International Journal of Dental Hygiene

Official Journal of the International Federation of Dental Hygienists

ORIGINAL ARTICLE

C Quiñonez

Self-reported emergency room visits for dental problems

Author's affiliation:
C Quiñonez, Community Dental Health Services Research Unit, Faculty of Dentistry, University of Toronto, Toronto, ON, Canada

Correspondence to:
C. Quiñonez
Community Dental Health Services Research Unit
Faculty of Dentistry
University of Toronto
124 Edward Street
Toronto, ON
Canada M5G 1G6
Tel.: +(416) 979 4908 ext. 4493
Fax: +(416) 979 4936
E-mail: carlos.quinonez@utoronto.ca

Dates:
Accepted 22 July 2009

To cite this article:
Int J Dent Hygiene **9**, 2011; 17–20
DOI: 10.1111/j.1601-5037.2009.00416.x
Quiñonez C. Self-reported emergency room visits for dental problems.

Abstract: *Objective:* To estimate the prevalence of hospital emergency room visits for dental problems not associated with trauma in Canada, and to explore the characteristics that influence such visits. *Methods:* Data were collected through a cross-sectional and retrospective national telephone interview survey of 1005 Canadians aged 18 years and over using random digit dialling. Participants were asked if they had ever visited a hospital emergency room for a dental problem not associated with trauma. Descriptive and logistic regression analyses were undertaken. *Results:* A total of 54 people, or 5.4% of the sample reported having to visit an ER in the past for a dental problem not associated with trauma. Income, painful aching in one's mouth in the previous month, and having to spend a day in bed because of a dental problem in the last 2 weeks, appear to be the dominant predictors of this outcome. *Conclusions:* Access to dental insurance or public care mitigates the use of hospital care for dental problems that are best treated in the dental care setting.

Key words: access to dental care; dental insurance; dental problems; emergency room

Introduction

Hospital emergency room (ER) visits for dental problems of non-traumatic origin have gained new policy relevance in North America. Anecdotally, policy stakeholders have argued that these visits are: inefficient and expensive; represent problems in access to dental care and link to the relatively low level of public financing for dental care in both countries (Table 1).

These ideas are supported in the dental literature. For example, numerous authors have demonstrated that the majority of dental problems associated with ER visits are classified as non-urgent in the ER and are easily treated in dental care settings (e.g. toothaches) (1–4). They have also demonstrated that such visits are

Table 1. **The financing of dental care, Canada and United States, 2005**

	Total expenditures, in millions (per capita)	
	Canada	United States
Private insurance	5208 (160.85)	43 100 (145.41)
Out-of-pocket	4190 (129.41)	38 300 (129.21)
Public insurance	449 (13.87)	5200 (17.54)
Total	9850 (304.13)	86 600 (292.16)

Data sources: US Department of Health and Human Services, Centres for Medicare and Medicaid Services; US Census Bureau; Canadian Institute for Health Information; Statistics Canada.

over represented by adults, low-income groups, those without dental insurance and/or those that do not qualify for public financing (3–7). Data also confirm that most ER interventions do not arguably resolve the dental problem, predominantly consisting of simple assessments and pharmacotherapy (4, 7, 8).

In terms of costs, little data are available, yet ER charges have been reported to range from US$40 to $900, with a mean charge of US$117 ± $132 (7). Further, if they do occur, hospital admissions are costly, ranging from US$2215–$43 907 in one study (8), to US$949–$43 524 in another (1). Finally, research has also shown that ER visits vary according to changes in the public financing of dental care, meaning that they fluctuate in response to governmental support for dental care (2, 3, 8, 9).

In spite of this data, a general shortcoming of the literature has been the lack of national prevalence estimates on ER visits for dental problems, and the limited sociodemographic and dental demographic information on those who make such visits. Most articles report on specific geographic regions and only report on age, gender, ethnicity and insurance status. Few report on characteristics such as education, income, employment status, household size, geographical location, self-rated oral health status, dental care visits and dental pain or disability (3, 5). In turn, there is a lack of information on what characteristics may actually predict ER visits. To help fill this gap in the literature, this paper first estimates the prevalence of ER visits for dental problems not associated with trauma in Canada, and then explores the characteristics that may influence such visits.

Methods

Data were collected in February 2008 from a national, regionally stratified sample of Canadian adults by means of a telephone interview survey using random digit dialling and computer-assisted telephone interview technology (N = 1005, ≥18 years; assumes maximum variance and a 95% confidence interval of ±3%). Harris/Decima incorporated, a private firm specializing in public opinion and market research was employed to collect the data as part of its weekly national omnibus survey. The participation rate for this weekly survey is approximately 3%, meaning that 32 000–44 000 numbers are dialled to gather a sample of approximately 1000. Among attempted calls, approximately 21 000 are busy signals, no answer, answering machine, or invalid numbers. Willingness to participate in the survey is taken to imply consent, and no personal identifiers are collected. The data received by the researchers was weighted to replicate regional population distributions, by age and gender, according to 2001 Canadian Census data. The study received expedited review and approval from a university ethics board.

Table 2. **Sample characteristics (n = 1005)**

	Percentage*
Gender	
Male	48.3
Female	51.7
Age	
18–24	9.5
25–34	19.8
35–44	18.5
45–49	10.6
50+	40.2
Education	
<H.S.	29.9
College	25.6
University	26.6
Post-Grad	8.8
Income	
<20 K	9.4
20–40 K	18.3
40–60 K	17.4
60–80 K	11.2
80 K+	25.4
Employment status	
Employed	54.7
Self-employed	11.5
Unemployed	5.7
Retired	18.2
Dental insurance	
Private insurance	56.0
Out-of-pocket	36.4
Public insurance	4.8
Oral health status	
Poor/fair	12.9
Good/excellent	86.5
Last dental visit	
Never	0.8
5 or more years ago	7.9
3 years to <5 years ago	5.4
1 year to 3 years ago	14.6
<1 year ago	70.7
Painful aching in mouth	
Never/hardly ever	79.6
Fairly often/very often	4.9
Bed day because of dental problem in last 2 weeks	
No	96.3
Yes	3.3

*Percentages may not equal 100 because of non-respondents.

The basic question was: 'Have you ever visited a hospital ER because of tooth pain, anything that is not trauma?' The following sociodemographic and dental demographic variables were collected: gender, age, education, income, employment status, marital status, household size, household composition, rural/urban, dental insurance, oral health status, last dental visit, dental visiting pattern, painful aching in mouth in previous month and bed day due to dental problem in the last 2 weeks.

Using SPSS 16.0.1, descriptive and logistic regression analyses were undertaken. Bivariate logistic regression odds ratios were calculated and significant variables ($P < 0.05$) were entered as a block in multivariate analyses. All the above sociodemographic and dental demographic variables were tested for their ability to predict the outcome of visiting an ER for a dental problem not associated with trauma.

Results

Table 2 demonstrates that the majority of the sample were women (52%), over 35 years of age (69%), college or university educated (61%), employed (66%), and earned greater than $40 000 per year (54%). From a dental perspective, this sample of Canadian adults reflected well-established population estimates (10, 11): most reported their oral health as good to excellent (87%); most had visited the dentist within the previous year (71%); very few reported oral pain (5%); the majority accessed dental care through employment-based insurance (56%), some through out-of-pocket expenditures (36%) and very few through public assistance (5%). Interestingly, approximately 3% of the sample reported having to spend a day in bed in the previous 2 weeks because of a dental problem.

A total of 54 people, or 5.4% of the sample reported having to visit an ER in the past for a dental problem not associated with trauma. Extrapolated to the Canadian population aged 15 years and over or 27 713 600 people (12), this means a potential 1.5 million people have visited an ER in the past because of a dental problem not associated with trauma.

Table 3 describes the odds of reporting such an ER visit. Only statistically significant relationships are presented. The variables age, education, employment status, marital status, household size, household composition and rural/urban were not significant. It appears that men, those with incomes

Table 3. **Odds of reporting a visit to a hospital emergency room because of a dental problem not associated with trauma**

Variables	Unadjusted OR* [95% CI]	*P*-value	Adjusted OR† [95% CI]	*P*-value
Gender				
Male	1.8 [1.03, 3.2]	0.04	1.2 [0.6, 2.6]	0.64
Female	Reference		Reference	
Income				
<$20 000	2.5 [0.7, 6.8]	0.15	2.6 [0.7, 9.9]	0.12
$20–40 000	1.7 [0.7, 4.7]	0.27	1.0 [0.3, 3.6]	0.10
$40–60 000	3.0 [1.2, 7.4]	0.02	3.0 [1.04, 8.9]	0.04
$60–80 000	2.3 [0.8, 6.5]	0.13	2.1 [0.6, 7.5]	0.27
$80 000 or more	Reference		Reference	
Dental insurance				
Uninsured	2.7 [1.5, 4.7]	0.001	1.7 [0.8, 3.8]	0.18
Insurance	Reference		Reference	
Oral health status				
Poor/fair	2.3 [1.2, 4.4]	0.01	0.6 [0.2, 1.5]	0.29
Good/excellent	Reference		Reference	
Visiting pattern				
Never	2.0 [0.6, 6.8]	0.27	1.1 [0.2, 6.3]	0.90
Only in emergencies	2.1 [1.04, 4.1]	0.04	1.4 [0.5, 3.9]	0.51
About once a year	Reference			
Painful aching in mouth				
Fairly often/very often	5.7 [2.6, 12.4]	0.001	3.4 [1.2, 9.7]	0.02
Never/hardly ever	Reference		Reference	
Bed day because of dental problem in last 2 weeks				
Yes	4.4 [1.7, 11.1]	0.002	4.1 [1.0, 17.2]	0.06
No	Reference		Reference	

*Model 1 entered all variables independently, with *n* ranging from 805 for income to 1003 for gender.

†Model 2 entered significant variables ($P < 0.05$) from Model 1, adjusting for all variables simultaneously, $n = 666$.

between $40 and $60 thousand, the uninsured, those that report their oral health as poor/fair, that seek dental care only in emergencies, that report painful aching in their mouth in the previous month, and that stayed in bed for at least 1 day in the last 2 weeks because of a dental problem, were all more likely to have reported an ER visit. After controlling for the influence of all of these variables simultaneously, only income and painful aching in mouth are predictive of this outcome.

Conclusions

This study is the first of its kind in Canada, and demonstrates that at any given time, potentially 5.4% of the Canadian population has visited an ER for a dental problem not associated with trauma. From what is already known in Canada (4), it is reasonable to suggest that the dental problem was not considered urgent in the ER setting and that no significant intervention was received. This study has also demonstrated that there may be a sex disparity in relation to ER visits, and not surprisingly, an oral health disparity as well, meaning that those that perceive their oral health as poor, that experience oral pain, and that report a bed day in relation to a dental problem, are all more likely to make an ER visit.

Surprisingly, it is not the lowest incomes that report ER visits for dental problems, but those in the lower-middle income group. This makes sense when one considers that the lowest income groups are often eligible for government dental care programs in Canada. Termed the challenge of the working poor, access to dental care can become complicated for those individuals that receive earnings that make them ineligible for public support, but that also have employment that does not offer dental insurance as an employment benefit (13).

Cohen *et al.* (1, 3, 6) have perhaps provided the most complete assessments of ER visits for dental problems in the United States. Similar to this study, they have estimated that approximately 3.1% of the United States' population have sought a medical or ER setting because of a dental problem not associated with trauma (6). Yet unlike this study, they have demonstrated differences in the likelihood of a medical or ER visit in terms of age, specifically older adults, and have shown no differences in terms of gender, ethnicity, income, education, employment, rural/urban status and bed days (6).

Considering the limitations of this study are important. First, the prevalence of positive responses is low, resulting in wide confidence intervals in some cases (e.g. painful aching in mouth, bed days). Secondly, this study could only report the lifetime prevalence of ER visits, meaning that ideally, a time period would have been specified in the central query. This would have allowed for a more precise estimate, namely the presentation of a yearly prevalence. Thirdly, this sample likely under-represents those of low-income, as it has been shown that these groups increasingly opt for cellular telephones instead of landlines (14), thus they are missing from this study's sampling frame.

Within these limitations, this study still provides useful information for current policy debates. It provides a national estimate for the lifetime prevalence of ER visits because of dental problems of non-traumatic origin in Canada. It also provides evidence on the potential impacts of dental and sociodemographic characteristics on such visits. Finally, it demonstrates that access to dental insurance or public care mitigates the use of hospital care for dental problems that are best treated in the dental care setting.

References

1 Manski R, Cohen L, Hooper F. Use of hospital emergency rooms for dental care. *Gen Dent* 1998; **46:** 44–47.

2 Ladrillo T, Hobdell M, Caviness A. Increasing prevalence of emergency department visits for pediatric dental care, 1997–2001. *J Am Dent Assoc* 2006; **137:** 379–385.

3 Cohen L, Manski R, Magder L, Mullins D. Dental visits to hospital emergency departments by adults receiving Medicaid. *J Am Dent Assoc* 2002; **133:** 715–724.

4 Quiñonez C, Gibson D, Jokovi A, Locker D. Emergency department visits for dental care of non-traumatic origin in Ontario. *Community Dent Oral Epidemiol* 2009; **37:** 366–371.

5 Okunseri C, Pajewski N, Brousseau D, Tomany-Korman S, Snyder A, Flores G. Racial and ethnic disparities in non-traumatic dental-condition visits to emergency departments and physicians' offices. *J Am Dent Assoc* 2008; **139:** 1657–1666.

6 Cohen L, Manski R. Visits to non-dentist health care providers for dental problems. *Fam Med* 2006; **38:** 556–564.

7 Graham D, Webb M, Seale N. Pediatric emergency room visits for non-traumatic dental disease. *Pediatr Dent* 2000; **22:** 134–140.

8 Pettinato E, Webb M, Seale N. A comparison of Medicaid reimbursement for non-definitive pediatric dental treatment in the emergency room versus periodic preventive care. *Pediatr Dent* 2000; **22:** 463–468.

9 Mullins C, Cohen L, Magder L, Manski R. Medicaid coverage and utilization of adult dental services. *J Health Care Poor Underserved* 2004; **15:** 672–687.

10 Millar W. Dental consultations. *Health Rep* 2004; **16:** 41–44.

11 Millar W, Locker D. Dental insurance and use of dental services. *Health Rep* 1999; **11:** 55–67.

12 Statistics Canada. Population as of July 1. Statistics Canada, 2008. CANSIM table 051-0001. Available at: http://www40.statcan.gc.ca/l01/cst01/demo10a-eng.htm (accessed 28 May 2009).

13 Muirhead V, Quiñonez C, Figueiredo R, Locker D. Predictors of dental care utilization among working poor Canadians. *Comm Dent Oral Epidemiol* 2009; **37:** 199–208.

14 Sciadas G. *The Digital Divide in Canada*. Ottawa: Science, Innovation and Electronic Information Division, Statistics Canada; 2002.