Beyond finance: Overcoming barriers to oral health care for immigrant children

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PRACTICAL IMPLICATIONS OF THIS RESEARCH

- Policymakers need to expand their scope beyond financial limitations and recognize the many barriers to oral health care utilization within immigrant populations.
- Interventions should prioritize cultural competency, tailoring strategies to address the diverse cultural backgrounds of immigrant populations.
- Further qualitative exploration is essential to uncover factors influencing oral care decisions, enabling the development of more targeted and effective interventions.

ABSTRACT

Background: This study evaluated the effectiveness of community referrals to complimentary oral care services in improving access to care for immigrant children in Canada. It also explored financial and non-financial factors influencing parental adherence to their children's oral care referrals. **Methods:** Data from 610 parent–child pairs, including demographics and oral health behaviours of children aged 1 to 12 years, were analyzed. Oral health examinations were conducted at a community site, and 151 children needing treatment were referred to a university dental clinic. Univariate analyses and backward stepwise logistic regression identified factors associated with attending at least one oral care appointment. **Results:** Among the 151 referred children (average age: 6 years), 48% were girls and 40% were born in Canada. Only 42% had visited a dentist in the past year and only 36% had dental coverage. Oral health behaviours varied; 40% brushed their teeth once or less daily and 46% consumed at least one sugary snack per day. Approximately 66% of mothers had college education or higher. Despite the offer of complimentary care, attendance at referred appointments was 38%, with higher attendance among girls ($p = 0.025$). **Discussion:** Despite the elimination of financial barriers to oral care, attendance at appointments remained low, emphasizing the role of non-financial factors, including the unique social and cultural challenges encountered by immigrants, in accessing oral health care. Higher attendance among girls suggests gendered parental perceptions of oral health care. Addressing these factors requires culturally tailored outreach and improved provider–family communication. **Conclusions:** Financial support alone is insufficient to improve access to oral care for immigrant children. A multidimensional approach addressing both financial and non-financial barriers is essential to enhance oral health care utilization.

RÉSUMÉ

Contexte : Cette étude a évalué l'efficacité des aiguillages communautaires vers des services de soins buccodentaires gratuits afin d'améliorer l'accès aux soins pour les enfants immigrants au Canada. Elle examinait également les facteurs financiers et non financiers qui influent sur l'adhésion des parents aux aiguillages de leurs enfants vers des services de soins buccodentaires. **Méthodes :** On a analysé les données de 610 paires parents–enfants, notamment des données démographiques et les comportements en matière de santé buccodentaire d'enfants âgés de 1 à 12 ans. Des examens dentaires ont été menés dans un site communautaire, et 151 enfants ayant besoin d'un traitement ont été aiguillés vers une clinique dentaire universitaire. Des analyses unidimensionnelles et une régression multiple descendante ont permis de cerner les facteurs associés à la participation à au moins un rendez-vous de soins buccodentaires. **Résultats :** Parmi les 151 enfants aiguillés (âge moyen : 6 ans), 48 % étaient des filles et 40 % étaient nés au Canada. Seulement 42 % avaient visité un dentiste au cours de l'année précédente et seulement 36 % avaient une couverture dentaire. Les comportements en matière de santé buccodentaire variaient; 40 % se brossaient les dents une fois par jour ou moins et 46 % consommaient au moins une collation sucrée par jour. Environ 66 % des mères avaient fait des études collégiales ou supérieures. Malgré l'offre de soins gratuits, la participation aux rendez-vous recommandés s'élevait à seulement 38 %, le taux de participation étant plus élevé chez les filles ($p = 0{,}025$). **Discussion :** Malgré l'élimination des obstacles financiers aux soins buccodentaires, la participation aux rendez-vous est demeurée faible, soulignant le rôle des facteurs non financiers, notamment les défis sociaux et culturels uniques auxquels font face les immigrants, dans l'accès aux soins de santé buccodentaire. Un taux de participation plus élevé chez les filles suggère une perception parentale sexospécifique des soins de santé buccodentaire. La prise en compte de ces facteurs exige une sensibilisation adaptée à la culture et une meilleure communication entre les fournisseurs de soins et les familles. **Conclusions :** Le soutien financier à lui seul est insuffisant pour améliorer l'accès aux soins buccodentaires pour les enfants immigrants. Une approche multidimensionnelle visant à éliminer les obstacles financiers et non financiers est essentielle pour améliorer le recours aux soins de santé buccodentaire.

Keywords: barriers to dental care; children's oral health; dental care utilization; immigrants
CDHA Research Agenda category: access to dental hygiene care and unmet needs

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INTRODUCTION

Dental caries is among the most prevalent chronic diseases experienced by children worldwide.[1,2] However, it is largely preventable through adherence to oral hygiene, a low-sugar diet, and regular dental or dental hygiene visits.[3,4] Research from the Longitudinal Survey of Immigrants to Canada (LSIC) indicates that, during the first 4 years after arrival, immigrants often face significant barriers to employment, education, housing, and health care.[5] These barriers, compounded by geographic, economic, linguistic, and cultural challenges, as well as lack of medical and dental insurance, significantly hinder their ability to access necessary health services, ultimately affecting both their general and oral health.[5-10]

Canada has experienced a steady influx of immigrants in recent decades. According to the 2021 census, Canada welcomed over 8.3 million new immigrants and permanent residents, comprising one quarter of the entire Canadian population. This marked the highest number of newcomers since Confederation.[11] In addition, according to Statistics Canada, the number of foreign-born children or children with at least one foreign-born parent under 15 years of age in 2021 was approximately 1.9 million. This corresponds to 31.5% of the total number of Canadian children, compared to 26.7% in 2011.[11] The number of children with immigrant backgrounds is expected to increase to 39.3%, representing 49.1% of the total population of children living in Canada aged 15 years and younger in 2036.[12] Therefore, it is becoming increasingly urgent to address the health and oral health care needs of this growing population.[6,13]

Children of immigrants experience worse oral health outcomes than their Canadian-born counterparts.[14] It is also well documented that oral health care utilization patterns of immigrants differ from those of Canadian-born individuals in that immigrants have a tendency to attend oral care appointments on a symptom-driven basis, rather than for preventive care.[10,15] In the long run, immigrants' lower utilization of preventive oral care services for their children may lead to the progression of dental decay, causing disturbed sleep and impaired eating habits, and ultimately, failure to thrive.[10,16,17] A previous study conducted by this research team among African immigrants in Edmonton, Canada, showed a high prevalence of children's dental caries due to limited oral health care utilization and parents' unawareness of their children's oral health status.[18] Furthermore, a lack of regular preventive oral care visits may lead to greater incurred costs associated with subsequent treatments, possibly requiring sedation or general anesthesia, which place a larger financial burden on the family and health care system more broadly.[19] A study conducted on children in a community clinic found that dental surgery treatments for early childhood caries were significantly more likely to be provided to those from low-income households.[20]

The low utilization of professional oral care services is influenced by a variety of factors, creating a multidimensional challenge for oral health care providers. The Andersen health care utilization model highlights 3 key concepts that may explain this phenomenon. The first concept includes predisposing factors such as demographics, social structure, health beliefs, and psychosocial elements.[21] The second group, enabling factors, involves socioeconomic status (SES), while the third group focuses on need-related factors such as children's oral health care utilization and the frequency of oral care visits.[21,22] Lack of dental insurance and low income have typically been flagged as predominant barriers to oral health care utilization in Canada.[6,15] Therefore, initiatives aimed at reducing or eliminating the barrier of cost have been expected to improve access to care among vulnerable groups. A study on the utilization of preventive oral care services in Quebec revealed a significant disparity, with immigrants accessing preventive care less frequently than non-immigrants.[23] Although the study underscored the impact of financial barriers on oral care attendance patterns, it also suggested that the difference in utilization rates between the 2 populations was not solely attributable to a lack of dental insurance.

To improve access to oral health care among recent immigrants in Edmonton, Canada, an oral health care team conducted examinations on young children at community locations and referred those in need of treatment to the university dental clinic, where care was provided at no cost. Despite the removal of financial barriers, many referred patients did not seek care or attend their appointments. This finding suggests that other factors, beyond cost, play a significant role in access to care. Research by Bedos et al.[14] highlights the strong influence of cultural barriers and other non-financial factors on oral health care utilization among immigrants. While existing literature identifies financial barriers as the principal cause of limited oral health care utilization in a Canadian context,[8,9,14] there is a lack of primary research on the impact of other factors when financial constraints are removed. Therefore, the aims of this study were to 1) evaluate the attendance rate of young children at the university dental clinic following community referral, and 2) identify key factors influencing parents' compliance with these referrals for their children's oral care visits.

METHODS

This study was a retrospective, quantitative study. Ethical approval was obtained from the University of Alberta Research Ethics Board (Protocol No. 00072345). All procedures performed in studies involving human participants were in accordance with the ethical standards of the University of Alberta Research Ethics Board and with the 1964 Helsinki Declaration and its later amendments or comparable ethical standards. Data collected from 2015 to 2019 from 610 parent–child dyads, involving children aged 1 to 12 years, were utilized. All children had received oral health examinations in various community locations convenient for most participants and where they received assistance after immigrating to Canada. These examinations were performed by the same 2 calibrated examiners using mobile equipment, including a portable dental chair, artificial light, and a sterilized mirror and explorer. Both intercalibration and intracalibration were completed prior to data collection. The examinations, followed by the completion of a questionnaire by the parents, were carried out over several weeks. The World Health Organization's recommended DMFT/dmft index was used for determining dental caries levels. The DMFT/dmft index measures the total number of decayed, missing, and filled teeth, with a low DMFT/dmft score indicating a low caries level.[24]

Of the 610 examined children, 151 were referred to the university dental clinic to receive treatment at no cost. These referrals were made based on 3 factors: 1) upon examination, the children were deemed to need oral health care, 2) the difficulty of the cases were within the scope of the school clinic, and 3) children and parents agreed to the referral. The cohort referred to the university clinic was identified in Axium, a software used to manage patient records, appointments, treatment plans, and clinical documentation, using the children's names from the referral forms. The research team checked for their admission to the pediatric dentistry clinic and determined, by deduction, which children were not admitted. It is possible that some children sought private oral health care, which could explain any missing records.

To assess the study outcomes, Axium was used to document key metrics related to oral health care access and utilization among referred children. The main outcome variables were attendance at the university clinic, appointment booking, and registration rates. Attendance was measured by assessing whether each referred child attended at least one appointment following their referral. Appointment booking and registration rates in Axium served as measures of compliance with referral appointments and provided insights into the engagement of immigrant families with the oral health care services offered.

Data from the research team's previous project were used, including demographics (child's gender, date of birth, dental coverage; mother's education, family income levels, country of origin, and length of time living in Canada; family structure [living with both parents or single parent]); children's oral health behaviours as reported by their parents (last dental appointment, toothbrushing frequency, and sugar intake frequency); and children's caries experience determined by DMFT/dmft scores.[25,26] Comparisons were made between compliant and non-compliant families based on demographic variables, parental self-reported oral health behaviours, and children's DMFT/dmft scores to identify factors affecting the attendance rate.

Statistical analysis

Statistical analyses were conducted to examine the association between demographic variables and 3 main outcomes. Demographic characteristics and oral health behaviours were summarized using counts (N), percentage (%), mean with standard deviation (SD) and as appropriate. The outcome variables were categorized as attendance (Yes/No), appointment booking (Yes/No), and registration in Axium (Yes/No). Backward stepwise logistic regression was applied to retain only significant predictors of attendance, and odds ratios (OR) with 95% confidence intervals (CI) were reported. This method begins with a saturated model and in each step gradually eliminates variables to find a reduced model that best explains the data. All analyses were conducted using SPSS version 27.0 (IBM Corp., Armonk, NY, USA).

RESULTS

Among the 610 children, 51.2% were girls, and 57.3% were born in Canada. The mean (SD) age of mothers was 36 (±6.8) years and 63% had college or higher education. Approximately 38.8% of families were middle-income earners ($2000 to $4000 per month) and their average (SD) length of time living in Canada was 8 (±18.6) years. Regarding their oral health, 57% had no dental coverage and 42% had attended an oral care appointment within the last year. Approximately 64.2% of children brushed their teeth twice or more per day, and 29.2 % consumed one or more sugary snack per day. The mean (SD) DMFT/dmft score was 3.49 (±4.0) with a maximum of 18.

Of the 610 screened children in the community, 151 referred children were included in this analysis. The mean (SD) age of referred children was 6 (±2.4) years, 48% were girls, and 40% were born in Canada. The mean (SD) age of mothers was 37 (±6.3) years and 66% had college or higher education. Approximately 40% of families were middle-income earners ($2000 to $4000 per month) and their average (SD) length of time living in Canada was 5.2 (±3.9) years. Of all referred children, 36% had dental coverage and 38% had attended an oral care appointment within the last year. Approximately 40% of children brushed their teeth once or less per day, and 46% consumed one or more sugary snack per day. The mean (SD) DMFT/dmft score was 6.4 (±4.0) (Tables 1 and 2).

Table 1. Demographic characteristics of participants

	All referrals	Registered		Attended	
		Yes	No	Yes	No
Number of participants, N (%)	151 (100)	74 (49)	77 (51)	57 (38)	94 (62)
Child's age, mean (SD)	6 (2.4)	6.2 (2.4)	5.6 (2.5)	6.0 (2.4)	5.8 (2.5)
Females, N (%)	73 (48)	42 (57)	31 (40)	34 (60)	39 (41)
Males, N (%)	78 (51)	32 (43)	45 (60)	23 (40)	55 (59)
Born in Canada, N (%)	63 (40)	28 (38)	35 (46)	21 (37)	42 (45)
Living with both parents, N (%)	130 (86.1)	68 (92)	62 (81)	52 (91)	78 (83)
Mother's age, mean (SD)	37 (6.3)	37 (5.8)	36 (6.9)	38 (5.4)	36 (6.8)
Mother's education, N (%)					
High school	49 (32)	27 (36)	22 (29)	18 (32)	31 (33)
College and higher	100 (66.2)	46 (62)	54 (70)	38 (67)	62 (66)
Number of children, N (%)					
1 child	36 (24)	16 (22)	20 (26)	10 (18)	26 (28)
≥2 children	109 (72.1)	55 (74)	54 (70)	47 (82)	62 (66)
Monthly income, N (%)					
<$2000	52 (34)	30 (41)	22 (29)	18 (32)	34 (36)
$2000 to $4000	61 (40)	29 (39)	32 (42)	26 (46)	35 (37)
>$4000	24 (16)	13 (18)	11 (14)	13 (23)	11 (12)
Those with dental coverage, N (%)	54 (36)	32 (43)	22 (29)	22 (39)	32 (34)
Years in Canada, mean (SD)	5.2 (3.9)	5.4 (4.0)	5.3 (3.8)	4.9 (3.8)	5.5 (4.9)

A series of backward stepwise logistic regressions were conducted to identify significant predictors of attendance, appointment booking, and registration in Axium. For appointment attendance, girls were significantly more likely to attend appointments (OR = 2.84; 95% CI: 1.29, 6.21). Additionally, with each unit increase in maternal age, the likelihood of attendance increased by 7% (OR = 1.07; 95% CI: 1.00, 1.14), and households with more children had higher odds of attendance (OR = 2.58; 95% CI: 1.06, 6.30) (Table 3). Regarding appointment booking, girls were also more likely to schedule appointments compared to boys (OR = 2.47; 95% CI: 1.13, 5.40) (Table 3). For registration in Axium, child's gender was a key factor, with girls being 2.72 times more likely to be registered than boys (OR = 2.72; 95% CI: 1.23, 6.03). Furthermore, children not living with both parents had lower odds of registration (OR = 0.33; 95% CI: 0.09, 1.19), whereas those with dental coverage were more likely to be registered (OR = 2.10; 95% CI: 0.93, 4.74) (Table 3).

DISCUSSION

Barriers that limit access to oral health care and the utilization of available services contribute to the poor oral health status of immigrants in Canada. Widely reported barriers in the literature include language and literacy levels, cultural norms, and socioeconomic conditions such as housing insecurity, low employment, and income.[27] Following migration to a new country, immigrants encounter numerous challenges such as language and cultural barriers, low socioeconomic status, and lack of medical and dental insurance coverage. These challenges can significantly affect their lives and may extend to their children as well. The low rate of oral health care utilization among immigrants is a notable consequence of these challenges. This trend is particularly evident in countries such as Canada, where the oral health care system is predominantly private.[28,29] Similar patterns have been observed in European nations such as Sweden and Germany.[30,31] While financial barriers are often identified as the primary obstacle to seeking and receiving care, it is essential to recognize that the constraints on oral health care utilization for immigrant children are intricate and multifaceted.[29] Therefore, the aims

Table 2. Oral health behaviours of referred children

	All participants	Registered	Not registered	Attended	Not attended
Number of participants	151 (100)	74 (49)	77 (51)	57 (38)	94 (62)
Dental brushing, N (%)					
≥2 times/day	91 (60)	35 (47)	52 (68)	31 (54)	60 (64)
≤1 time/day	60 (40)	39 (53)	25 (32)	26 (46)	34 (36)
Starting age for dental brushing by mothers, (N) (%)					
Before age 1	27 (18)	14 (19)	13 (17)	12 (21)	15 (16)
After age 1	124 (82.1)	60 (81)	64 (83)	45 (79)	79 (84)
Starting age for dental brushing by child, N (%)					
Before age 2	11 (7.3)	3 (4)	8 (10)	3 (5)	8 (9)
After age 2	136 (90.1)	69 (93)	67 (87)	53 (93)	83 (88)
Last oral care appointment, N (%)					
Within last year	58 (38)	30 (41)	28 (37)	24 (42)	34 (36)
Over 1 year	40 (26)	22 (30)	18 (23)	14 (25)	26 (28)
Never had an appointment	104 (68.9)	21 (28)	31 (40)	18 (32)	34 (36)
Sugar intake, N (%)					
Never or less than once a day	80 (53)	31 (42)	49 (63)	25 (44)	55 (59)
Once a day or more	69 (46)	42 (57)	27 (35)	31 (54)	38 (40)
DMFT/dmft score, mean (SD)	6.4 (4.0)	6.4 (4.1)	6.4 (4.0)	6.2 (4.0)	6.6 (4.1)
DT/dt score, mean (SD)	5.2 (4.2)	5.9 (4.0)	4.6 (4.4)	5.9 (3.9)	4.7 (4.3)

Table 3. Results of logistic regression analysis for the association between main outcomes and demographic variables

Demographics	Attended appointment OR (95% CI)	Booked appointment OR (95% CI)	Registered in Axium OR (95% CI)
Female gender	2.84 (1.29, 6.21)	2.47 (1.13, 5.40)	2.72 (1.23, 6.03)
Number of children	2.58 (1.06, 6.30)	2.29 (0.95, 5.55)	2.05 (0.85, 4.99)
Child's age	1.173 (0.99, 1.38)	–	1.17 (0.99, 1.38)
Mother's age	1.07 (1.00, 1.14)	1.06 (0.99, 1.13)	–
Child living with 1 parent	–	0.30 (0.83, 1.10)	0.31 (0.09, 1.19)
Child having dental coverage	–	2.13 (0.96, 4.77)	2.10 (0.93, 4.74)

OR = odds ratio; CI = confidence interval

of this study were to evaluate the effectiveness of community screenings and referrals for young children to the university dental clinic, and to identify factors affecting parents' compliance with referrals for their children's appointments when the cost is eliminated.

The recent implementation of the Canadian Dental Care Plan (CDCP), aimed at improving access to oral health care and reducing financial barriers, calls for an exploration of the factors influencing oral health care utilization among immigrant populations. Although the CDCP aims to improve the affordability of oral care services, it is crucial to differentiate between the accessibility of professional oral care and its actual utilization. The present study, well-aligned with existing literature, revealed that even with the elimination of financial barriers and the provision of no-cost referrals to the dental clinic, only 38% of referred patients attended their appointments. This finding underscores the existence of other distinct barriers faced by immigrants, such as social and cultural factors, which need to be addressed alongside financial obstacles.[32]

The dental hesitancy phenomenon, identified among culturally and linguistically diverse (CALD) populations, highlights 5 key barriers to accessing timely oral health care: cost, confidence, confusion, competing priorities, and complacency.[33] These "C" factors reflect the complex challenges that CALD mothers face in ensuring that their children receive oral health care.[33] Beyond financial limitations, other significant factors such as parental perceived need, attitudes towards oral health care, language barriers, and the prioritization of other post-migration challenges further contribute to the low uptake of oral care services among newcomers.[34] These compounded barriers intensify the inequalities in oral health care experienced by CALD communities.[33] Recognizing and addressing the complexity of the dental hesitancy phenomenon is crucial for developing effective strategies to improve oral health outcomes for immigrant populations.

Given that a significant number of immigrants to Canada originate from non-European regions, their diverse cultural backgrounds and languages other than English may limit their use of oral care services.[32] Racial discrimination has also been reported as a barrier to oral health care in Canada.[32] Furthermore, a lack of awareness among parents about the importance of oral health, coupled with insufficient knowledge about the CDCP and the Canadian health care system more generally, including oral health care guidelines, are additional obstacles.[25,32,35]

The present study observed a noteworthy correlation between girls and attendance at referral appointments. This finding aligns with prior research investigating variables linked to oral health care utilization.[9,10] The observed pattern might be attributed to heightened parental focus on their daughters' aesthetics, increased compliance with oral health-seeking behaviours,[36] and potentially greater awareness among girls of the repercussions of oral conditions.

High daily sugar intake was also significantly associated with registration in the university clinic's patient database, but not attendance. According to the Theory of Planned Behaviour (TPB), a well-known model in preventive health behaviours, intentions are considered key drivers of behaviour. However, a study focusing on TPB among children of newcomers revealed that intention alone did not significantly predict the utilization of oral care services.[25] Despite parents expressing an intention to take their children for oral care appointments, there was a notable absence of corresponding behavioural reports.[25] In this study, heightened sugar intake by children might amplify their parents' perception of the necessity for oral care services, translating intention into the act of scheduling appointments rather than the subsequent behaviour of attending them. This discrepancy could be attributed to challenges post-migration that potentially place a lower priority on children's oral health.

Based on the 2021 Canadian census, immigrants tend to be highly educated compared to their Canadian-born counterparts. A substantial number of Asian populations surpassed the national average of 32.9% in attaining a bachelor's degree or higher. More than 50% of the Korean, Chinese, South Asian, and West Asian communities, along with over 40% of the Arab, Japanese, and Filipino populations, achieved educational levels beyond a bachelor's degree. This finding could reflect the fact that education is a component in the selection process immigrants undergo prior to their arrival in Canada.

This study has some limitations. First, the self-administered questionnaires introduced the possibility of biased responses, potentially leaning towards socially desirable answers. Second, certain perceived or experienced barriers such as language and the time gap between the community screenings and clinic appointment calls were not specifically addressed in this study. Third, the Axium system's dependence on accurate data entry could result in incomplete or inconsistent records. Additionally, the system's reporting capabilities may be limited by institutional configurations, potentially affecting data extraction and report generation.

Despite these limitations, the study has notable strengths that significantly enhance its impact and reliability. The inclusion of data from 610 immigrant parents with children aged 1 to 12 years contributes to a large and representative sample size, bolstering the study's statistical power and ensuring a more inclusive understanding of the population under investigation.

Overcoming challenges in access to oral health care requires a multifaceted approach that extends beyond financial assistance. It must also include culturally competent care, education, and outreach initiatives tailored to the unique needs of immigrant communities. By implementing such strategies, policymakers and health care providers can work towards reducing disparities in oral

health care utilization and improving oral health outcomes for these vulnerable populations. Further qualitative exploration through interviews with parents of referred children may illuminate additional factors influencing oral care decisions, ultimately aiding in the development of more culturally and linguistically competent interventions.

CONCLUSIONS

This study highlights that financial constraints alone do not explain the low rates of oral health care utilization among immigrants in Canada. The findings emphasize the importance of considering additional factors, as evidenced by the high proportion of non-compliance with referrals despite the removal of financial barriers. The low attendance rates among referred children indicate that financial assistance alone is not enough to improve access to care, as non-financial barriers significantly influence compliance with referrals. A comprehensive approach that addresses both financial and non-financial challenges is essential to improving oral health care utilization among immigrant children. Policymakers should take these specific challenges into account when developing strategies to enhance access to oral health care.

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CONFLICTS OF INTEREST

The authors have no conflicts of interest to disclose.

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