



## Association between unmet dental needs and school absenteeism because of illness or injury among U.S. school children and adolescents aged 6–17 years, 2011–2012



Israel T. Agaku<sup>a,\*</sup>, Bukola G. Olutola<sup>b</sup>, Akinyele O. Adisa<sup>c</sup>, Enihomo M. Obadan<sup>d</sup>, Constantine I. Vardavas<sup>a</sup>

<sup>a</sup> Department of Social and Behavioral Sciences, Center for Global Tobacco Control, Harvard School of Public Health, Boston, MA, USA

<sup>b</sup> School of Health Systems and Public Health, University of Pretoria, Pretoria, South Africa

<sup>c</sup> Department of Oral Pathology, College of Medicine, University of Ibadan, Ibadan, Nigeria

<sup>d</sup> Department of Oral Health Policy and Epidemiology, Harvard School of Dental Medicine, Boston, MA, USA

### ARTICLE INFO

Available online 6 January 2015

#### Keywords:

Dental caries  
Toothache  
Absenteeism  
Illness  
Schools  
Unmet dental need  
Dental care  
Preventive dentistry

### ABSTRACT

**Background.** We assessed the prevalence of dental disease among U.S. children and adolescents aged 6–17 years, as well as the impact of unmet dental needs on school absenteeism because of illness/injury within the past 12 months.

**Methods.** Data were from the 2011/2012 National Survey of Children's Health ( $n = 65,680$ ). Unmet dental need was defined as lack of access to appropriate and timely preventive or therapeutic dental healthcare when needed within the past 12 months. The impact of unmet dental needs on school absenteeism was measured using a multivariate generalized linear model with Poisson probability distribution ( $p < 0.05$ ).

**Results.** Within the past 12 months, 21.8% (10.8 million) of all U.S. children and adolescents aged 6–17 years had “a toothache, decayed teeth, or unfilled cavities.” Of all U.S. children and adolescents aged 6–17 years, 15.8% (7.8 million) reported any unmet dental need (i.e., preventive and/or therapeutic dental need) within the past 12 months. The mean number of days of school absence because of illness/injury was higher among students with an unmet therapeutic dental need in the presence of a dental condition compared to those reporting no unmet dental need ( $\beta = 0.25$ ;  $p < 0.001$ ).

**Conclusions.** Enhanced and sustained efforts are needed to increase access to dental services among underserved U.S. children and adolescents.

© 2015 Elsevier Inc. All rights reserved.

### Introduction

Although significant advances have been made in the past several decades in better understanding the etiology, prevention, and treatment of oral diseases, access to timely and appropriate dental care still remains out of the reach of many individuals of low socio-economic status, and disparities in dental care persist (AHRQ, 2013; Beltran-Aguilar et al., 2005; US Department of Health and Human Services [US DHHS], 2000). About a third (108 million) of people in the U.S. are not covered by dental insurance, and even those who have dental coverage may have trouble getting care (US DHHS, 2014a). This is further compounded by the shortage of dental care providers in several parts of the U.S. Based on shortage designation criteria developed by the Health Resources and Services Administration (HRSA), as of October 2014, there were 4,968 Dental

Health Professional Shortage Areas in the U.S., where 1 dentist serves over 5,000 people (US DHHS, 2014b). HRSA estimates that approximately 7,300 additional dentists are needed to eliminate the current dental Health Professional Shortage Areas designations (US DHHS, 2014c).

Untreated dental diseases may particularly impact negatively among children compared to adults since they are more susceptible to dental caries and generally have lower levels of immunity compared to adults (US DHHS, 2000). Dental caries which is the single most common chronic childhood disease, could lead to infection spread, with potentially life-threatening outcomes such as jaw osteomyelitis, Ludwig's angina, cavernous sinus thrombosis, and bacterial endocarditis (Shay, 2002; US DHHS, 2000). Dental diseases also impose significant healthcare costs from direct medical expenditures, as well as indirect costs from lost work or school days (Gift et al., 1992; Hollister and Weintraub, 1993; Seirawan et al., 2012). Hence, health objectives related to reducing unmet dental treatment need should be placed in the larger context of prevention. School-based oral health programs and school-based health centers provide opportunities for increasing access to care among low socio-economic status populations through interventions that can reduce unmet dental needs by preventing dental disease.

\* Corresponding author at: Center for Global Tobacco Control, Department of Social and Behavioral Sciences, Harvard School of Public Health, 677 Huntington Avenue, Boston MA 02115.

E-mail address: [iagaku@post.harvard.edu](mailto:iagaku@post.harvard.edu) (I.T. Agaku).

Several national objectives have been developed by the U.S. Department of Health and Human Services for reducing the burden of dental diseases and increasing access to preventive and treatment care in dental settings. For example, *Healthy People 2020* oral health objective (OH)-2 aims to reduce the prevalence of untreated dental decay among U.S. children and adolescents. Similarly, OH-8 aims to increase the proportion of low income children and adolescents who received any preventive dental service in the past year, to 33.2% by 2020 (US DHHS, 2014d).

In light of these national objectives, the aims of this study were (1) to assess the prevalence of dental disease and unmet dental need among U.S. children and adolescents aged 6–17 years and (2) to measure the relationship between unmet dental needs and school absenteeism because of illness/injury among school-going children and adolescents aged 6–17 years. Data were obtained from the 2011/2012 National Survey of Children's Health (NSCH).

## Methods

### Ethics

All analyses were performed on de-identified publicly available data; this secondary analysis was deemed exempt from the Harvard School of Public Health, Institutional Review Board (IRB), with IRB protocol number 14-0346.

### Data source

NSCH is an annual survey of non-institutionalized U.S. children aged 0–17 years, using list-assisted random-digit-dial sample of landline telephone numbers, supplemented with an independent random-digit-dial sample of cell phone numbers (Maternal and Child Health Bureau, 2013). The respondents are parents/guardians with knowledge of the health of the sampled child in the household. For the 2011/2012 NSCH, 95,677 questionnaires were completed; yielding an overall response rate of 38.2% for the landline sample, 15.5% for the cell phone sample, and 23.0% for the combined dual-frame sample.

Because school absenteeism was assessed in NSCH only among children and adolescents aged 6–17 years, we excluded  $n = 29,997$  children aged 0–5 years yielding a final analytic sample of  $n = 65,680$  as our denominator for all prevalence estimates.

### Measures

#### Oral health status and unmet dental need

Parents/guardians were asked the following five questions to ascertain their children's oral health status and oral health care access: (1) How would you describe the condition of [CHILD'S NAME] teeth? response options were "excellent," "very good," "good," "fair," or "poor." (2) During the past 12 months, did [CHILD'S NAME] have a toothache, decayed teeth, or unfilled cavities? Response options were "no" or "yes." (3) During the past 12 months, was there any time when [CHILD'S NAME] needed [Dental] health care but it was delayed or not received? Response options were "no" or "yes." (4) During the past 12 months, did [CHILD'S NAME] see a dentist for any kind of dental care, including checkups, dental cleanings, x-rays, or filling cavities? Response options were "no" or "yes." (5) During the past 12 months, how many times did [CHILD'S NAME] see a dentist for preventive dental care, such as checkups and dental cleanings? Response options were re-coded within the survey as "No preventive visits during past 12 months" or "One or more visits during past 12 months."

Based on the responses to these five questions, we constructed two different measures of unmet dental need, as well as an overall measure of any unmet dental need (Lewis et al., 2005; Mayer et al., 2004). These measures were as follows:

1. Lack of access to appropriate and timely therapeutic dental care in the presence of a dental condition (based on questions 1–4) ( $n = 2,923$ ). This was defined as a report that a child who needed dental health care within the past 12 months was delayed in receiving it or did not receive it at all, or a report that the child's teeth condition were "fair" or "poor" or the child had "a toothache, decayed teeth, or unfilled cavities" during the past 12 months and yet did not "see a dentist for ... X-rays, or filling cavities" during the past 12 months.
2. Lack of access to preventive dental care (based on question 5) ( $n = 6,923$ ). This was defined as a report that the child did not "see a dentist for preventive dental care, such as checkups and dental cleanings" within the past 12 months.

3. Any unmet dental need was defined as lack of access to preventive dental care and/or appropriate and timely therapeutic dental care in the presence of a dental condition within the past 12 months ( $n = 8,079$ ).

#### School absenteeism because of illness/injury

School absenteeism was assessed with the question: "During the past 12 months, about how many days did [CHILD'S NAME] miss school because of illness or injury?" Responses were expressed as discrete data.

Presence of a co-morbidity was defined as a report by a parent/guardian that the sampled child had ever been diagnosed with at least one of 18 listed conditions, and at the time of the survey currently had the condition. The conditions assessed were "A learning disability"; "Attention deficit disorder or attention deficit hyperactive disorder"; "Depression"; "Anxiety problems"; "Behavior or conduct problems"; "Autism, Asperger's disorder, pervasive development disorder, or other autism spectrum disorder"; "Any developmental delay"; "Intellectual disability or mental retardation"; "Cerebral palsy"; "Speech or other language problems"; "Tourette syndrome"; "Asthma"; "Diabetes"; "Epilepsy or seizure disorder"; "Hearing problems"; "Vision problems that cannot be corrected with standard glasses or contact lenses"; "Bone, joint, or muscle problems"; and "A brain injury or concussion."

Data were also collected on whether the child had ever repeated a grade - a variable we used as a proxy for underlying disposition of child towards school attendance or performance. This was defined as a "yes" response to the question "Since starting kindergarten, has [he/she] repeated any grades?"

#### Socio-demographic characteristics

We explored several other factors that have been shown to be associated with oral health status and school absenteeism in children and adolescents. These included poverty level ( $\leq 100\%$  of poverty, also known as living in poverty; or  $> 100\%$  of poverty); any health care coverage "including health insurance, prepaid plans such as HMOs, or government plans such as Medicaid" (yes or no); age ( $\leq 9$ ; 10–14; or  $\geq 15$  years); gender (male or female); race/ethnicity (non-Hispanic white; non-Hispanic black; Hispanics; or non-Hispanic other), and presence of smoker in the household (yes or no). The latter variable was included in the analyses based on previous research documenting a relationship between secondhand smoke exposure in children and increased likelihood of dental caries as well as higher rates of school absenteeism (Levy et al., 2011; Slayton, 2012). In our study, this was defined as a "yes" response to the question "Does anyone smoke inside [CHILD'S NAME]'s home?"

#### Data analyses

Data were weighted with the sampling weights provided in the NSCH dataset using the "svyset" function in Stata V12 in order to yield nationally representative estimates.

The prevalence of dental disease and unmet dental needs within the past 12 months was assessed among all U.S. children and adolescents aged 6–17 years old ( $n = 65,680$ ). Prevalence estimates were calculated overall and further stratified among population subgroups. Statistical significance of differences was tested using the chi-squared statistic. Prevalence estimates with relative standard errors  $\geq 30\%$  were deemed statistically unreliable and are not reported. Sampling weights were used to estimate counts of the number of children with dental disease and unmet dental needs within the past 12 months, as well as the number of school days lost due to illness/injury.

To measure the relationship between school absenteeism because of illness/injury and unmet dental needs, we fitted two separate generalized linear models with a Poisson probability distribution family and a log link function, adjusting for age, sex, race/ethnicity, poverty level, health insurance coverage, presence of a co-morbidity, and presence of a smoker in the household. Model 1 assessed for the impact of unmet preventive dental care, while model 2 assessed for the impact of unmet therapeutic dental care in the presence of a dental condition. Statistical significance for both models was determined at  $p < 0.05$ . Both models were restricted to children and adolescents aged 6–17 years who were currently enrolled in a regular school - private or public. Hence, of the original denominator of 65,680 children and adolescents aged 6–17 years used in computing prevalence estimates, we excluded those who were being home-schooled ( $n = 1,638$ ); those not in school ( $n = 137$ ), and those with unknown status regarding school enrollment ( $n = 149$ ). Homeschooled students were excluded

Download English Version:

<https://daneshyari.com/en/article/3100388>

Download Persian Version:

<https://daneshyari.com/article/3100388>

[Daneshyari.com](https://daneshyari.com)