

# Parental Factors Associated with Regular Use of Dental Services by Second-Year Secondary School Students in Quebec

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## A b s t r a c t

*The aim of this study was to identify the parental factors associated with regular use of dental services by second-year secondary school students in Quebec. Data were collected in 1996–97, as part of a provincial survey on the dental health of Quebec students. A stratified probabilistic sample of 1,351 students, representative at the provincial level, was obtained. Data about frequency of use of dental services, parents' socio-economic characteristics, dental insurance (private and public) and parents' utilization of dental services were selected for this study. Half of the students used dental services regularly (i.e., once every 6 months). Multivariate analysis showed that the strongest parental factors associated with regular use were (in decreasing order of importance) the date of the mother's most recent dental visit, dental insurance, household income and the date of the father's most recent dental visit. After adjustment for the parents' socio-economic characteristics and the availability of dental insurance, students with one parent (particularly the mother) who had visited the dentist within the previous year had better odds of using dental services every 6 months, as recommended by professional standards.*

**MeSH Key Words:** adolescence; dental health services/utilization; social environment; Quebec

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Between 1977 and 1997, the average number of decayed, missing or filled teeth in the permanent dentition of Quebec students aged 13 and 14 years declined by about 66%.<sup>1,2</sup> However, this general trend did not hold for about one-quarter of that population, who accounted for 75% of the cavities in that age group.<sup>3</sup> Furthermore, children and teenagers of low socio-economic status have more cavities than those whose socio-economic situation is better.

Although many studies have aimed to determine the factors associated with use of dental services by youth (children and teenagers), the regular use of dental services (i.e., at least once every 6 months) is less well documented for this age group.

Use of dental services by youth appears to be closely related to use of dental services by their parents. Specifically, regular use of such services by the parents, particularly the mother, is significantly associated with frequent use of

dental services by children<sup>4-7</sup> and teenagers.<sup>8-10</sup> This association is especially strong for dental consultations by children once every 6 months. According to Attwood and others,<sup>8</sup> the utilization behaviour of parents was the strongest factor determining use of dental services once every 6 months in teenagers, and the mother's behaviour had a stronger influence than the father's. In addition, most adults who visit a dentist regularly were regular users of dental services in childhood and adolescence.<sup>11</sup> However, no study examining the role of parental use of dental services on use of such services by their children has controlled for financial accessibility (cost of dental services) and household socio-economic characteristics.

The socio-economic characteristics of parents seem closely linked to the use of dental services by youth. In general, the higher the household income and parental education, the more likely that children and teenagers will visit the dentist regularly.<sup>4,8,12,13</sup>

Socio-psychological factors are also important. According to Antoft,<sup>14</sup> absence of parental support for preventive dental health behaviour may partially explain the non-use of dental services by youth. Some studies point to teenagers' desire to maintain the good appearance of their teeth as influencing them to use dental services,<sup>15,16</sup> but others have described a lack of perceived need for such services as a barrier to preventive dental health behaviour.<sup>10,17</sup> Finally, according to Blinkhorn and others,<sup>15</sup> some young people cite anxiety as a justification for non-use of dental services.

Use of dental services is positively associated with level of dental insurance coverage (both public and private).<sup>12</sup> Nevertheless, the low use of dental services by people receiving social assistance, who are eligible for public dental insurance, indicates the complexity of utilization behaviour. In fact, other factors such as household income, education and household composition are influential even for those who have insurance coverage.<sup>18</sup>

The objective of this study was to describe the prevalence of regular use of dental services (i.e., once every 6 months) among second-year secondary school students and to determine the parental factors associated with regular use in this age group.

## Methods

Data for this study were collected in 1996–97 in the context of a provincial survey of the dental health of Quebec students. The database for this survey allowed determination of the parental factors associated with regular use of dental services.

The sample for this study was a stratified probabilistic sample of second-year secondary school students with provincial-level representation.

Of the 2,493 students originally selected for the survey, 1,353 (54.3%) were examined, and 1,730 (69.4%) returned a questionnaire completed by their parents. The final sample consisted of 1,351 students who were examined and whose parents completed the questionnaire. Sixteen (1.2%) of the students were between 10 and 12 years of age, 1202 (89.0%) were 13 or 14 years of age, and 133 (9.8%) were 15 years or older.

The data were weighted according to area of residence and sex.

## Results

For most subgroups of second-year secondary school students in Quebec, about half used dental services regularly (i.e., every 6 months) (**Table 1**). The proportion was much lower for students whose parents had not visited the dentist in at least a year, but much higher for those whose parents had visited the dentist within the previous year.

Calculating odds ratios (ORs) through multivariate

analysis is a method of estimating risk whereby the outcome for the group "exposed" to a given factor, such as date of most recent dental visit by a parent, is compared with the outcome for the group not exposed to the factor. In this study, the outcome for all such comparisons was the prevalence of regular use of dental services (once every 6 months). According to the multivariate analysis, the date of the most recent dental visit by the mother had the strongest influence on regular use of dental services by the students, followed by dental insurance, household income and the date of the father's most recent dental visit (**Table 2**). To take an example from **Table 2**, the OR of 2.40 for students whose mothers had visited the dentist within the previous year indicates that these students were 2.4 times more likely to visit the dentist regularly than students whose mothers had not visited the dentist within the previous year.

Parental visits to the dentist in the previous year increased with income and education (**Table 3**). Specifically, in families with a household income of less than \$30,000, only 63.3% of parents had visited the dentist in the past 12 months; for families with a household income of \$50,000 or more, this proportion was 82.0%. In terms of education, only 67.2% of parents who did not graduate from secondary school but 79.1% of those who had a university degree had visited the dentist within the previous year.

## Discussion

The objective of this study was to identify the main parental factors associated with regular use of dental services among second-year secondary school students in Quebec. Regular use was defined as once every 6 months, the frequency recommended by the professional association of Quebec dentists. This recommendation is based on the prevalence of cavities, the need for follow-up of oral hygiene and the requirements for preventing malocclusion. However, there is no unanimity regarding the most appropriate frequency of dental consultations. Although clinicians favour visits once every 6 months, some researchers disagree. According to Sheiham,<sup>19,20</sup> cavities in the permanent dentition develop slowly, over a period of about 2 years in youth aged 14 and 15 years. Consultations at too frequent intervals can create a risk of overtreatment, especially for cavities in the early stages of development. In addition, fluoride in drinking water and toothpaste plays a key role in retarding the development of cavities by facilitating the remineralization of cavities as they are starting. According to Sheiham, an interval of 12 months between dental visits seems adequate, particularly for children residing in areas where the water is fluoridated. He also recommends a screening test for people at high risk of dental caries and gum disease. Eklund and others<sup>21</sup> agree and suggest practical guidelines for various groups in the population, according to age and

**Table 1** Prevalence of regular use of dental services by 1,351 second-year secondary school students in Quebec according to parental factors

Variable	Prevalence of regular use (%) <sup>a</sup>	p value
<b>Frequency of recall examinations for students (n = 1,303)</b>	50.0	
<b>Highest level of education attained by parents<sup>b</sup> (n = 1,286)</b>		0.236
Less than secondary	47.1	
Completed secondary	49.3	
College	48.5	
University	54.8	
<b>Household income<sup>b</sup> (n = 1,185)</b>		< 0.001
< \$30,000	40.0	
\$30,000 to \$49,999	48.7	
≥ \$50,000	63.3	
<b>Date of father's most recent dental visit<sup>b</sup> (n = 1,104)</b>		< 0.001
< 1 year	61.2	
> 1 year	39.3	
<b>Date of mother's most recent dental visit<sup>b</sup> (n = 1,243)</b>		< 0.001
< 1 year	60.4	
> 1 year	32.5	
<b>Dental insurance<sup>b</sup> (n = 1,249)</b>		< 0.001
No insurance	36.6	
Public insurance	52.7	
Private insurance <sup>c</sup>	62.3	

<sup>a</sup> Regular use of dental services was defined as at least once every 6 months.

<sup>b</sup> Used in the multivariate analysis.

<sup>c</sup> Includes parents with private insurance who also received social assistance.

dental history. Others have suggested that asymptomatic visits are adequate preventive behaviour and that such visits should be encouraged.<sup>22</sup>

According to the multivariate analysis, 4 variables were significantly associated with regular use of dental services. The date of the mother's most recent dental visit was the most influential factor. Thus, if the mother had visited the dentist recently (within the previous year), her children were more likely to exhibit similar utilization behaviour. The same pattern applied for the date of the father's most recent dental visit, but to a lesser degree. Parents' utilization behaviour has been mentioned in many studies as one of the main factors determining use of dental services by children and teenagers.<sup>4-9</sup> However, none of these studies analyzed parents' utilization behaviour in relation to other

**Table 2** Results of multiple logistic regression for regular use of dental services by 949 second-year secondary school students in Quebec

Variable	Odds ratio (95% confidence interval)
<b>Date of mother's most recent dental visit</b>	
< 1 year	2.40 (1.77-3.24)
> 1 year (reference)	1.00 (NA)
<b>Dental insurance</b>	
No insurance (reference)	1.00 (NA)
Private insurance	2.29 (1.69-3.09)
Public insurance	2.16 (1.13-4.13)
<b>Household income</b>	
< \$30,000 (reference)	1.00 (NA)
\$30,000 to \$49,999	NS (NS)
≥ \$50,000	1.67 (1.13-2.47)
<b>Date of father's most recent dental visit</b>	
< 1 year	1.47 (1.10-1.97)
> 1 year (reference)	1.00 (NA)

NA = not applicable, NS = not significant

**Table 3** Date of parents' most recent dental visit according to household income and education

Variable	Date of parent's most recent dental visit; % of students	
	< 1 year	> 1 year
<b>Household income (n = 1,180)</b>		
< \$30,000	63.3	36.7
\$30,000 to \$49,999	69.3	30.7
≥ \$50,000	82.0	18.0
<b>Education (n = 1,268)</b>		
Less than secondary school	67.2	32.8
Completed secondary school	64.0	36.0
College	72.2	27.8
University	79.1	20.9

parental factors. This study has shown that the date of the parents' most recent dental visit has a strong influence, even after adjustment for dental insurance and socio-economic factors.

Not only is the date of a parent's most recent dental visit a good measure of regularity of dental visits in adults, but it can also be a good indicator of parental support for preventive visits. Parents' desire to conserve their own teeth and those of their children for as long as possible will inevitably result in greater frequency of dental visits. The value placed on good dentition in the household is thus a transgenerational phenomenon. Learning about preventive measures in dental health (including through the example set by parents) is one important determinant of students' overall health behaviour. Finally, patterns of health behaviour established

during a person's youth influence adult behaviour, and one study has reported that adults who visit the dentist regularly were regular users of dental services in childhood and adolescence.<sup>11</sup>

Dental insurance was another important variable influencing regular use of dental services. Private insurance coverage might be expected to encourage a person to consult a dentist regularly, and a previous Quebec study showed that of people 18 years of age and over, 71% of those with private insurance but only 51% of those without insurance had visited the dentist in the previous 12 months.<sup>23</sup>

In the study reported here, students whose parents were beneficiaries of social security appeared to benefit from dental coverage available for preventive consultations. However, regularity of dental visits seemed more precarious in this group because they did not have the profile typical of other regular users. Thus, if their dental coverage were reduced or cancelled, a significant decrease in frequency of use of dental services might be expected. The importance of dental coverage for those with low income was revealed in a previous study.<sup>24</sup> Among low-income mothers, those with public dental coverage were almost 3 times as likely to visit a dentist (and to bring their children with them) than those without it. Conversely, the rate of recall examinations for children of families in Quebec receiving social security has declined by about 48% during the period 1991 to 1996.<sup>25</sup> The rate has continued to decline in 1997 and could be further reduced in the future. In fact, since 1997 the period between recall examinations for beneficiaries of social security has increased from 6 months to 1 year.

It is not surprising that household income was positively associated with regular use of dental services by students. Many studies have confirmed the importance of this variable,<sup>7,12,26</sup> but in the study reported here, household income higher than \$50,000 was significantly associated with regular use of dental services.

Household income predicts the effect of poverty on frequency of use of dental services better than dental insurance.<sup>23</sup> Thus, although low income is usually associated with less regular use of dental services, people with public dental insurance (i.e., beneficiaries of social security) do not exemplify this pattern. It is likely that the students who are at risk of not using dental services regularly are those whose parents have an income level that is too high for them to qualify for social security yet is insufficient to obtain private dental insurance (and coverage is not available through their employers). Nevertheless, these students have the greatest need for dental treatment because they account for most cavities in this age group.<sup>1,2</sup>

## Conclusions

This study aimed to identify the parental factors associated with regular use of dental services by second-year

secondary school students in Quebec. Although these factors are not exclusive, they have a strong influence because students in this age group do not have total independence in their decisions to visit the dentist. In fact, only a few students have the financial resources to pay for dental consultations, although it is during this period that their dental health behaviour becomes established. A previous study has shown that for some teenagers, asymptomatic dental consultations give way to symptomatic consultations between the ages of 13 and 15 years.<sup>27</sup> Thus, a proportion of students in this age group are likely to visit the dentist only after the appearance of symptoms.

Even though dental insurance and household income are positively associated with regular use of dental services, these factors cannot completely explain the use of preventive consultations. The date of the parents' most recent dental visit, particularly that of the mother, plays a key role in regularity of use. Therefore, the importance that the family attaches to dental health may influence the dental health behaviour of students and may increase the validity of their asymptomatic visits to the dentist. ♦

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