RESEARCH PAPER

Children's Oral Health and Barriers to Seeking Care: Perspectives of Caregivers Seeking Pediatric Hospital Dental Treatment

Santé buccodentaire des enfants et obstacles dans la recherche de soins : point de vue des parents ou tuteurs légaux à la recherche de traitements dentaires pédiatriques en milieu hospitalier

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Abstract

Objectives: To investigate the demographics of children (and their caregivers) requiring hospital-based tertiary dental care, oral health services use and perceptions of and barriers to oral healthcare in Nova Scotia.

Method: A questionnaire was administered to caregivers (N = 62) on behalf of their child (N = 62).

Results: Nearly half (45.8%, N = 27) of the caregivers experienced difficulty seeking oral healthcare for both themselves and their children. Less than a quarter (23.2%, N = 13) of the caregivers sought care for their child by the recommended age of one (mean age of first visit = 2.69 years). Alternate delivery in a school, community or primary healthcare setting was preferred by 53.3% (n = 32) of the caregivers for children's oral healthcare. Low-income families (53.8%, n = 28), rural areas (47.4%, n = 27) and Indigenous children (9.7%, n = 6) were over-represented in the study's sample.

Conclusion: Socio-economically disadvantaged populations are more vulnerable to oral diseases. Oral health of priority populations in Nova Scotia appears to be inadequately addressed.

Résumé

Objectifs : Étudier les données démographiques concernant les enfants (ainsi que celles de leurs parents ou tuteurs légaux) qui nécessitent des soins dentaires tertiaires en milieu hospitalier; étudier l'usage des services de santé buccodentaire et la perception vis-à-vis des soins dentaires, ainsi que les obstacles pour l'obtention de services dentaires en Nouvelle-Écosse.

Méthode : Les parents ou tuteurs légaux (N = 62) ont répondu à un questionnaire au nom des enfants (N = 62).

Résultats : Près de la moitié (45,8 %, N = 27) des parents ou tuteurs légaux ont connu des difficultés dans la recherche de soins dentaires pour eux-mêmes ou leurs enfants. Moins du quart (23,2 %, N = 13) des parents ou tuteurs légaux ont tenté d'obtenir des soins pour l'enfant dès l'âge d'un an, tel que recommandé (âge moyen de la première consultation = 2,69 ans). Un peu plus de la moitié, 53,3% (n = 32) des parents ou tuteurs légaux ont préféré d'autres modes de prestation de soins dentaires pour les enfants, soit à l'école, dans les services communautaires ou dans les établissements de soins de santé primaires. Les familles à faible revenu (53,8 %, n = 28), les secteurs ruraux (47,4 %, n = 27) et les enfants autochtones (9,7 %, n = 6) étaient surreprésentés dans l'échantillon de l'étude.

Conclusion : Les groupes défavorisés sur le plan socioéconomique sont plus vulnérables aux maladies buccodentaires. La question de la santé buccodentaire des populations priorisées en Nouvelle-Écosse ne semble pas être abordée adéquatement.

Despite the advances in oral health due to the widespread use of fluorides and a shift to a focus on prevention (Petersen and Ogawa 2016), dental caries (cavities) continue to be the most common chronic childhood disease (CIHI 2013; Rowan Legg 2013). Dental treatment for decay is the most common reason for day surgery for children in Canada (CIHI 2013).

Among those who suffer the greatest burden and experience the most barriers to care in Canada are the socio-economically disadvantaged, including children living in low-income or in poorly educated families, Indigenous peoples, refugees and immigrants, those with special needs and those living in rural areas (CAHS 2014; Health Canada 2010). Dental decay can result in acute or chronic pain that may affect a child's ability to eat, sleep, communicate and socialize and may ultimately influence optimal growth and development (i.e., failure to thrive) (CDA 2010; CIHI 2013; Ismail and Sohn 2001; Rowan Legg 2013).

A review of the oral health status of children in the province of Nova Scotia (NS) analyzed data from a 1995–1996 cross-sectional study of first-grade children in NS (Ismail and Sohn 2001). The authors recommended (1) a multifactorial approach to prevention and treatment of oral disease that addresses social determinants of health, (2) community-based preventive services and (3) health promotion programs such as school-based education and media promotion. Despite Ismail and Sohn's recommendations, dental public health human resources have since declined in NS, as there are fewer dental hygienists working in public health (Shaw and Farmer 2016).

Currently, the Fluoride Mouthrinse Program is the primary initative of public health dental hygienists in NS and is offered to select schools across the province. Some municipalities in NS fluoridate the public water supply, though information regarding whether a public water supply is fluoridated is not widely available to the public. The Children's Oral Health Program (COHP) is an insurance program (payer of last resort) provided by the NS Provincial Government since 1974. It focuses on publicly financed oral healthcare, diagnostic, preventive and treatment services, delivered primarily in private offices for all children until age 15 (Oral Health Advisory Group 2015; Shaw and Farmer 2016). According to the MSI (Medical Services Insurance) Annual Statistical Tables, the most recent data (fiscal year 2017/2018) showed that only 42% of the eligible children used the COHP (Nova Scotia Department of Health and Wellness MSI Health Information Department 2018).

The objectives of this cross-sectional descriptive study were to determine the demographic profiles of both children requiring tertiary oral healthcare and their caregivers, the perceptions of the caregivers of pediatric oral healthcare in NS and their children's utilization of these services and the barriers to oral healthcare. Ultimately, the goal was to investigate if inequities in oral health status continue to exist in NS despite the oral health policies and programs implemented by the provincial government and, if so, to identify contributors to those disparities. The results of this study will add to the limited body of knowledge on children's oral health in NS.

Methods

Setting and population

This study was conducted at the Izaak Walton Killam (IWK) Health Centre in Halifax, NS, which is the only pediatric hospital in Atlantic Canada. The IWK treats oral disease in children who are unable to be treated in private dental clinics because of a variety of medical and dental concerns, though only children who were primarily referred to the clinic for an unmet dental need, a key indicator of poor oral health, were included in the study. Although the children were the focus of the study, their caregivers – as the responsible decision-makers – were the study's eligible participants. The minimum target sample size for this study was 46, which was calculated using an online sample size calculator. This calculation was based on a population of ~52 eligible patients (derived from clinic records during the study period of July–August 2015), a confidence level of 95% and a confidence interval of 5%. In total, a sample of 62 participants was recruited via quota sampling over a three-week period in August 2016. Ethics approval for this research was obtained from the Research Ethics Boards at Athabasca University and the IWK Health Centre.

Inclusion and exclusion criteria

Caregivers were eligible to participate in the study if their child was entitled to coverage under the NS COHP and caregivers were seeking or had sought care at the IWK pediatric dental clinic for their child's unmet needs such as visible tooth decay, dental abscesses or facial cellulitis. Excluded were caregivers whose child's underlying medical condition or behaviour management was the primary inhibitor to seeking care in a private dental clinic.

Design

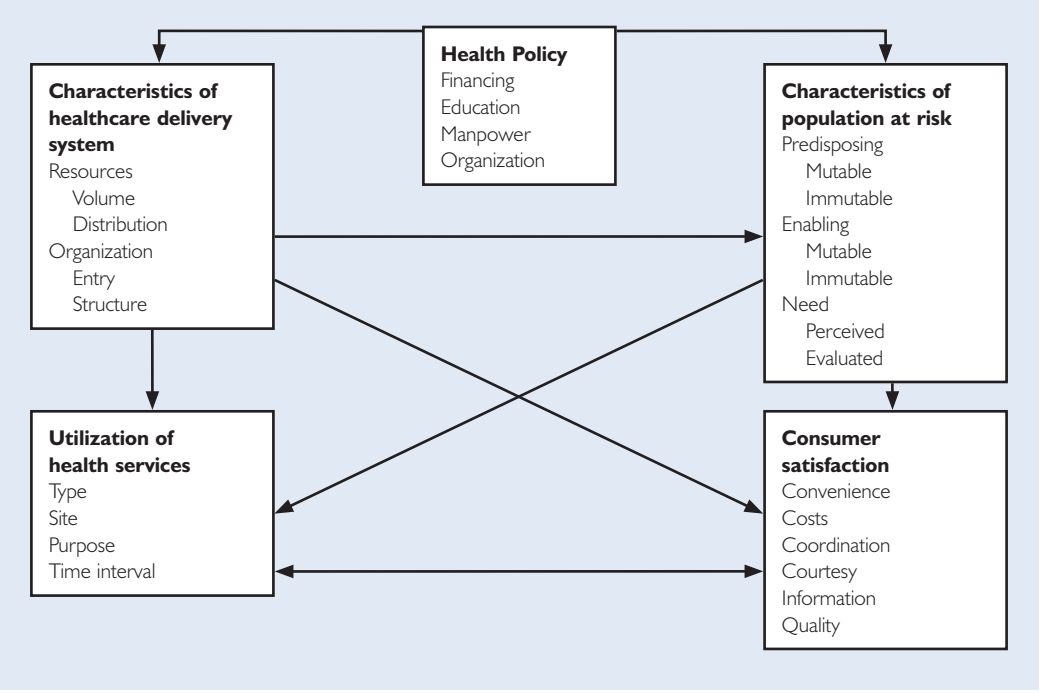
The study used a cross-sectional descriptive design. The research tool was a 52-item questionnaire (Appendix 1, available at longwoods.com/content/25940) adapted from a previously tested questionnaire (Lai et al. 2012) based on Aday and Andersen's (1974) framework for the study of access (Figure 1). This widely accepted model has been used as the framework for numerous studies on access and utilization of oral healthcare services (Beil and Rozier 2010; Crowder 2015; Jang et al. 2014). Each element of the conceptual model was used to inform the study's questionnaire. Eligible caregivers were invited to complete the online questionnaire on a portable computer tablet, using LimeSurvey™ survey software, while visiting the IWK pediatric dental or day surgery clinic for their child's dental appointment in August of 2016.

Analysis

The data were exported from LimeSurvey™ to IBM SPSS™ Statistics v23 software. Participants were classified as low-income using Statistics Canada's (2012) low-income cut-offs (LICO) 2013 base before tax table, which combines family size and community size to

determine the low-income threshold. Descriptive statistics (frequencies, measures of central tendency and variance) were calculated for each variable. A series of bivariate inferential comparisons were run using the chi-square test to examine whether demographic variables (such as community size, education level or income level) had an impact on respondents' perceptions of availability of dental services. Independent sample t-tests were used to look for differences in child's age at first visit among each of the following: insurance status (private, dual private, public or none) of caregiver's child, caregivers with differing perceptions of the importance of dental care (very important, important, somewhat important, somewhat unimportant, unimportant or very unimportant) and caregivers whose children had differing oral health status (those with or without a cavity and/or abscess) at first visit.

FIGURE 1. Framework for the study of access



Results

All eligible caregivers (N = 62) were willing to participate in the study. Each caregiver was participating on behalf of a child (N = 62) requiring hospital-based tertiary dental care. Although the study included 62 participants, not all caregivers responded to all of the questions. The denominator for variable changes based on the number of respondents for each question. All responses are based on the perceptions and knowledge of the caregivers.

Table 1 addresses the pillar "Characteristics of Population at Risk" in Aday and Andersen's framework for the study of access. The pillar "Utilization of Oral Healthcare Services" is addressed in Table 2. Table 3 bridges pillars "Characteristics of Population at

Risk" and "Consumer Satisfaction," and pillars "Characteristics of Health Delivery System" and "Consumer Satisfaction" are represented in Table 4. These tables available online at longwoods.com/content/25940.

Demographic profile

The mean age of children in the study was 6.21 years (+/–3.06 SD), and there was nearly even distribution of male and female children. The most commonly selected ethnicity was Caucasian (75.8%, n = 47), followed by Indigenous (9.7%, n = 6). Caregivers were predominantly female (86.0%, n = 49). Almost half of families (47.4, *n* = 27) lived in towns or communities with a population of fewer than 30,000 people with a significant proportion having a high school education or lower (41.1%, *n* = 23). The majority (61.7%, *n* = 32) had a total household income of less than $50,000. Just over half (53.8%, *n* = 28) of the families lived below the LICO threshold.

No statistically significant differences in the caregivers' perceptions of availability of dental services were found between respondents from different community sizes, education levels, genders, income levels or immigration status (chi-square tests; $p > 0.05$).

Utilization of oral healthcare services

Most caregivers (79.1%, *n* = 49) reported being made aware of the recommended age of first dental visit by a dental professional. Fewer than one-third (27.4%, *n* = 17) had been instructed by a doctor or nurse, and only one respondent (1.6%) had been advised of this by a prenatal instructor. Several (14.5%, *n* = 9) reported they had never been informed of the recommended age. Only 23.2% (*n* = 13) of the children visited a dental professional by the recommended age of one. A majority (63.6%, *n* = 35) of the caregivers perceived the appropriate age of the first dental visit to be higher than the recommended age, 2.29 +/–1.36 years (mean +/– SD), while the mean age at which caregivers had actually first sought dental care for their child was 2.69 +/– 1.29 years (mean +/– SD). Many of the children (44.1%, *n* = 26) already had decay at that time. Caregivers reported that 72.9% (*n* = 43) of the children had experienced a toothache (pain) and 23.3% (*n* = 10) had missed school because of this pain. Most caregivers (86.4%, *n* = 51) had experienced a toothache and 36.7% (*n* = 18) had missed work because of tooth-related pain. Nearly half (42.1%, *n* = 24) of the caregivers had not sought preventive dental care, described as a "cleaning or check-up," for themselves in the previous year.

Most respondents had received instruction about oral hygiene homecare for their children and information about cariogenic (cavity-causing) foods and drinks from a dentist (66.1%, *n* = 41) or a dental hygienist (38.7%, *n* = 24), followed by a prenatal instructor (4.8%, *n* = 3) and a nurse (1.6%, *n* = 1), and 8.1% (*n* = 5) of the respondents had not received any instruction or information about cariogenic foods and drinks from a health professional.

Television and the Internet were the two most common media sources of oral health information, although 29.0% (n = 18) of the caregivers reported not receiving any oral health information via the media.

No statistically significant differences in child's age at first visit were found between respondents with different insurance status, respondents with differing perceptions of the importance of dental care or respondents whose children had different oral health status at first visit (independent sample t-tests; $p > 0.05$).

Barriers to care

Nearly half (45.8%, n = 27) of the caregivers reported experiencing difficulty in seeking oral healthcare for both their children and themselves. The most common barriers to seeking oral healthcare for children were cost (17.7%, n = 11), lack of cooperation by the child (16.1%, n = 10) and inability for the caregiver to miss work (9.7%, n = 6). The most common barriers to caregivers seeking oral healthcare for themselves were cost (35.5%, n = 22), no insurance or uncertainty about insurance coverage (14.5%, n = 9), inability to miss work (8.1%, n = 5) and anxiety regarding dental treatment (8.1%, n = 5).

Perception of oral healthcare in NS

Given the choice, 53.4% (n = 32) of the caregivers reported they would prefer an alternate dental care setting for their children's dental care over a private dental clinic, for example, community-based clinics (26.7%, n = 16), primary healthcare-based clinics (15.0%, n = 9) and children's school-based clinics (6.7%, n = 4).

Discussion

Characteristics of population at risk and consumer satisfaction

The percentage of caregivers and children who fell below the LICO threshold (53.8%, n = 28) was eight times higher than the 2011 NS provincial average (7%) and four times higher than the 2007–2011 Canadian national average (12.9%) (Nova Scotia Department of Community Services 2018; Statistics Canada 2013). Cost was one of the most commonly reported barriers (17.7%, n = 11) for children accessing dental care, which signifies that the financial burden of oral healthcare is still a concern and a barrier to care for some children, despite the existence of a children's public oral health insurance program.

The proportion of children in this study who identified as Indigenous was disproportionately high compared to the provincial population (9.7% compared to 4.3%) (Statistics Canada 2008, 2012). This finding of disproportionate numbers of Indigenous peoples seeking tertiary oral care is an indicator of inequitable poor oral health. The 2008–2010 First Nations Regional Health Survey found that First Nations children had a disproportionately

high rate of decay: 18.7% of infants and 30.9% of preschoolers had teeth affected by early childhood caries. In part, the First Nations Regional Health Survey attributed the high burden of oral disease to socio-economic and geographic challenges. Despite publicly financed dental care (through the federal Non-Insured Health Benefits program and the provincial programs such as COHP), utilization of oral healthcare services is lower among First Nations people than the general Canadian population (First Nations Information Governance Centre 2012).

Families living in small towns or rural communities were over-represented in the study sample: 47.4% (n = 27) lived in communities of fewer than 30,000 people, compared to 38% of similarly aged adults in the overall Nova Scotian population. Similarly, families living in medium-sized communities (30,000 and 99,999 people) were also over-represented in the study's sample compared to the provincial population (12.3% versus 2%) (Statistics Canada 2012, 2013). Conversely, families living in large centres were under-represented in the study sample. This distribution may reflect the challenges of accessing dental care outside of urban areas where dental professionals are concentrated (Emami et al. 2016).

Characteristics of health delivery system and utilization of health services

For prevention and early detection of oral diseases, the CDA recommends that a child's first dental visit be within six months of the eruption of the first tooth or by age one, whichever is earliest (CDA 2018). Only 14.5% (n = 9) of the caregivers reported never being educated on the age of first visit (dental professionals were the most commonly reported educators), yet the mean ages that caregivers perceived to be appropriate and the actual age that dental care was first sought for their children were both over two years of age. A low percentage (23.2%, n = 13) of caregivers actually took their children to a dental professional by the age of one year. Depending on the extent or severity of oral disease, young children ranging in age from 1 to 14 (M = 6.21) required specialty dental treatment and, in many cases, surgical intervention. Among the most likely contributors to these discrepancies are inadequate delivery of key messages and inadequate translation of knowledge into action. Studies have shown the oral health benefits of initiatives that involve both medical and dental professions (Biordi et al. 2015; Braun and Cusick 2016; Clark et al. 2016). Non-dental primary care health professionals are well positioned to improve access to dental care (Bernstein et al. 2017). More initiatives in early oral health screening and referrals, education and intervention for children and their caregivers by non-dental professionals who have access to priority populations may reduce the inequities in oral health.

Despite Ismail and Sohn's (2001) recommendation for media promotion, 29% (n = 18) of the caregivers reported never receiving oral health-related information through the media, including television, radio, Internet, social media and print.

The results of this study support the existing evidence that priority populations, including low-income families, Indigenous peoples, those residing in rural communities and those with a lower education level, are more likely to be burdened by oral diseases. The results

also suggest a need to further evaluate the accessibility of oral healthcare in NS for those who need it most according to Aday and Andersen's fifth pillar of the study of access model "Health Policy." Most dental treatment is provided in private dental offices (Health Canada 2010), yet contrary to this policy, alternate dental care settings for children's dental care were preferred by over half (53.4%, $n = 32$) of the caregivers. Quiñónez et al. (2010) found that low-income Canadians prefer seeking dental care in a public setting and suggest that the private dental practice model of delivery is a major contributor to unequal access to care. Accordingly, more initiatives in early oral health screening and referrals, education and intervention for children and their caregivers by dental professionals in non-dental settings that are frequented by priority populations can also reduce the inequities in oral health status.

Limitations

Although the results of this study show disparities in oral health for a portion of children in NS, because of the nature of non-probability sampling and the sample size, it is difficult to make inferences about all children in the province. The current study did not include an investigation of oral health status; the study findings are based on caregivers' perceptions and knowledge only. The results do indicate a need for further research to determine the current oral health status of children across the province of NS, along with a review of current evidence-based public oral health programs, and an evaluation of the effectiveness of the provincial policies and programs to prevent, reduce or eliminate oral diseases among children in NS.

Conclusion

For many Nova Scotians, the oral health system appears to be working well, as the rate of oral disease continues to decline across Canada. Though the publicly funded, privately delivered oral healthcare model may be failing the children who are most in need (CAHS 2014; CIHI 2013; Health Canada 2010), the realities of priority populations and evidence-based oral health strategies are disconnected from current decision-making. This study confirms that disparities in income, education, geography and ethnicity continue to impact the oral health of children and their caregivers seeking hospital-based tertiary dental care in NS. Caregiver perceptions of the oral care services and barriers to care reinforce the inadequacy of current oral care policies in achieving optimal oral health for Nova Scotians, regardless of socio-economic status.

Oral health screening and surveillance measures are needed to determine the current oral health status of children throughout NS. This information combined with what is known regarding effective public policy and programming can be used to evaluate the current oral health initiatives. Government oral health policy with consideration of the impact of the social determinants of health and equitable evidence-based strategies is required to meet the needs of those children who are most burdened by oral disease.

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