectional nature of the CCHS did not allow us to explore the role of

this cohort effect on dental care utilization. In addition, our analysis was limited to Ontario. Previous research shows that there may be different patterns in immigrant integration and settlement between non-gateway such as Atlantic Canada and Prairies and gateway destinations such as Ontario [33, 34]. It is important for future research to extend the analysis to non-gateway destinations. Moreover, admission class has been understood as an important risk factor of optimal health among immigrants in Canada [35]. Thus, it is crucial for research to explore whether dental care utilization differs among economic class immigrants, family class immigrants, and refugees. Finally, the CCHS did not have any information on cultural understanding of oral health. It is likely that immigrants' perception of oral health influences their dental care utilization. Similarly, research shows that some immigrants rely on traditional remedies to take care of their oral health such as plants, herbs, and massage [36]. These limitations point to the importance of developing a comprehensive longitudinal survey that captures immigrants' experiences in oral health and dental care utilization in Canada. Despite these limitations, our study is one of the few studies to explore immigrants' dental care. Findings are useful for policy and extending the literature on oral health and the 'healthy immigrant effect' in Canada.

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Declarations

Conflict of interest The authors declare that there is no conflict of interest.

Ethical Approval Statistics Canada granted ethical approval and participants provided informed consent.

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