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ABSTRACT

Background

This study explores the link between dental insurance, income, and oral health care access among seniors (aged 65 and over) in Canada. It contributes to the understanding of oral health care among seniors before the implementation of the Canadian Dental Care Plan.

Data and methods

This study uses data from the 2019/2020 Canadian Health Survey on Seniors (n=41,635) to report descriptive statistics and logistic regression model results and examine factors associated with seniors living in the community and access to oral health care services.

Results

At the time of the survey (2019/2020), 72.5% of seniors in Canada reported having had a dental visit in the past 12 months, with 83.0% of insured and 65.3% of uninsured seniors reporting visits. Seniors reporting excellent or very good oral health had a higher prevalence of visits (79.2%) compared with those with good, fair, or poor oral health (62.3%). Among seniors who had not visited a dental professional in three years, 56.3% deemed it unnecessary, and 30.8% identified cost as the major barrier. After sociodemographic characteristics were controlled for, insured seniors were more likely to have had a dental visit in the past 12 months (adjusted odds ratio [OR]: 2.27; 95% confidence interval [CI]: 2.03 to 2.54) and were less likely to avoid dental visits because of cost (OR: 0.18; 95% CI: 0.12 to 0.28) compared with their uninsured counterparts.

Interpretation

This study underscores the role of dental insurance in seniors' oral health care access. While insurance is associated with seniors' access to oral health care services, the study also emphasizes the need to consider social determinants of oral health such as income, gender, age, level of education, and place of residence when assessing oral health care access for seniors.

Keywords

dental insurance, oral health care access, dental professional, Canadian Dental Care Plan

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What is already known on this subject?

- Maintaining good oral health is important for healthy aging, since problems such as tooth loss, periodontal disease, and dry mouth worsen with age, impacting quality of life.
- Publicly funded dental insurance in Canada is not universal, leaving many Canadians reliant on employment-based insurance or out-of-pocket payments for oral health care. Seniors, who often have greater dental needs and are typically no longer in the workforce, are especially affected, with inconsistent access to care across jurisdictions.
- To help reduce financial barriers to access oral health care for eligible Canadian residents with an adjusted family net income (AFNI) below $90,000, and who do not have access to dental insurance, the Canadian government announced the launch of the Canadian Dental Care Plan (CDCP) in 2022.

What does this study add?

- This study, based on the 2019/2020 Canadian Health Survey on Seniors, identified factors beyond the ability to pay that influence oral health care access for seniors living in the community.
- The findings showed that despite many seniors reporting good oral health and recent dentist visits, a significant proportion of them struggle to access care because of affordability issues.
- These findings underscore dental insurance as an important predictor of oral health care access, but also emphasize the role of other demographic factors in access challenges.
- Future studies will be needed to assess whether the implementation of the Canadian Dental Care Plan has enabled a greater proportion of seniors to access oral health care services.

Optimal oral health is an essential element of healthy aging.[1,2] Oral health problems such as tooth loss, periodontal disease, and dry mouth accumulate throughout adult life and worsen with increasing age.[2,3] The harmful effects of poor oral health extend beyond the mouth. Cardiovascular disease, pneumonia, and diabetes are associated with poor oral health, especially among the senior population.[4,5] Oral health also has an impact on quality of life. Pain, difficulty chewing or swallowing, and a poor oral health condition (e.g., bad smile) can also lead to general health problems and psychosocial distress.[6,7]

The proportion of seniors, defined as individuals aged 65 and over, within the Canadian population is projected to increase from 18.5% in 2021 to between 21.6% and 29.8% by 2068.[8] The increasing life expectancy at birth is further contributing to the growth in the number of older seniors, those aged 85 and over, which is projected to escalate significantly in the upcoming years. Projections suggest that the population in the latter age group may increase from 871,400 in 2021 to between 2.8 million and 3.6 million by 2068.[8] These demographic shifts pose substantial challenges for health authorities and policy makers, given the heightened oral health care needs within this population that frequently remain unaddressed.[9,10]

Research has consistently shown that there is unequal access to oral health care services, and that those with the most difficult access are at the highest risk for dental diseases.[11,12,13,14] Seniors (aged 60 to 79 years) living in lower-income households or lacking dental insurance have been shown to be less likely to seek oral health care than their higher-income or privately insured counterparts.[14] Data from the 2022 Canadian Community Health Survey (CCHS) showed that 60% of seniors saw a dental professional in the 12 months before the survey, and 21% avoided going to a dental professional in the past 12 months because of cost.[15] The data also showed the persistence of an "inverse care law" for oral health care among Canadian seniors—individuals aged 65 years and over with poor self-perceived oral health were less likely to visit a dentist, whereas those who perceived their own oral health as good were more likely to do so.[12,14]

Despite the universality of medical care, publicly funded dental insurance in Canada is limited and tailored to specific populations.[12] Most oral health care services are financed through employment-based insurance and out of pocket, leaving many Canadians without access to optimal dental services. Seniors, despite having higher oral health care needs, are less likely to have private dental insurance compared with the general population, and only a few jurisdictions have programs addressing this disparity.[11,16,17] The 2022 CCHS data reported that 58.2% of seniors in Canada do not have dental insurance, 32.5% have private dental insurance and 6.3% have public dental insurance.[15] In December 2023, the Government of Canada launched the Canadian Dental Care Plan (CDCP), which provides oral health care coverage to Canadian residents with an adjusted family net income (AFNI) below $90,000 and without access to dental insurance (see Appendix Note 1). This

initiative aims to improve access to oral health care services by reducing cost barriers.[18]

As part of Statistics Canada's Oral Health Statistics Program, this study used data from the 2019/2020 Canadian Health Survey on Seniors (CHSS) to estimate the prevalence of seniors' visits to dental professionals in the past 12 months and examine the association between dental insurance and socioeconomic factors and use of oral health care services before the implementation of the CDCP. This research complements two parallel studies focusing on adults aged 18 to 64 (based on the 2022 CCHS)[19] and children and youth (based on the 2019 Canadian Health Survey on Children and Youth [CHSCY]).[20]

Data and methods

The 2019/2020 CHSS is a cross-sectional survey that collected information on health status, health care services, supports, and social and health determinants in Canadian seniors.

The CHSS was conducted as a supplement to the CCHS and had a target population of individuals aged 65 and over living in the 10 provinces. The survey coverage excluded people living on reserves and in other Indigenous settlements in the provinces, full-time members of the Canadian Forces, the institutionalized population (see Appendix Note 2), and people living in the Quebec health regions of Nunavik and Terres-Cries-de-la-Baie-James.[21]

CHSS data were collected between January 2019 and December 2020. During the 2019 collection year and the first three months of 2020, data were collected using computer-assisted personal interviews and computer-assisted telephone interviews. Because of the COVID-19 pandemic, collection came to a halt in March 2020. Collection resumed in September 2020 and ran until December under strict safety protocols. In the latter phase of collection, in-person interviews were suspended, and interviews were conducted only over the telephone. Out of the 45,863 CCHS respondents eligible to receive the CHSS supplement, a response was obtained for 41,635, resulting in a response rate of 90.8%.[22] Additional details on the CHSS can be found in the survey documentation.[21]

Definitions

Dentate population

This study analyzes dentate seniors only (n=33,336), who were identified based on the following question: "Do you have one or more of your own teeth?" Those who answered "yes" were included in the sample, and those who selected "no" or "don't know" or refused to answer (n=8,299) were excluded from this study.

Outcome measures

Recency of dental visits

Recency of dental visits was determined based on responses to the following question: "When was the last time you saw a dental professional?" Responses were consolidated into two categories: "less than a year ago" and "one year ago and over," including those who replied "never."

Avoiding oral health care because of cost

Respondents who indicated a lapse of three years or more since their last dental visit were subsequently asked about the reasons for not seeing a dental professional in the preceding three years. Those who indicated cost as the reason (n=1,559) were analyzed.

Predictor variables

Dental insurance

Respondents were categorized as insured and uninsured based on responses to the following question: "Do you have insurance or a government program that covers all or part of your dental expenses?"

Household income categories

Because of the unavailability of AFNI data in the CHSS, total household income was used as a proxy (see Appendix Note 3). Total household income represents the combined income received by all household members from various sources before taxes and deductions. Household income categories were determined based on total household income, divided into three groups: less than $70,000, $70,000 to less than $90,000, and $90,000 and above.

Household income quintiles

Household income quintiles were derived using total household income: the lowest quintile included households earning less than $38,394; quintile 2 encompassed incomes from $38,394 to less than $60,261; quintile 3 covered incomes from $60,261 to less than $87,129; quintile 4 spanned incomes from $87,129 to less than $130,746; and the highest quintile consisted of households with total incomes of $130,746 or more.

Covariates

Gender was collected using three answer categories: male, female, and please specify. All answers included in the "please specify" option were grouped in a gender-diverse category. This category was set to missing values given the few gender-diverse seniors, and therefore, gender was dichotomized into men and women. **Age** was categorized into three groups: 65 to 74 years, 75 to 84 years, and 85 years and over. **Indigenous identity** was categorized as Indigenous (First Nations, Métis, and Inuit) or non-Indigenous; disaggregation for First Nations people, Métis and Inuit was not possible because of small sample sizes.

Respondents who identified as non-Indigenous were asked to select from a list which **population group** they belonged to, including White, South Asian, Chinese, Black, Filipino, Latin American, Arab, Southeast Asian, West Asian, Korean, Japanese, and other, where the respondent could write in any population group that was not provided in the list. Because of small sample sizes for the individual groups, population group was examined as a dichotomy of non-racialized (non-Indigenous, White) versus racialized (non-Indigenous, other) population group. **Immigrant status** was defined as non-immigrant (born in Canada) or immigrant (which included non-permanent residents). **Rurality status** was defined by whether the respondent resided in a population centre or a rural area, while the **province** was identified based on the respondent's province of residence. The **highest household education level** was split into those without a postsecondary certificate, diploma, or university degree, and those with a postsecondary qualification. For **health of mouth**, which was reported using a five-point scale (1 = excellent, 2 = very good, 3 = good, 4 = fair, and 5 = poor), a two-level variable was recoded into excellent or very good and good, fair, or poor. For this study, responses set as "don't know," "refusal," and "not stated" were recoded as missing values for all variables.

Analysis

Descriptive statistics were used to estimate the prevalence of the dentate senior population who had visited a dental professional in the previous 12 months, exploring associations with dental insurance, household income, and self-reported health of mouth. Variables related to the reasons for not visiting the dentist were analyzed to identify common barriers. Independent t-tests were applied to compare differences between groups. Logistic regression was conducted to assess the relationship between oral health care use, dental insurance, and household income, first in the absence of other covariates and second, while controlling for sociodemographic variables. Models were done on the Canadian senior dentate population with complete data (i.e., no missing data for any of the dependent or independent variables; n=31,920). Adjusted odds ratios (ORs) are reported. All analyses were conducted on weighted data, so the estimates represent the Canadian senior population aged 65 years and over living in the community in the 10 provinces. The bootstrapping technique was used for variance estimation (confidence intervals [CIs]) to account for the complex survey design. The significance level was set at $p < 0.05$. Analyses were conducted in SAS v9.4 and SUDAAN v.11.0.3.

Results

The characteristics of the study population, consisting of dentate seniors in Canada (n=33,336), are presented in Table 1. About two-thirds of the seniors were aged 65 to 74 years old and nearly half (47.9%) had a total annual household income below $70,000. Furthermore, 41.2% of seniors reported having dental insurance, about two in three (60.6%) reported excellent or very good health of mouth, and 72.5% of seniors had visited a dental professional in the past 12 months.

Table 1 also shows the study population by dental insurance status. According to the 2019/2020 CHSS, a higher proportion of seniors had insurance if they were men (42.4%) compared with women (40.2%), Indigenous (50.2%) compared with non-Indigenous (42.3%), and born in Canada (42.4%) compared with immigrants or non-permanent residents (38.9%). The prevalence of having dental insurance decreased with increasing age group, though it rose with each higher household income category. A lower proportion of seniors living in Quebec (18.3%) and Manitoba (40.9%) reported having dental insurance compared with seniors living in Ontario (44.5%), whereas a higher proportion of seniors living in Alberta (69.0%) and British Columbia (47.9%) had dental insurance compared with their Ontarian counterparts.

The data in Table 2 show the prevalence of Canadian seniors who had visited a dental professional in the past 12 months. Insured seniors were significantly more likely to have visited a dental professional in the past year than their uninsured counterparts, regardless of subpopulation. Overall, 83.0% of seniors with dental insurance had visited a dental professional in the past 12 months, compared with 65.3% of uninsured seniors. For seniors in lower-income households (less than $70,000), 77.9% of those with insurance had visited a dental professional, compared with 60.1% of those without insurance. Similarly, in the highest income category ($90,000 or more), 86.4% of insured seniors had had a dental visit compared with 72.3% of uninsured seniors. Also, insured seniors reporting excellent or very good health of mouth (87.4%) and those reporting good, fair, or poor health of mouth (74.6%) were more likely to have visited a dental professional in the past year than their uninsured counterparts (72.6% and 55.6%, respectively). Despite these differences, about one in five insured seniors had not visited a dental professional in the last 12 months (data not shown).

Table 3 shows the prevalence of the various factors that contributed to the 9.8% of seniors who were unable to visit a dental professional in the past three years. Among this group, over half (56.3%) deemed a dental visit unnecessary, while one-third (30.8%) identified cost as a barrier (Table 3). Cost-related avoidance was more prevalent among Canadians aged 65 to 74 years (34.8%) than those aged 85 and over (15.5%); for those who reported good, fair, or poor health of mouth (37.1%) compared with those with excellent or very good health of mouth (20.9%); and for Ontario residents (36.9%) compared with residents of Alberta (22.2%) or Saskatchewan (21.4%) (Table 4). On average, cost-related avoidance was about three times higher among uninsured Canadians, compared with those with dental insurance (Table 4).

The findings from the logistic regression analyses, presented in Table 5, confirm the anticipated relationship between having visited a dental professional in the past 12 months and being covered by dental insurance, as well as household income categories. These associations persisted even after adjusting for

Table 1
Characteristics of dentate household population aged 65 years and over, Canada

	Total			With dental insurance			Without dental insurance		
		95% confidence interval			95% confidence interval			95% confidence interval	
Characteristic	**%**	**from**	**to**	**%**	**from**	**to**	**%**	**from**	**to**
Total	100.0	...	...	41.2	40.2	42.2	58.8	57.8	59.8
Gender									
Men†	47.2	46.8	47.6	42.4	40.8	44.0	57.6	56.0	59.2
Women	52.8	52.4	53.2	40.2 *	38.8	41.5	59.8 *	58.5	61.2
Age group									
65 to 74 years†	62.7	62.3	63.1	44.2	42.9	45.5	55.8	54.5	57.1
75 to 84 years	28.2	27.9	28.6	37.3 *	35.4	39.2	62.7 *	60.9	64.6
85 years and over	9.0	8.7	9.4	32.5 *	29.2	36.0	67.5 *	64.0	70.8
Indigenous status									
Indigenous	2.3	2.0	2.6	50.2 *	43.8	56.6	49.8 *	43.4	56.2
Not Indigenous†	97.7	97.4	98.0	42.3	41.2	43.3	57.7	56.7	58.8
Immigrant status									
Landed immigrant or non-permanent resident	29.2	28.0	30.4	38.9 *	36.4	41.4	61.1 *	58.6	63.6
Born in Canada†	70.8	69.6	72.0	42.2	41.2	43.3	57.8	56.7	58.8
Household income									
Less than $70,000†	47.9	46.8	49.1	30.3	29.0	31.6	69.7	68.4	71.0
$70,000 to less than $90,000	13.9	13.1	14.6	45.3 *	42.5	48.1	54.7 *	51.9	57.5
$90,000 or more	38.2	37.0	39.4	53.5 *	51.5	55.4	46.5 *	44.6	48.5
Household income quintile									
Quintile 1 (lowest)†	20.0	19.2	20.8	22.3	20.4	24.4	77.7	75.6	79.6
Quintile 2	20.0	19.2	20.8	35.9 *	33.9	38.0	64.1 *	62.0	66.1
Quintile 3	20.0	19.2	20.8	42.0 *	39.8	44.2	58.0 *	55.8	60.2
Quintile 4	20.0	19.1	20.9	50.7 *	48.3	53.1	49.3 *	46.9	51.7
Quintile 5 (highest)	20.0	18.9	21.1	55.1 *	52.2	58.0	44.9 *	42.0	47.8
Population group									
Non-Indigenous, racialized	12.1	11.0	13.2	37.3	33.0	41.9	62.7	58.1	67.0
Non-Indigenous, non-racialized†	87.9	86.8	89.0	41.6	40.6	42.6	58.4	57.4	59.4
Rurality status									
Population centre†	80.3	79.4	81.1	42.4	41.2	43.7	57.6	56.3	58.8
Rural	19.7	18.9	20.6	36.3 *	34.5	38.1	63.7 *	61.9	65.5
Highest level of education in the household									
No postsecondary certificate, diploma, or university degree†	26.9	25.9	27.8	32.5	30.8	34.3	67.5	65.7	69.2
Postsecondary certificate, diploma, or university degree	73.1	72.2	74.1	44.5 *	43.3	45.7	55.5 *	54.3	56.7
Province of residence									
Newfoundland and Labrador	1.5	1.5	1.6	42.0	39.1	44.9	58.0	55.1	60.9
Prince Edward Island	0.5	0.5	0.5	43.7	40.9	46.5	56.3	53.5	59.1
Nova Scotia	3.0	3.0	3.1	41.6	39.0	44.1	58.4	55.9	61.0
New Brunswick	2.4	2.3	2.4	42.1	39.4	44.8	57.9	55.2	60.6
Quebec	21.8	21.3	22.2	18.3 *	16.6	20.1	81.7 *	79.9	83.4
Ontario†	40.9	40.5	41.3	44.5	42.4	46.6	55.5	53.4	57.6
Manitoba	3.2	3.1	3.3	40.9 *	38.5	43.3	59.1 *	56.7	61.5
Saskatchewan	2.5	2.4	2.5	46.0	43.1	49.0	54.0	51.0	56.9
Alberta	8.9	8.8	9.1	69.0 *	66.7	71.1	31.0 *	28.9	33.3
British Columbia	15.3	15.1	15.6	47.9 *	45.7	50.2	52.1 *	49.8	54.3
Health of mouth									
Excellent or very good†	60.6	59.5	61.7	44.8	43.5	46.1	55.2	53.9	56.5
Good, fair, or poor	39.4	38.3	40.5	35.7 *	33.9	37.4	64.3 *	62.6	66.1
Recency of visiting a dental professional									
Less than one year ago†	72.5	71.5	73.4	47.3	46.0	48.5	52.7	51.5	54.0
One year ago and over	27.5	26.6	28.5	25.7 *	24.0	27.4	74.3 *	72.6	76.0

... not applicable

† reference category

* significantly different from reference category ($p < 0.05$)

Source: Statistics Canada, 2019/2020 Canadian Health Survey on Seniors.

all sociodemographic variables. Specifically, in the fully adjusted model (Model 2), Canadian seniors with dental insurance had increased odds (OR=2.27; 95% CI: 2.03 to 2.54) of having visited a dental professional in the past 12 months compared with their uninsured counterparts. Moreover, seniors in households with incomes of $70,000 to less than $90,000

Table 2
Prevalence of visiting a dental professional in the past 12 months, by dental insurance status, dentate household population aged 65 years and over, Canada

	Total			With dental insurance			Without dental insurance		
		95% confidence interval			95% confidence interval			95% confidence interval	
Characteristic	%	from	to	%	from	to	%	from	to
Total	72.5	71.5	73.4	83.0	81.7	84.1 ‡	65.3	63.9	66.6
Gender									
Men†	70.7	69.3	72.0	82.5	80.8	84.2 ‡	62.1	60.1	64.1
Women	74.1 *	72.8	75.3	83.4	81.6	85.0 ‡	68.0 *	66.2	69.7
Age group									
65 to 74 years†	74.5	73.3	75.6	84.0	82.5	85.3 ‡	67.1	65.4	68.8
75 to 84 years	70.4 *	68.5	72.3	82.5	80.0	84.8 ‡	63.3 *	60.7	65.7
85 years and over	65.0 *	61.0	68.8	75.0 *	68.6	80.4 ‡	60.3 *	55.5	65.0
Indigenous status									
Indigenous	69.2	64.0	74.1	75.9 *	69.8	81.2 ‡	62.7	53.3	71.2
Not Indigenous†	73.2	72.2	74.2	83.3	82.0	84.5 ‡	66.0	64.7	67.3
Immigrant status									
Landed immigrant or non-permanent resident	71.8	69.5	74.0	83.0	79.9	85.7 ‡	64.8	61.6	67.9
Born in Canada†	72.8	71.9	73.8	83.0	81.7	84.2 ‡	65.6	64.2	66.9
Household income									
Less than $70,000†	65.4	64.0	66.7	77.9	75.7	79.8 ‡	60.1	58.4	61.7
$70,000 to less than $90,000	76.9 *	74.4	79.3	83.6 *	80.7	86.2 ‡	71.5 *	67.4	75.3
$90,000 or more	79.8 *	78.1	81.4	86.4 *	84.5	88.0 ‡	72.3 *	69.5	75.0
Household income quintile									
Quintile 1 (lowest)†	56.9	54.6	59.1	72.2	67.7	76.3 ‡	52.6	50.1	55.1
Quintile 2	70.0 *	68.1	71.9	79.0	75.9	81.8 ‡	65.0 *	62.5	67.4
Quintile 3	75.8 *	73.7	77.8	83.1 *	80.6	85.3 ‡	70.7 *	67.5	73.7
Quintile 4	79.0 *	77.0	80.9	86.5 *	84.5	88.3 ‡	71.6 *	68.2	74.8
Quintile 5 (highest)	80.6 *	78.0	83.0	86.6 *	83.5	89.2 ‡	73.4 *	68.9	77.4
Population group									
Non-Indigenous, racialized	66.6 *	61.8	71.1	82.0	76.3	86.6 ‡	57.6 *	51.1	63.8
Non-Indigenous, non-racialized†	73.3	72.4	74.3	83.2	81.9	84.4 ‡	66.4	65.1	67.7
Rurality status									
Population centre†	74.0	72.8	75.1	83.5	82.1	84.9 ‡	67.1	65.5	68.6
Rural	66.5 *	64.8	68.2	80.4 *	78.1	82.5 ‡	58.7 *	56.4	60.9
Highest level of education in the household									
No postsecondary certificate, diploma, or university degree†	61.9	60.0	63.7	74.4	71.2	77.4 ‡	56.0	53.6	58.3
Postsecondary certificate, diploma, or university degree	76.8 *	75.7	77.8	85.8 *	84.6	86.9 ‡	69.7 *	68.0	71.3
Province of residence									
Newfoundland and Labrador	54.2 *	51.0	57.3	78.0 *	74.3	81.2 ‡	37.1 *	33.2	41.3
Prince Edward Island	71.6 *	68.9	74.1	87.4	84.0	90.2 ‡	59.2 *	55.6	62.8
Nova Scotia	69.3 *	67.0	71.6	83.9	80.7	86.7 ‡	59.4 *	56.2	62.6
New Brunswick	65.7 *	63.0	68.3	79.8 *	76.2	83.0 ‡	55.4 *	51.9	58.8
Quebec	67.5 *	65.2	69.7	77.8 *	72.7	82.2 ‡	65.3	62.8	67.7
Ontario†	76.3	74.5	78.0	86.0	83.7	88.0 ‡	68.5	65.9	71.1
Manitoba	70.4 *	68.1	72.6	82.9	79.8	85.7 ‡	61.8 *	58.6	64.8
Saskatchewan	64.3 *	61.4	67.1	74.2 *	70.5	77.5 ‡	56.2 *	52.4	60.0
Alberta	71.5 *	69.3	73.6	76.9 *	74.5	79.2 ‡	60.2 *	56.0	64.3
British Columbia	75.3	73.2	77.3	85.2	82.7	87.4 ‡	66.3	63.1	69.3
Health of mouth									
Excellent or very good†	79.2	78.1	80.2	87.4	86.2	88.5 ‡	72.6	71.0	74.2
Good, fair, or poor	62.3 *	60.6	64.0	74.6 *	71.9	77.1 ‡	55.6 *	53.3	57.9

† reference category
* significantly different from reference category ($p < 0.05$)
‡ significantly different between insured and uninsured ($p < 0.05$)
Source: Statistics Canada, 2019/2020 Canadian Health Survey on Seniors.

(OR=1.45; 95% CI: 1.23 to 1.72) and those with household incomes of $90,000 or more had greater odds (OR=1.50; 95% CI: 1.31 to 1.70) of having visited a dental professional in the past 12 months than Canadian seniors in households earning less than $70,000. Additionally, seniors reporting excellent or very good oral health had twice the odds (OR=2.01; 95% CI: 1.81 to 2.23) of having visited a dental professional in the past 12 months compared with those with good, fair, or poor oral health.

The results of the multivariable logistic regression for cost-related avoidance of dental visits in the past three years are shown in Table 6. Even after relevant covariates were adjusted for (Model 2), dental insurance among Canadian seniors remained strongly associated with cost-related avoidance. Specifically, having dental insurance (OR: 0.18; 95% CI: 0.12 to 0.28) significantly reduced the odds of not having seen a dental professional because of cost in the past three years. On the contrary, household income did not show a significant association with cost-related avoidance, either in the unadjusted or adjusted model.

Discussion

This study, specific to Canadian seniors aged 65 and over living in the community, is the third article in a complementary series of reports by the Oral Health Statistics Program at Statistics Canada. The first two reports investigated similar outcomes in adults using the 2022 CCHS[19] and in children and youth using data from the 2019 CHSCY.[20] These studies, along with two new surveys from Statistics Canada—the Canadian Oral Health Survey (COHS) and Cycle 7 of the CHMS—contribute to benchmark estimates preceding the implementation of the CDCP. The COHS, conducted between November 23, 2023, and March 24, 2024, collected data from households across the provinces, aiming to provide detailed insights into the factors influencing oral health care visits, targeting Canadians aged 1 year and over, and offering a comprehensive overview of oral health demographics. Additionally, Cycle 7 of the CHMS is currently underway, focusing on updated direct assessments of oral health outcomes, such as dental caries and periodontal health, before the start of the CDCP.

The study results revealed disparities in dental insurance coverage among Canadian seniors across different subpopulations analyzed. A higher percentage of seniors were uninsured rather than insured across various demographic groups. Particularly noteworthy was the significant contrast observed among seniors in Quebec, where over 80% identified as uninsured. However, there were exceptions to this trend. For example, more insured than uninsured seniors were observed in the highest income categories and among those residing in Alberta. A recent environmental scan[17] identified variations in dental programs tailored for seniors across different regions and found that Ontario and Alberta have specific programs aimed at this group. Even if having access to dental insurance is not the only factor associated with visiting a dental professional, having dental insurance can help to improve it. These analyses revealed

Table 3
Prevalence of Canadians who were unable to see a dental professional in the past three years, by selected reason,[1] dentate household population aged 65 years and over, Canada

		95% confidence interval	
	%	from	to
Unable to see a dental professional in the past three years	9.8	9.2	10.4
Reasons that prevented seeing a dental professional[2]			
Have not gotten around to it	9.6	8.1	11.4
Respondent did not think it was necessary†	56.3	53.0	59.5
Dental professional did not think it was necessary	1.8 E	0.9	3.6
Personal or family responsabilities	0.5 E	0.3	0.9
Not available in the area	0.5 E	0.4	0.8
Cost	30.8	28.0	33.8
Did not know where to go or uninformed	0.8 E	0.4	1.6
Fear	7.1	5.9	8.6

† reference category

E use with caution

1. Respondents could mark all that apply and, therefore, totals are greater than 100%.

2. The reasons for not having seen a dental professional in the last three years are not all presented in the table. Because of the small sample size, "not available at time required," "waiting time was too long," "transportation problems," "language problem," "wears dentures," "unable to leave house because of a health problem," and "other" were excluded from the table.

Source: Statistics Canada, 2019/2020 Canadian Health Survey on Seniors.

Table 4

Prevalence of Canadians who were unable to see a dental professional in the past three years because of the cost, overall and by dental insurance status, dentate household population aged 65 years and over, Canada

	Total			With dental insurance			Without dental insurance		
		95% confidence interval			95% confidence interval			95% confidence interval	
Characteristic	%	from	to	%	from	to	%	from	to
Total	30.8	28.0	33.8	11.1	8.0	15.2 ‡	35.0	31.7	38.5
Gender									
Men†	27.5	24.1	31.1	10.5 E	6.7	15.9 ‡	31.0	27.0	35.3
Women	35.0	30.4	39.9	11.9 E	7.3	18.8 ‡	39.9	34.5	45.6
Age group									
65 to 74 years†	34.8	31.1	38.6	12.7 E	8.4	18.7 ‡	39.9	35.5	44.5
75 to 84 years	29.7	24.9	35.0	10.6 E	6.1	17.6 ‡	33.3	27.6	39.4
85 years and over	15.5 *	9.1	25.0	F	...	...	17.7 *E	10.3	28.9
Indigenous status									
Indigenous	32.6	22.0	45.4	F	...	...	37.8 E	24.9	52.9
Not Indigenous†	31.0	28.0	34.0	10.1 E	6.8	14.5 ‡	35.7	32.3	39.2
Immigrant status									
Landed immigrant or non-permanent resident	30.5	23.8	38.1	13.8 E	7.5	24.3 ‡	33.4	25.6	42.1
Born in Canada†	31.0	28.1	34.1	10.3 E	7.0	14.9 ‡	35.7	32.2	39.2
Household income									
Less than $70,000†	32.8	29.6	36.2	13.1 E	9.0	18.7 ‡	36.2	32.6	40.0
$70,000 to less than $90,000	29.7	22.3	38.3	F	...	...	36.6	27.2	47.0
$90,000 or more	24.9	17.9	33.5	6.9 E	2.6	16.8 ‡	30.1 E	21.4	40.5
Household income quintile									
Quintile 1 (lowest)†	34.0	29.7	38.5	14.2 E	8.1	23.8 ‡	36.5	31.8	41.5
Quintile 2	34.2	28.8	40.1	13.6 E	7.7	22.7 ‡	39.3	33.1	46.0
Quintile 3	25.4	19.4	32.6	8.6 E	3.9	17.8 ‡	30.4	22.6	39.5
Quintile 4	31.4	22.3	42.0	F	...	...	37.6 E	26.7	49.8
Quintile 5 (highest)	18.2	9.5	32.0	F	...	...	21.1 E	10.2	38.7
Population group									
Non-Indigenous, racialized	29.7	21.2	39.9	F	...	...	32.9 E	23.2	44.2
Non-Indigenous, non-racialized†	31.0	28.0	34.2	11.5 E	8.2	15.9 ‡	35.3	31.7	39.0
Rurality status									
Population centre†	31.9	28.4	35.6	11.5 E	7.9	16.6 ‡	36.5	32.3	40.9
Rural	27.9	24.1	32.0	9.6 E	5.3	16.6 ‡	31.1	26.8	35.7
Highest level of education in the household									
No postsecondary certificate, diploma, or university degree†	27.7	23.9	31.8	8.4 E	4.9	14.1 ‡	31.3	26.9	36.1
Postsecondary certificate, diploma, or university degree	32.6	28.5	37.0	12.9 E	8.6	18.9 ‡	37.2	32.4	42.4
Province of residence									
Newfoundland and Labrador	26.6	21.2	32.9	F	...	...	30.1	23.9	37.0
Prince Edward Island	31.0	21.8	41.9	F	...	...	34.7 E	24.7	46.3
Nova Scotia	29.1	23.1	35.8	F	...	...	33.4	26.9	40.7
New Brunswick	33.5	27.6	40.0	F	...	...	38.9	32.1	46.2
Quebec	23.9	18.7	30.0	F	...	...	26.3	20.7	32.9
Ontario†	36.9	30.6	43.7	F	...	...	40.9	33.6	48.6
Manitoba	29.0	22.6	36.3	F	...	...	34.4	26.8	42.8
Saskatchewan	21.4 *	16.1	27.7	10.5 E	4.4	23.1	24.8 *	18.6	32.2
Alberta	22.2 *	16.7	28.9	17.0 E	10.8	25.7	27.6 E	18.5	39.0
British Columbia	39.6	32.5	47.2	F	...	...	45.2	36.6	54.1
Health of mouth									
Excellent or very good	20.9 *	16.9	25.5	6.5 E	3.5	11.8 ‡	24.0 *	19.3	29.4
Good, fair, or poor†	37.1	33.4	41.0	14.0 E	9.6	19.8 ‡	41.9	37.5	46.5

... not applicable

† reference category

* significantly different from reference category ($p < 0.05$)

‡ significantly different between insured and uninsured ($p < 0.05$)

E use with caution

F too unreliable to be published

Source: Statistics Canada, 2019/2020 Canadian Health Survey on Seniors.

that in Canada, seniors with dental insurance exhibit a higher likelihood of having had dental visits in the past 12 months compared with those without insurance, aligning with previous findings.[13,14] This disparity persisted after controlling for important sociodemographic characteristics. Household income was also found to influence oral health care access, with a greater proportion of seniors reporting visits among those with a household income of $90,000 or more, as corroborated by prior studies.[13,14,15]

Across age groups (65 to 74 years, 75 to 84 years, and 85 years and over), a negative gradient was observed between age and dental insurance status, with the percentage of insured

Table 5
Multivariable logistic regression analysis for visiting a dental professional in the past 12 months, dentate household population aged 65 years and over, Canada

	Model 1			Model 2		
	Adjusted odds ratio	95% confidence interval		Adjusted odds ratio	95% confidence interval	
		from	to		from	to
Dental insurance						
Yes	2.37 *	2.14	2.63	2.27 *	2.03	2.54
No†	1.00	…	…	1.00	…	…
Household income						
Less than $70,000†	1.00	…	…	1.00	…	…
$70,000 to less than $90,000	1.62 *	1.39	1.89	1.45 *	1.23	1.72
$90,000 or more	1.80 *	1.59	2.04	1.50 *	1.31	1.70
Gender						
Men†	…	…	…	1.00	…	…
Women	…	…	…	1.25 *	1.13	1.38
Age group						
65 to 74 years†	…	…	…	1.00	…	…
75 to 84 years	…	…	…	0.87 *	0.78	0.98
85 years and over	…	…	…	0.79 *	0.65	0.96
Population group						
Indigenous	…	…	…	0.89	0.69	1.15
Non-Indigenous, racialized	…	…	…	0.57 *	0.44	0.73
Non-Indigenous, non-racialized†	…	…	…	1.00	…	…
Immigrant status						
Landed immigrant or non-permanent resident	…	…	…	1.07	0.92	1.25
Born in Canada†	…	…	…	1.00	…	…
Rurality status						
Population centre†	…	…	…	1.00	…	…
Rural	…	…	…	0.73 *	0.66	0.81
Highest level of education in the household						
No postsecondary certificate, diploma, or university degree†	…	…	…	1.00	…	…
Postsecondary certificate, diploma, or university degree	…	…	…	1.66 *	1.50	1.84
Province of residence						
Newfoundland and Labrador	…	…	…	0.36 *	0.31	0.42
Prince Edward Island	…	…	…	0.85	0.72	1.00
Nova Scotia	…	…	…	0.75 *	0.64	0.88
New Brunswick	…	…	…	0.63 *	0.54	0.75
Quebec	…	…	…	0.74 *	0.64	0.87
Ontario†	…	…	…	1.00	…	…
Manitoba	…	…	…	0.76 *	0.66	0.89
Saskatchewan	…	…	…	0.55 *	0.47	0.65
Alberta	…	…	…	0.57 *	0.49	0.67
British Columbia	…	…	…	0.92	0.78	1.08
Health of mouth	…	…	…			
Excellent or very good †	…	…	…	2.01 *	1.81	2.23
Good, fair, or poor	…	…	…	1.00	…	…

… not applicable

† reference category

* significantly different from reference category ($p < 0.05$)

Notes: Model 1 included dental insurance and income cut-offs only. Model 2 included dental insurance, income cut-offs, gender, age group, population group, immigrant status, rurality status, highest household education level, province, and self-perceived health of mouth.

Source: Statistics Canada, 2019/2020 Canadian Health Survey on Seniors.

individuals decreasing with advancing age. Similarly, a negative gradient was noted between age and oral health professional visits: older seniors (85 and over) visited less frequently than those aged 65 to 74 years. Infrequent dental visits exacerbate issues like periodontal disease, tooth loss, and dry mouth, with broader health implications.[3] As documented in the literature, poor oral health, especially in seniors, correlates with conditions such as cardiovascular disease, pneumonia, and diabetes.[4,5]

The findings also revealed that seniors in Canada who reported excellent or very good health of mouth were more inclined to

Table 6
Multivariable logistic regression analysis for being unable to see a dental professional in the past three years because of the cost, dentate household population aged 65 years and over, Canada

	Model 1			Model 2		
	Adjusted odds ratio	95% confidence from	to	Adjusted odds ratio	95% confidence from	to
Dental insurance						
Yes	0.24 *	0.16	0.36	0.18 *	0.12	0.28
No†	1.00	...	...	1.00	...	...
Household income						
Less than $70,000†	1.00	...	...	1.00	...	...
$70,000 to less than $90,000	1.01	0.66	1.54	0.84	0.53	1.32
$90,000 or more	0.73	0.46	1.18	0.63	0.39	1.01
Gender						
Men†	...	...	...	1.00	...	...
Women	...	...	...	1.51 *	1.11	2.05
Age group						
65 to 74 years†	...	...	...	1.00	...	...
75 to 84 years	...	...	...	0.79	0.56	1.10
85 years and over	...	...	...	0.19 *	0.10	0.38
Population group						
Indigenous	...	...	...	0.97	0.46	2.04
Non-Indigenous, racialized	...	...	...	0.57	0.28	1.14
Non-Indigenous, non-racialized†	...	...	...	1.00	...	...
Immigrant status						
Landed immigrant or non-permanent resident	...	...	...	0.78	0.46	1.30
Born in Canada†	...	...	...	1.00	...	...
Rurality status						
Population centre†	...	...	...	1.00	...	...
Rural	...	...	...	0.75	0.56	1.00
Highest level of education in the household						
No postsecondary certificate, diploma, or university degree†	...	...	...	1.00	...	...
Postsecondary certificate, diploma, or university degree	...	...	...	1.44 *	1.07	1.95
Province of residence						
Newfoundland and Labrador	...	...	...	0.53 *	0.33	0.85
Prince Edward Island	...	...	...	0.69	0.38	1.25
Nova Scotia	...	...	...	0.59 *	0.39	0.90
New Brunswick	...	...	...	0.81	0.53	1.25
Quebec	...	...	...	0.49 *	0.30	0.79
Ontario†	...	...	...	1.00	...	...
Manitoba	...	...	...	0.62	0.39	1.01
Saskatchewan	...	...	...	0.41 *	0.25	0.67
Alberta	...	...	...	0.77	0.46	1.28
British Columbia	...	...	...	1.31	0.81	2.10
Health of mouth	...	...	...			
Excellent or very good†	...	...	...	0.43 *	0.31	0.60
Good, fair, or poor	...	...	...	1.00	...	...

... not applicable

† reference category

* significantly different from reference category ($p < 0.05$)

Notes: Model 1 included dental insurance and income cut-offs only. Model 2 included dental insurance, income cut-offs, gender, age group, population group, immigrant status, rurality status, highest household education level, province, and self-perceived health of mouth.

Source: Statistics Canada, 2019/2020 Canadian Health Survey on Seniors.

visit dental professionals than those with good, fair, or poor oral health. The results underscore the correlation between individuals experiencing difficulty accessing care and those with greater oral health needs, a phenomenon observed in the literature regarding the "inverse care law."[12,23]

As seen in previous studies,[13,14,15,19] the cost of treatment represents a limiting factor in access to oral health care. The results in this study showed that among those who had not visited a dental professional in the past three years, one-third avoided it because of cost. However, a higher proportion of those who indicated cost as a barrier to dental visits also reported not having dental insurance. Interestingly, income was not a significant factor related to cost-related avoidance of the dentist among Canadian seniors, contrary to evidence found among adults[19] and children and youth.[20] However, methodological differences between surveys, including question wording and target populations, may be the reason for this inconsistency. For example, in the CHSS, only respondents who had not seen a dental professional in the past three years were asked about the reasons why, and cost was among a list of many potential reasons. On the other hand, in the CCHS (adults) and the CHSCY (children and youth), all respondents were asked whether they had avoided going (or were unable to go) to a dental professional in the past 12 months because of the cost.

While dental insurance significantly enhances dental care use, affordability is not the sole factor in improving access. The five A's of health care access—affordability, availability, accessibility, accommodation, and acceptability—are crucial for ensuring comprehensive access to dental services.[24] This is particularly important for the senior population, for whom any of these factors can act as a barrier. Factors such as the availability of specialized care providers, the accessibility of their locations, accommodation for seniors' specific needs, and acceptability (which encompasses the comfort level between the client and provider) must all be considered when improving access.[24,25]

A strength of this study lies in its incorporation of a large, nationally representative sample of the Canadian senior population living in households in the provinces. This allows for the generation of disaggregated estimates across a large range of health determinants and geographic indicators among individuals aged 65 and over.

This study also presents several limitations. Canadian seniors living in collective settings such as long-term care and nursing homes, who make up about 5.8% of the population aged 65 and over, were not part of the 2019/2020 CHSS sample,[26] limiting the generalizability for all Canadian seniors. The methodology for household income differs from AFNI and though household income is used as a proxy, it cannot be directly compared with the CDCP financial eligibility criteria (see Appendix Note 3). Additionally, the income measure used in this study has not been adjusted for inflation. The exclusion of people in the territories, on reserves, and in other Indigenous settlements from the target population means the results reflect the experiences of only a portion of the Indigenous population in Canada. Given that data collection occurred for some respondents during the COVID-19 pandemic in fall 2020, it is possible that for these individuals, the previous 12 months coincided with pandemic-related restrictions, potentially skewing prevalence estimates. Lastly, the question concerning reasons for not visiting a dental professional was posed exclusively to respondents who had not visited one in the past three years, limiting the ability to compare results with those of other surveys, such as the 2022 CCHS.

Conclusion

This segment of Statistics Canada's Oral Health Statistics Program report series, focusing on Canada's senior population living in the community, enhances the understanding of factors influencing oral health care access. Despite many seniors reporting good oral health and recent dentist visits, a significant minority, particularly those who are socially and economically vulnerable—such as seniors with low income, those who lack dental insurance, and seniors aged 85 and over—encounter difficulties accessing care because of the affordability of oral health services. While dental insurance is crucial, this study emphasizes that other demographic factors also contribute to access challenges, highlighting the necessity for a comprehensive approach to improve oral health care service access. These findings, alongside future studies based on the COHS and Cycle 7 of the CHMS, will help establish baseline measurements preceding the CDCP implementation.

Appendix

Notes

1. Not having access to dental insurance is defined as not having insurance available through:
   – your employer or a family member's employer benefits, including health and wellness accounts
   – your professional or student organization
   – your pension or a family member's pension benefits
   – coverage purchased by yourself or a family member or a group plan from an insurance or benefits company.[a]

2. The institutionalized population refers to people who live in institutional collective dwellings, such as hospitals; nursing homes; facilities that are a mix of both a nursing home and a residence for senior citizens; residential care facilities, such as group homes for people with disabilities or addictions; shelters; and correctional and custodial facilities. This includes residents under care or custody (e.g., patients or inmates) or employee residents and family members living with them, if any.[b]

3. Total household income is different from the income variable used by the CDCP for program eligibility (AFNI). Comparison of total household income with AFNI using the 2022 CCHS showed an estimated difference of around 5% in prevalence (misclassification) for income categories. For that reason, these estimates should be used with a high degree of caution in relation to the CDCP.

[a] Government of Canada. *The Canadian Dental Care Plan.* Ottawa, ON, CA. Available online at: https://www.canada.ca/en/health-canada/news/2023/12/the-canadian-dental-care-plan.html. Accessed Feb 5, 2024.

[b] Statistics Canada. Dictionary, *Census of Population, 2016: Institutional resident* . Available online at: https://www12.statcan.gc.ca/census-recensement/2016/ref/dict/pop053-eng.cfm. Accessed Feb 5, 2024.

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