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ABSTRACT

Background

The COVID-19 pandemic interrupted routine and preventive dental services until precautions could be implemented to limit virus transmission. Access to services for dental emergencies was maintained. The objective of this study was to describe the reported need for, access to, and receipt of oral health care in Canada during the first year of the pandemic.

Data and methods

The 2021 Survey on Access to Health Care and Pharmaceuticals During the Pandemic collected information from Canadians aged 18 years and older. Respondents were asked whether they needed (routine) dental care in the previous 12 months, whether they received that care, whether they experienced any mouth or tooth pain (indicative of a dental emergency), and whether and how COVID-19 affected service access.

Results

Of the 44.5% of Canadians who reported needing dental care in the 12 months before the survey, 5.8% did not receive the care they reportedly needed. Almost 20% of those with a reported need had their appointment cancelled, rescheduled, or delayed because of COVID-19, and this was more common for individuals with unmet dental care needs (46.9%) than it was for those who had received dental care (17.1%). For those requiring more urgent care, 23.3% of Canadians experienced pain in their mouth or teeth in the previous 12 months. Among those with dental pain, 64.2% sought treatment, and the majority (86.4%) received the treatment they needed. One-third (33.2%) avoided care for their dental-related pain because of fear of contracting COVID-19.

Interpretation

During the first year of the pandemic, many Canadians experienced cancelled or delayed dental services or did not receive the oral health care services they reportedly needed. Ongoing monitoring could help determine whether these COVID-19 service interruptions will have lasting effects on Canadians' oral health.

Keywords

dental health care, access to care, public health, unmet needs, dentistry, dental visit, dental pain, COVID-19 fear

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What is already known on this subject?

- Oral health is an important part of overall health, as it affects the ability to eat, drink, speak, smile, and sleep.
- The COVID-19 pandemic has affected the service and delivery of health care services in Canada, including dental services.

What does this study add?

- Many Canadians did not receive the oral health care services they reported needing during the first 12-month period of the pandemic (data collection took place from March 8, 2021, to June 2, 2021).
- A higher number of Canadians reported pain in their mouth or teeth during the first year of the pandemic than in previous years, and many did not seek care for this pain because of fear of contracting COVID-19.
- Ongoing monitoring of access to oral health care in Canada is important to identify whether short-term COVID-19-related closures affect longer-term oral health outcomes.

The COVID-19 pandemic caused wide-ranging disruptions to daily life, including temporary closures of schools and some businesses. Access to many types of health care was also affected. For oral care, this generally meant suspending routine and preventive treatments because dental hygiene visits were deemed a high risk of viral transmission owing to the use of aerosol-generating procedures and the close proximity of dentists or hygienists to patients.[1,2] Consequently, dental services were initially limited to the provision of emergency services aimed at preserving a patient's oral function or managing severe pain.[3] Over time, restrictions eased and services resumed as dental offices were appropriately outfitted with physical barriers and air purifiers and as supplies of personal protective equipment were secured.

Oral health is an important component of overall health because it affects eating, speaking, and even self-confidence.[4] Other studies suggest that good oral health reduces the risk of cardiovascular disease[5] and is associated with longer life expectancy.[6] Conversely, some studies show a relationship between poor oral health and some forms of cancer[7] and other diseases, e.g., human papillomavirus.[8] Routine dental visits are important not only for teeth cleaning but also for identifying underlying conditions, such as dental caries and periodontitis, which benefit from early diagnosis and treatment and cause pain if left untreated. Pain in the mouth or teeth can affect eating and sleeping and is associated with increased levels of depression and emergency department visits.[9,10]

Previous Canadian research on the general Canadian household population[11] and Indigenous people[12] found that during the pandemic, many Canadians had difficulties accessing health care services and some Canadians avoided care because of fear of exposure to COVID-19. Little is known about the effect COVID-19 had on the access to, and the motivations for obtaining, oral health care services in Canada.

The objectives of this study were to describe self-reported access to oral health care services in Canada during the first 12-month period of the COVID-19 pandemic, including the reported need for routine or emergency oral health care, and to compare the access to, and the unmet need for, dental services by various sociodemographic characteristics, including by province.

Data and methods

The Survey on Access to Health Care and Pharmaceuticals During the Pandemic (SAHCPDP) was developed by Statistics Canada with Health Canada, the Public Health Agency of Canada, and the Canadian Institute for Health Information. The objective of the survey was to better understand how health care service disruptions affected Canadians during the COVID-19 pandemic. The target population was residents of Canada aged 18 years and older living in the 10 provinces. Excluded from the survey population were people living in the territories, on reserves or in other Indigenous settlements in the provinces, and the institutionalized population. Detailed descriptions of the SAHCPDP are available elsewhere.[13]

Data for the SAHCPDP were collected from March 8, 2021, to June 2, 2021, by either a respondent-administered electronic questionnaire or a computer-assisted telephone interview. Participants were randomly selected using the Dwelling Universe File, a list of all dwellings in Canada, and from respondents to the 2016 Census long-form questionnaire for the Indigenous population oversample. The final sample consisted of 25,268 individuals, representing 30,109,433 Canadians, all of whom were eligible for this analysis. The response rate for the survey was 46.2%.

Definitions

Dental care

Data were collected on the need for, access to, and experiences with health care services over the 12 months before the survey, corresponding to the first 12-month period of the pandemic in Canada, during which access to health services was limited. Respondents were asked, "In the past 12 months, which of the following health care services did you need? Include any services that you have received or are waiting to receive," with one of the options being "dental care, such as dental cleaning, denture fitting, or cavity fillings," with yes or no response options. Those who responded "yes" were defined as reporting a need for **routine dental care**. Among those who responded "yes," if the services had not been received, information was collected regarding the reasons, including COVID-19 or others.

To capture the reported need for **emergency dental care**, respondents were asked, "In the past 12 months, did you experience any pain in your mouth or teeth?" with response options of "yes" or "no," and whether they sought medical or dental attention for that pain, or the reasons why they did not seek care.

Studies have shown that having dental insurance coverage is one of the main factors that determine whether Canadians see a dental professional for dental care.[14,15,16] Unfortunately, this information was not collected by the SAHCPDP.

Demographic characteristics

Gender was categorized as male, female, or gender diverse. However, given the small number of respondents who identified as gender diverse, most of the associated estimates were of insufficient release quality and therefore suppressed. **Age group** was categorized as 18 to 24 years, 25 to 49 years, 50 to 74 years, and 75 years and older. **Immigrant status** was defined as a Canadian-born individual or an immigrant, including permanent and non-permanent residents. **Indigenous identity** was defined based on a "yes" response to the question, "Are you First Nations, Métis or Inuk (Inuit)?" and compared with the non-Indigenous population (those with a "no" response). Though Indigenous people living off reserve were oversampled and disaggregation by Indigenous identity was possible, sub-analyses were not conducted because this was the focus of another study. Respondents who identified as non-Indigenous were asked to which **population group** they belonged, including South Asian, Chinese, Black, Filipino, Arab, Latin American, Southeast Asian, West Asian, and other (Korean, Japanese, group not defined elsewhere, and multiple population groups). Because of small sample sizes, for most analyses, **non-Indigenous population groups** were examined as a dichotomy of non-racialized (non-Indigenous, White) versus racialized (non-Indigenous, non-White) population groups.

Socioeconomic characteristics

Education was based on the respondents' highest certificate, diploma, or degree completed and categorized as high school graduation or less; trade school, college, CEGEP, or non-university certificate or diploma; and bachelor's degree or higher. **Household income quintiles** were based on the national distribution of respondents' reported total household income and categorized into quintiles: the lowest quintile comprised households with a total income less than $40,000, the second quintile was for those with $40,000 to less than $65,000, the third quintile was those with $65,000 to less than $98,000, the fourth quintile was for those with $98,000 to less than $147,000, and the highest income quintile was for total household incomes of $147,000 or more.

Analysis

Descriptive statistics using weighted data and adjusted for non-response were used to estimate the prevalence of access to dental care and unmet dental care needs. For each variable, not stated responses were set as missing and excluded from the analyses. Independent t-tests were conducted to test for statistically significant differences between estimates. The significance level was set at $p < 0.05$. The bootstrap technique was used to estimate variance and 95% confidence intervals to account for the complex survey design. Analyses were conducted in SAS version 9.4 and SUDAAN version 11.0.3.

Results

According to the 2021 SAHCPDP, 44.5% of Canadians aged 18 and older (representing 13,307,484 Canadians) reported needing routine dental care during the first 12-month period of the pandemic (Table 1). Nearly half (48.1%) of females reported needing routine dental care in the past year. This was above the estimate reported by males (40.9%). Similarly, the reported need for routine dental care was more common among individuals who had obtained more than a high school diploma (45.1% for those with college or trade school; 49.7% for those with a bachelor's degree) and people born in Canada (47.1%) than among individuals with less education (37.9%) and immigrants or non-permanent residents (38.6%). About one-third (36.9%) of the racialized population in Canada reported needing routine dental care, compared with 47.5% of the non-racialized (White) population, whereas people living in higher-income households were more likely to report needing routine dental care than people living in households from the lowest income quintile (Table 1). Compared with Ontario residents (45.3%), a smaller percentage of residents of Newfoundland and Labrador (37.6%) and Quebec (41.5%) reported needing routine dental care.

Of the 44.5% of Canadians who reported a need for routine dental care in the past 12 months, the majority (94.2%) received the care they needed, although 5.8% did not (Table 2). A significantly lower percentage of people from the top two

income quintiles (fourth quintile: 5.1%; highest quintile: 4.2%) reported an unmet routine dental care need than people from the bottom income quintile (8.1%). There were no other statistically significant differences among people who reported not receiving the routine dental care they needed, including by gender, age, education level, immigrant status, population group, Indigenous identity, or province.

Having a dental care appointment cancelled, rescheduled, or delayed because of COVID-19 was common during the first year of the pandemic, with nearly one in five people (18.9%) affected, regardless of whether the person had an unmet routine dental care need (Table 3). Having had a dental care appointment cancelled, rescheduled, or delayed because of

Table 1

Prevalence of a reported routine dental care need in the past 12 months, by selected characteristics, household population aged 18 years or older, Canada (excluding the territories), 2021

		95% confidence interval	
Characteristic	**%**	**from**	**to**
Total	44.5	43.4	45.6
Males[1]	40.9	39.2	42.6
Females	48.1 *	46.6	49.6
Gender diverse	35.7 D	16.8	60.4
Age group (years)			
18 to 24	44.8	39.4	50.4
25 to 49[1]	44.9	43.1	46.7
50 to 74	44.8	43.3	46.4
75 and older	41.0 *	38.1	44.0
Education			
High school graduation or less[1]	37.9	35.9	40.0
Trade school, college, CEGEP, non-university	45.1 *	43.2	47.0
Bachelor's degree or higher	49.7 *	47.8	51.6
Immigrant status			
Canadian-born individual[1]	47.1	45.8	48.4
Immigrant or non-permanent resident	38.6 *	36.3	41.0
Non-Indigenous population group			
Non-racialized (White) population[1]	47.5	46.2	48.7
Racialized (non-White) population	36.9 *	34.3	39.6
Indigenous identity			
Indigenous[2]	45.4	43.4	47.4
Non-Indigenous[1]	44.5	43.4	45.7
Household income quintile			
Lowest[1]	36.6	34.8	38.5
Second	36.7	34.3	39.2
Third	46.2 *	43.5	48.9
Fourth	51.2 *	48.4	53.9
Highest	56.1 *	53.2	58.9
Province			
Newfoundland and Labrador	37.6 *	34.3	41.1
Prince Edward Island	47.7	44.2	51.1
Nova Scotia	48.9	45.9	52.0
New Brunswick	43.7	40.6	46.9
Quebec	41.5 *	39.2	43.8
Ontario[1]	45.3	43.1	47.5
Manitoba	43.6	40.7	46.5
Saskatchewan	45.7	42.8	48.6
Alberta	46.7	44.1	49.4
British Columbia	45.4	42.8	47.9

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

1. Reference group.

2. Includes Indigenous people living off-reserve in the provinces only.

D Use with caution; high sampling variability (CV = 25% to ≤ 35%)

Source: Statistics Canada, Survey on Access to Health Care and Pharmaceuticals During the Pandemic, 2021.

Table 2
Prevalence of an unmet reported routine dental care need in the past 12 months, by selected characteristics, household population aged 18 years or older, Canada (excluding the territories), 2021

		95% confidence interval	
Characteristic	**%**	**lower**	**upper**
Total	5.8	5.0	6.7
Males[1]	5.2	4.1	6.6
Females	6.1	5.0	7.4
Age group (years)			
18 to 24	6.1 [D]	3.4	10.6
25 to 49[1]	6.6	5.3	8.3
50 to 74	5.0	4.0	6.1
75 and older	4.6 [D]	2.8	7.6
Education			
High school graduation or less[1]	5.8 [C]	4.0	8.3
Trade school, college, CEGEP, non-university	5.6	4.4	7.0
Bachelor's degree or higher	6.0	4.9	7.3
Immigrant status			
Canadian-born individual[1]	5.7	4.8	6.7
Immigrant or non-permanent resident	6.2 [C]	4.6	8.4
Non-Indigenous population group			
Non-racialized (White) population[1]	5.2	4.4	6.2
Racialized (non-White) population	6.8 [C]	4.9	9.2
Indigenous identity			
Indigenous[2]	7.6	5.9	9.7
Non-Indigenous[1]	5.7	4.9	6.7
Household income quintile			
Lowest[1]	8.1	6.2	10.4
Second	6.1 [C]	4.3	8.6
Third	5.4 [C]	3.9	7.5
Fourth	5.1 [*C]	3.5	7.4
Highest	4.2 [*C]	3.0	5.8
Province			
Newfoundland and Labrador	5.7 [D]	3.2	9.8
Prince Edward Island	7.9 [C]	5.2	11.8
Nova Scotia	5.2 [C]	3.4	7.7
New Brunswick	4.5 [C]	2.8	7.2
Quebec	5.6 [C]	3.9	8.1
Ontario[1]	6.3	4.8	8.1
Manitoba	5.6 [C]	4.0	7.9
Saskatchewan	4.3 [C]	2.8	6.5
Alberta	5.5 [C]	4.0	7.5
British Columbia	5.5 [C]	4.0	7.4

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

1. Reference group.

2. Includes Indigenous people living off-reserve in the provinces only.

[C] Use with caution; high sampling variability (CV = 15% to ≤ 25%)

[D] Use with caution; high sampling variability (CV = 25% to ≤ 35%)

Source: Statistics Canada, Survey on Access to Health Care and Pharmaceuticals During the Pandemic, 2021.

COVID-19 was more common among 25- to 49-year-olds (21.4%) than it was for adults aged 50 to 74 years (17.2%) or 75 years and older (12.3%). The cancellation, rescheduling, or delaying of a dental care appointment was also more commonly reported by people with levels of education above high school graduation, individuals born in Canada, and those with higher household incomes (Table 3). During the first 12 months of the pandemic, about 3 in 10 residents of Prince Edward Island

(28.8%) and Newfoundland and Labrador (35.3%) reported having a dental care appointment cancelled, rescheduled or delayed, significantly above the estimate for Ontarians (21.0%), while residents of Saskatchewan (13.6%), Quebec (16.0%), and Alberta (16.2%) reported experiencing fewer issues. The prevalence of having had a dental care appointment cancelled, rescheduled, or delayed because of COVID-19 was nearly three times higher for individuals with an unmet routine dental care

Table 3

Prevalence of dental care appointments cancelled, rescheduled, or delayed because of the COVID-19 pandemic, among those with dental care need overall and whether needed dental care obtained or not, by selected characteristics and if care was received, household population aged 18 years or older, Canada (excluding the territories), 2021

	Everyone with dental care need			Those with need who did not receive dental services			Those with need who received dental services		
		95% confidence interval			95% confidence interval			95% confidence interval	
Characteristic	%	lower	upper	%	lower	upper	%	lower	upper
Total	18.9	17.6	20.2	46.9	39.3	54.6	17.1	15.8	18.4
Males[1]	18.2	16.2	20.3	49.7	38.4	61.0	16.5	14.6	18.6
Females	19.4	17.7	21.1	44.7	34.8	55.1	17.6	16.0	19.3
Age group (years)									
18 to 24	19.2 [C]	14.1	25.6	F	...	...	19.6	14.2	26.3
25 to 49[1]	21.4	19.3	23.7	58.1	47.1	68.3	18.8	16.8	20.9
50 to 74	17.2 *	15.5	18.9	39.5 *	29.5	50.5	15.9 *	14.3	17.7
75 and older	12.3 *	9.6	15.8	44.1 [D]	22.1	68.6	10.9 *	8.3	14.1
Education					39.1	54.3			
High school graduation or less[1]	15.0	12.6	17.8	39.7 [D]	22.3	60.3	13.5	11.4	15.9
Trade school, college, CEGEP, non-university	19.8 *	17.5	22.3	52.6	41.5	63.5	17.9 *	15.6	20.4
Bachelor's degree or higher	20.6 *	18.5	22.8	46.3	35.8	57.2	18.8 *	16.8	21.0
Immigrant status									
Canadian-born individual[1]	20.2	18.8	21.8	54.3	46.0	62.4	18.3	16.8	19.8
Immigrant or non-permanent resident	14.7 *	12.4	17.4	25.7 *[C]	16.0	38.5	13.6 *	11.3	16.3
Non-Indigenous population group									
Non-racialized (White) population[1]	19.3	17.8	20.8	50.8	42.1	59.3	17.5	16.1	19.0
Racialized (non-White) population	16.9	14.0	20.2	32.1 *[C]	20.1	47.0	15.6	12.7	19.1
Indigenous identity									
Indigenous[2]	19.5	17.0	22.2	45.7	34.0	57.8	17.5	15.1	20.1
Non-Indigenous[1]	18.8	17.5	20.2	46.6	38.7	54.6	17.1	15.8	18.5
Household income quintile									
Lowest[1]	15.2	12.8	18.1	37.7 [C]	24.6	52.9	13.1	10.8	15.8
Second	15.5	12.8	18.6	42.8 [C]	26.6	60.7	13.8	11.1	16.9
Third	22.0 *	18.8	25.5	51.6 [C]	33.9	68.8	20.1 *	17.0	23.6
Fourth	22.2 *	19.0	25.6	49.5 [C]	30.9	68.2	20.8 *	17.8	24.2
Highest	19.0 *	16.5	21.8	59.0 *	42.6	73.7	17.3 *	14.8	20.0
Province									
Newfoundland and Labrador	35.3 *	30.2	40.8	65.0 [C]	31.9	88.1	33.3 *	28.2	38.9
Prince Edward Island	28.8 *	24.7	33.3	45.0 [D]	24.7	67.1	27.5 *	23.4	32.1
Nova Scotia	22.1	18.6	26.1	49.6 [C]	28.6	70.7	20.6	17.1	24.5
New Brunswick	20.7	16.9	25.0	47.6 [D]	25.0	71.2	19.6	15.8	24.0
Quebec	16.0 *	13.3	19.1	55.8 [C]	36.9	73.2	13.6 *	11.3	16.4
Ontario[1]	21.0	18.5	23.8	49.0	36.1	62.0	19.0	16.6	21.8
Manitoba	18.9	15.8	22.4	54.7 [C]	37.6	70.9	16.9	14.0	20.4
Saskatchewan	13.6 *	10.9	16.9	39.2 [D]	21.5	60.3	12.2 *	9.6	15.5
Alberta	16.2 *	13.5	19.3	24.5 *[D]	14.3	38.6	15.7	13.0	19.0
British Columbia	17.6	15.1	20.4	41.0 [C]	27.4	56.3	16.3	13.8	19.2

... not applicable

F too unreliable to be published

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

1. Reference group.

2. Includes Indigenous people living off-reserve in the provinces only.

[C] Use with caution; high sampling variability (CV = 15% to ≤ 25%)

[D] Use with caution; high sampling variability (CV = 25% to ≤ 35%)

Source: Statistics Canada, Survey on Access to Health Care and Pharmaceuticals During the Pandemic, 2021.

Table 4
Prevalence of experiencing pain in the mouth or teeth in the past 12 months, by selected characteristics, household population aged 18 years or older, Canada (excluding the territories), 2021

		95% confidence interval	
Characteristic	**%**	**lower**	**upper**
Total	23.3	22.3	24.3
Males[1]	21.5	20.0	23.0
Females	25.0 *	23.7	26.3
Gender diverse	37.8 D	18.2	62.4
Age group (years)			
18 to 24	30.3 *	25.5	35.5
25 to 49[1]	24.5	22.9	26.1
50 to 74	21.8 *	20.5	23.2
75 and older	16.4 *	14.3	18.8
Education			
High school graduation or less[1]	22.8	20.8	24.9
Trade school, college, CEGEP, non-university	24.8	23.1	26.6
Bachelor's degree or higher	22.4	20.9	24.0
Immigrant status			
Canadian-born individual[1]	23.9	22.7	25.0
Immigrant or non-permanent resident	22.0	20.0	24.2
Non-Indigenous population group			
Non-racialized (White) population[1]	23.2	22.1	24.3
Racialized (non-White) population	22.9	20.6	25.4
Indigenous identity			
Indigenous[2]	27.5 *	25.6	29.5
Non-Indigenous[1]	23.2	22.2	24.2
Household income quintile			
Lowest[1]	23.6	22.0	25.4
Second	25.2	22.7	28.0
Third	24.7	22.5	27.1
Fourth	21.2	19.0	23.5
Highest	21.6	19.3	24.1
Province			
Newfoundland and Labrador	19.3 *	16.7	22.4
Prince Edward Island	23.0	20.2	26.2
Nova Scotia	25.4	22.7	28.3
New Brunswick	21.5	18.7	24.5
Quebec	22.6	20.7	24.6
Ontario[1]	23.0	21.0	25.2
Manitoba	23.3	21.0	25.6
Saskatchewan	22.2	19.9	24.8
Alberta	24.9	22.7	27.3
British Columbia	24.5	22.3	26.9

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

1. Reference group.

2. Includes Indigenous people living off-reserve in the provinces only.

D Use with caution; high sampling variability (CV = 25% to ≤ 35%)

Source: Statistics Canada, Survey on Access to Health Care and Pharmaceuticals During the Pandemic, 2021.

need (46.9%) than it was for those who had received routine dental care (17.1%) (Table 3).

For those requiring more urgent dental care during the first part of the pandemic, almost one-quarter (23.3%) of the population aged 18 and older experienced pain in their mouth or teeth (Table 4). Having reported dental pain was more common among females (25.0%) than males (21.5%), and among Indigenous peoples (27.5%) than the non-Indigenous population (23.2%). The prevalence of experiencing mouth or tooth pain significantly decreased with age, with almost twice

Table 5
Prevalence of seeking medical care for pain in the mouth or teeth in the past 12 months, by selected characteristics, household population aged 18 years or older, Canada (excluding the territories), 2021

	Sought care for pain in mouth or teeth in past 12 months			Received the needed care		
		95% confidence interval			95% confidence interval	
Characteristic	%	lower	upper	%	lower	upper
Total	64.2	61.5	66.7	86.4	84.0	88.5
Males[1]	61.0	56.7	65.2	87.1	83.4	90.0
Females	67.0 *	63.8	70.0	86.3	83.0	89.0
Gender diverse	64.7 C	34.7	86.4	F	...	...
Age group (years)						
18 to 24	52.1	41.9	62.1	76.2	62.8	85.9
25 to 49[1]	59.5	55.6	63.4	85.4	81.5	88.7
50 to 74	72.5 *	69.2	75.6	90.0 *	87.5	92.0
75 and older	74.5 *	66.9	80.8	86.2	77.4	91.9
Education						
High school graduation or less[1]	63.2	57.7	68.4	83.5	77.5	88.1
Trade school, college, CEGEP, non-university	63.9	60.0	67.7	88.3	85.3	90.7
Bachelor's degree or higher	65.0	60.7	69.1	87.5	83.4	90.7
Immigrant status						
Canadian-born individual[1]	64.5	61.7	67.2	87.3	85.0	89.4
Immigrant or non-permanent resident	63.4	57.4	69.1	84.5	78.1	89.3
Non-Indigenous population group						
Non-racialized (White) population[1]	66.0	63.2	68.7	87.7	85.2	89.8
Racialized (non-White) population	59.7	53.3	65.8	83.9	76.7	89.3
Indigenous identity						
Indigenous[2]	64.4	60.6	68.0	83.8	79.6	87.4
Non-Indigenous[1]	64.2	61.5	66.9	86.8	84.3	88.9
Household income quintile						
Lowest[1]	63.3	58.9	67.5	80.1	74.8	84.6
Second	57.3	50.2	64.0	81.3	73.3	87.3
Third	64.6	58.8	70.1	91.9 *	88.2	94.6
Fourth	66.9	60.5	72.8	90.5 *	85.7	93.9
Highest	70.6	63.9	76.5	92.0 *	88.0	94.7
Province						
Newfoundland and Labrador	64.8	56.0	72.8	79.7	70.2	86.8
Prince Edward Island	64.5	56.9	71.5	82.0	72.9	88.5
Nova Scotia	66.5	59.7	72.6	84.5	77.9	89.4
New Brunswick	66.6	58.7	73.7	88.8	81.6	93.4
Quebec	62.1	56.9	67.0	86.5	81.0	90.6
Ontario[1]	63.1	57.5	68.4	85.0	79.4	89.3
Manitoba	64.5	58.7	69.9	88.1	81.7	92.4
Saskatchewan	67.1	60.7	73.0	88.0	80.7	92.8
Alberta	68.0	62.6	73.0	89.0	84.5	92.3
British Columbia	65.7	60.5	70.5	87.6	82.4	91.4

... not applicable

F too unreliable to be published

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

1. Reference group.

2. Includes Indigenous people living off-reserve in the provinces only.

C Use with caution; high sampling variability (CV = 15% to ≤ 25%)

Source: Statistics Canada, Survey on Access to Health Care and Pharmaceuticals During the Pandemic, 2021.

as many 18- to 24-year-olds (30.3%) reporting pain as seniors aged 75 and older (16.4%). A lower percentage of Newfoundland and Labrador residents (19.3%) reported experiencing pain in their mouth or teeth than residents of Ontario (23.0%).

Among Canadians with dental pain, nearly two-thirds (64.2%) sought treatment (Table 5). Having sought care for their dental problems was more common among females (67.0%) and adults aged 50 to 74 years (72.5%) or 75 years and older (74.5%) than it was for males (61.0%) and adults aged 25 to 49 years (59.5%).

Most individuals with dental pain contacted a dental office for treatment (92.5%), while the remainder sought care from a medical doctor's office or other location (7.5%) (data not shown). The majority of people (86.4%) who sought treatment for their mouth or tooth pain were treated (Table 5). The prevalence of individuals who received the care they needed for their dental pain tended not to differ by sociodemographic characteristics or province. However, it was more common for higher-income individuals (third quintile: 91.9%; fourth quintile: 90.5%; highest quintile: 92.0%) to have received care for their mouth or tooth pain than it was for those in the lowest income quintile (80.1%).

Additionally, over one-third (35.8%) of Canadians aged 18 and older who experienced dental pain did not seek care for it. Some opted not to seek care because of the cost (36.4%), whereas for others, the dental-related pain resolved on its own (52.3%) (data not shown). For about one-third (33.2%), care for their mouth or tooth pain was avoided because of fear of contracting COVID-19 (Table 6). While there were no differences in this fear by gender, more adults aged 75 and older (49.2%), compared with those aged 25 to 49 years (28.5%), avoided seeking care because of their fear of contracting COVID-19. Opting not to seek care to avoid COVID-19 also differed according to immigrant status and Indigenous identity. For example, 41.9% of immigrants and 33.2% of non-Indigenous people reported not seeking care to avoid COVID-19. These figures are higher than the corresponding figures for Canadian-born people (29.6%) and Indigenous people (25.5%). Geographically, rates of not seeking treatment for mouth or tooth pain because of fear of contracting COVID-19 varied little across Canada, with one notable difference: nearly half (47.9%) of Ontarians reported that they had not sought care for their dental pain because of a COVID-19 fear. This is significantly higher than all the other provincial estimates, which range from 12.3% in New Brunswick to 33.3% in British Columbia.

Discussion

This is the first national study to examine the self-reported need for, and access to, oral health care services during the COVID-19 pandemic in Canada, when routine or preventive (non-urgent) dental services were disrupted and at times restricted to limit virus transmission, while emergency-type care tended to be available.

According to this study, about 45% of Canadians aged 18 years and older reported needing routine dental care during the first year of the pandemic. Nearly one-quarter reported needing urgent care, characterized by pain in their mouth or teeth. Pre-pandemic estimates from the Canadian Community Health Survey (CCHS) suggest that 74.7% of similarly aged Canadians visited a dental professional in 2018.[16] People who visited a dentist may not report a need for dental care because they already received care, while others who did not visit a dentist may have reported not needing dental services because they do not prioritize prevention or did not recognize the early signs of an oral health problem. While both surveys provide important context, comparing the SAHCPDP estimates with the CCHS estimates is not entirely appropriate nor informative because of differences in survey methodology and question wording.

Nonetheless, the SAHCPDP suggests that access to, and the use of, dental services by Canadians during the first 12 months of the pandemic was lower and that there were fewer dental visits than would normally be expected. Other provincial studies have found similar results. For example, a study of dental care visits from hospital- and community-based outpatient clinics in Alberta showed fewer dental hygienist visits from March 2020 to September 2020 compared with the same six-month periods in 2018 and 2019.[17] Similarly, a British Columbia study of functionally dependent geriatric patients showed all dental appointments at long-term care dental clinics were cancelled in April and May 2020 and that these clinics operated at about one-third of pre-pandemic capacity the remainder of the year.[18]

Despite the challenges of comparing routine dental care utilization estimates from the SAHCPDP with other Canadian data, other SAHCPDP-based findings in this study pertaining to need by sociodemographic characteristics, including by gender, age, immigrant status, or income, were less affected and better aligned with results from many other studies of oral health and oral care access. Importantly, these findings may not be capturing just differences in oral health status, per se, but also likely differences in care-seeking behaviours more generally. Future dental health studies could investigate the correspondence between subjective and more objective measures of oral health and treatment needs by different populations groups.

This study showed that most people in Canada requiring routine dental care during the first year of the pandemic received treatment. About 6% of Canadians, however, reported not getting a required service. Unmet dental care needs were similar for most sociodemographic groups, except for people living in the highest-income households (top 40%), who were less likely to report an unmet dental need than those from households in the lowest income quintile. Canadians from higher-income households were also more likely to have had their dental pain treated than those from the lowest-income households. In this study, a higher rate of need for, and access to, oral health care services was reported by higher-income Canadians than Canadians with lower incomes. Disparities in access to, and the need for, dental care in Canada by income have been found previously.[14,16,19] Dental care can be costly, and without a universally publicly funded oral health care program, lower- and middle-income people sometimes forgo dental care because of an inability to pay.[20,21] Most Canadians rely on employer-sponsored dental insurance or pay out of pocket.[16] In this study, 36% of Canadians with mouth or tooth pain did not seek care because of the cost. This is consistent with earlier estimates that more than one in five Canadians avoid visiting a dental professional for this reason.[16]

The percentage of cancelled, rescheduled, or delayed appointments among Canadians with a dental need in this study

was two to three times higher among those who did not receive the dental services they required (47%) than among those who were treated (17%). The underlying reason causing the appointment disruption, such as lockdown restrictions, COVID-19 symptoms, or a diagnosed COVID-19 infection in the patient or provider, was not captured by the SAHCPDP. This study found that one in three Canadians avoided going to the dentist out of fear of contracting COVID-19 despite experiencing dental pain. Studies of Japanese, Polish and American dental patients have also shown that, much like their Canadian

Table 6
Prevalence of those who did not seek care for pain in the mouth or teeth because of fear of contracting COVID-19, household population aged 18 years or older, Canada (excluding the territories), 2021

		95% confidence interval	
Characteristic	**%**	**lower**	**upper**
Total	33.2	28.5	38.3
Males[1]	30.7	23.2	39.4
Females	35.8	30.4	41.6
Age group (years)			
18 to 24	37.7 [D]	21.0	57.9
25 to 49[1]	28.5	23.2	34.5
50 to 74	37.0	30.9	43.5
75 and older	49.2 [*C]	34.1	64.5
Education			
High school graduation or less[1]	31.7 [C]	21.3	44.3
Trade school, college, CEGEP, non-university	26.2	20.7	32.6
Bachelor's degree or higher	41.1	33.8	49.0
Immigrant status			
Canadian-born individual[1]	29.6	25.1	34.6
Immigrant or non-permanent resident	41.9 [*]	31.2	53.5
Non-Indigenous population group			
Non-racialized (White) population[1]	27.3	22.9	32.2
Racialized (non-White) population	45.4 [*]	34.3	56.9
Indigenous identity			
Indigenous[2]	25.5 [*]	20.3	31.5
Non-Indigenous[1]	33.2	28.3	38.5
Household income quintile			
Lowest[1]	33.7	26.7	41.5
Second	36.1 [C]	24.1	50.2
Third	28.8 [C]	20.4	39.1
Fourth	30.7 [C]	21.3	42.0
Highest	36.2 [C]	25.7	48.1
Province			
Newfoundland and Labrador	F	...	...
Prince Edward Island	F	...	...
Nova Scotia	15.8 [*D]	9.2	25.9
New Brunswick	12.3 [*D]	7.1	20.7
Quebec	15.7 [*C]	10.8	22.3
Ontario[1]	47.9	38.0	57.9
Manitoba	29.5 [*]	21.6	38.7
Saskatchewan	31.3 [*C]	21.9	42.7
Alberta	27.2 [*C]	19.7	36.2
British Columbia	33.3 [*]	25.5	42.3

... not applicable

F too unreliable to be published

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

1. Reference group.

2. Includes Indigenous people living off-reserve in the provinces only.

[C] Use with caution; high sampling variability (CV = 15% to ≤ 25%)

[D] Use with caution; high sampling variability (CV = 25% to ≤ 35%)

Source: Statistics Canada, Survey on Access to Health Care and Pharmaceuticals During the Pandemic, 2021.

counterparts, some patients opted to cancel or delay their dental visit because of a fear or anxiety of contracting the virus.[22,23,24] Reduced access to, and use of, different health care services, including those offered by dental professionals, is of particular concern if the service delay leads to worse health outcomes. Regular visits to dental professionals help ensure emergent problems are caught earlier, when they are most treatable. There is some emerging evidence that the pandemic may have negatively affected oral health in Canada. In Alberta, for example, a study found that dental infections, salivary problems, and temporomandibular disorders (contributing to increased visits to pediatric dentists and oral surgeons) were more commonly found in patients after the easing of pandemic restrictions, compared with levels collected before the pandemic.[17] This study found that almost one-quarter of Canadians experienced pain in their mouth or teeth during the first 12 months of the pandemic, suggesting a need for more urgent oral health care. This is higher than the 11.7% of Canadians who reported having mouth pain sometimes or often in the previous 12 months in the 2007 to 2009 Canadian Health Measures Survey.[25] Other studies have shown that levels of stress, anxiety, and depression increased during the COVID-19 pandemic, contributing to higher rates of temporomandibular disorders, bruxism (teeth grinding), and orofacial pain.[26,27]

This study has several limitations. First, the information collected is based on self-reported behaviours over the previous 12 months, which can be subject to recall bias, and required the respondent to recognize a need for dental services that was not clinically determined. Second, some variables relevant to the study of oral health and access to related services were not collected in the SAHCPDP, including dental insurance coverage, frequency of tooth brushing, whether respondents have a dentist or location they normally use, or smoking status. Having dental insurance coverage is one of the main factors that determine whether Canadians go see a dental professional for dental care.[14,15,16] Third, for Indigenous people, the results may not be generalized to those outside the target population, particularly First Nations people living on reserve and Inuit living in the North, as they were not surveyed directly and the pandemic's effect on their reported need for, and access to, oral health care services could differ depending on the location of their residence. Restrictions on the provision of dental services varied across Canada over time and according to the risk or prevalence of COVID-19 infection rates, but this contextual information was not included in the SAHCPDP. Information from the United States suggests dental offices began reopening for routine care as early as May 2020,[28] and nearly 99% of dental offices were open by mid-July 2020.[29] Had the duration of the measurement been less than 12 months, it is likely that the estimates for access to oral health care earlier in the COVID-19 pandemic, when lockdowns were most stringent, would have been lower. Furthermore, the cross-sectional nature of the survey made it impossible to determine whether the individual's mouth pain started as a response to unmet routine preventive dental care.

This descriptive study showed that during the first 12-month period of the COVID-19 pandemic, many Canadians had their access to dental services interrupted or did not receive the oral health care services they needed, regardless of whether they were fearful of contracting COVID-19. It remains to be seen whether pandemic-related dental service interruptions will result in longer-term dental harms. As Canadians learn to coexist with COVID-19, rather than expecting its elimination, the ongoing monitoring of oral health and related care, particularly among populations who experience worse dental health, remains important.

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