



Unmet needs for dental care in children with special health care needs

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ARTICLE INFO

Available online 3 December 2015

Keywords:

Dental
Oral health
Children
Unmet needs
Special health care needs
Region

ABSTRACT

Objective: The unmet need for dental care is one of the greatest public health problems facing U.S. children. This issue is particularly concerning for children with special health care needs (CSHCN), who experience higher prevalence of unmet dental care needs. The primary purpose of this study was to investigate regional differences in unmet dental care needs for CSHCN. Using the Social Ecological Model as a framework, additional variables were analyzed for regional differences. It was hypothesized that (H1) unmet dental care needs would be high in the CSHCN population, (H2) there would be regional differences in unmet dental care needs in CSHCN, and (H3) there would be differences in specific individual, interpersonal (family), community (state), and policy level factors by region. **Methods:** Data were obtained from the 2009–2010 National Survey of CSHCN. SPSS was used for data management and analysis. **Results:** Each of the study hypotheses was supported for the sample of 40,242 CSHCN. The West region was more likely to have more unmet needs for preventive and specialized dental care in CSHCN than the reference region (Northeast). The South region followed the West region in unmet dental care needs. Statistically significant differences in individual, interpersonal (family), community (state) and policy factors were found by region. **Conclusion:** Further research is recommended. Effective strategies that include policy to address unmet dental care needs at multiple levels of intervention are suggested.

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Introduction

Oral health disparities continue to affect children with special health care needs (CSHCN) (Fulda et al., 2013). Unmet dental care needs represent one of these disparities and can be defined as needing dental treatment but receiving delayed care or no care at all (Fulda et al., 2013). Unmet dental care needs tend to be more prevalent in the CSHCN population compared to the general population of children (Lewis, 2009; Szilagyi et al., 2003).

CSHCN have chronic physical, developmental, behavioral, or emotional conditions which require health care and related services of a type or amount beyond that required by children in general (Mayer et al., 2004). About 14% of children in the U.S. are CSHCN (Fulda et al., 2013). Disparities in oral health care are particularly problematic in CSHCN (Fulda et al., 2013). A 2005 national study found that 78% of CSHCN had not received dental care in the past 12 months, and that among those who had, 10.4% did not receive all of the dental care they needed (Lewis et al., 2005).

Unmet dental care needs have been linked to adverse consequences in children (Dye et al., 2007). Mouth pain may develop when dental caries are left untreated. In turn, this might result in difficulty or inability to eating, weight loss, and decreased nutritional status (U.S. Department of Health and Human Services, 2010). Severe dental caries can cause tooth disfigurement which may impact children's smiling patterns, self-esteem, and social interactions and development (Albino et al., 2012; U.S. Department of Health and Human Services, 2000). While dental caries can largely be prevented, accessible dental care presents significant challenges to many CSHCN and economically disadvantaged families (Fisher and Mascarenhas, 2007; Fulda et al., 2013; Szilagyi et al., 2003).

The Social Ecological Model (SEM) provides a suitable framework to identify factors associated with oral health outcomes (Fisher-Owens et al., 2013; Sallis et al., 2008; Vichayanrat et al., 2012). The SEM suggests that a health behavior or problem is affected by multiple factors and at various levels (Sallis et al., 2008). The SEM considers the complex interplay between factors at the individual, interpersonal, organizational, community, and policy levels which influence a particular health behavior or problem. In the current study, factors at the individual, interpersonal (family), community (state), and policy levels were examined for regional differences.

Examining regional differences for unmet health care needs is a priority of the U.S. Department of Health and Human Services (USDHHS) (Singh et al., 2009; USDHHS, 2010). Significant gaps in health care

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services at the regional level may negatively affect the nation's efforts to prevent disease and reduce health disparities (Singh et al., 2009). Yet, a regional analysis can help identify such gaps and potential sources of inequity (Baiker et al., 2005; Singh et al., 2009). Regional level findings may have implications for program and policy planning and development, including multi-state interventions (Fulda et al., 2013). Findings may prompt national and regional decision-makers to develop equitable, effective health care interventions and policies (World Health Organization, 2008). Research suggests that health care policies which target large geographical areas are beneficial to reducing disparities (Baiker et al., 2005).

In a previous study, geographical differences in unmet health care needs, including preventive dental care, were investigated in CSHCN (Fulda et al., 2013). The findings indicated that the South region had a higher percentage of unmet preventive dental care needs than other regions. The current study is similar, but focused specifically on preventive and specialized dental care. The present study also builds onto the former research by examining community (state) and policy level factors. The current study used the 2009/10 National Survey—Children with Special Health Care Needs, whereas the former study used the data collected in 2005/06 (Fulda et al., 2013).

The primary purpose of this study was to investigate regional differences in unmet dental care needs for CSHCN. Using the Social Ecological Model as a framework, additional variables were analyzed for regional differences, which were selected due to their relationship with unmet dental care needs in previous research (Fulda et al., 2013; Lewis, 2009; Lewis et al., 2005; Van Cleave and Davis, 2006). It was hypothesized that: (1) unmet dental care needs would be high in the CSHCN population (Lewis, 2009; Lewis et al., 2005); (2) there would be regional differences in unmet dental care needs in CSHCN (Fulda et al., 2013); and (3) there would be differences in individual, interpersonal (family), community (state), and policy level factors by region (Edelstein and Chinn, 2009; Singh et al., 2009; Szilagyi et al., 2003; Yu and Singh, 2009).

Methods

The interview

Data from the National Survey—Children with Special Health Care Needs was used (USDHHS et al., 2011). This was a national telephone survey conducted for the third time in 2009–2010 (the dataset used for the current study). Independent random samples were taken in all 50 states and the District of Columbia, with at least 750 interviews conducted in each state with parents or guardians of CSHCN < 18 years old. The interviews lasted approximately 33 min and were conducted in English, Spanish, Mandarin, Cantonese, Vietnamese, and Korean. A range of topics were covered including the child's health and functional status, access to health care, access to community-based services, and others. Data analysis for the current study was approved by the Institutional Review Board at the University of Alabama.

Dependent variables

Two variables from the survey represented unmet dental care needs. Parents were asked, "During the past 12 months, was there any time when the child needed preventive dental care, such as check-ups and dental cleanings?" If the response was "yes," subsequently the parent was asked if the child received all preventive dental care that was needed (USDHHS et al., 2011). If the parent indicated "no," the response meant there was an "unmet need for preventive dental care."

The second dependent variable pertained to other types of dental care. Parents were asked whether their children needed "any other dental care or orthodontia" during the past 12 months. If the response was

"yes," the parents were asked whether their children received all dental care needed (USDHHS et al., 2011). If the parent indicated "no," the response meant there was an "unmet need for specialized dental care".

Primary independent variable

The primary independent variable of interest was the geographic region of the child's household. The state of residence for each child was indicated in the survey dataset. States were divided into four regions: Midwest, Northeast, South, and West (U.S. Census Bureau, 2010). The geographic region with the lowest percent of respondents reporting that they did not receive all needed care was used as the reference group.

Individual level covariates

Potential individual level covariates included age, sex, ethnicity (Hispanic/Latino or not), race (white only, black only, multiracial, other), and percent of federal poverty level (FPL) (≤ 100 , 101–200, 201–300, >300%). Additional covariates included health insurance status (continuous insurance coverage for the past 12 months) and time child was limited by condition in past 12 months (never, sometimes, usually/always). These variables were selected because of previous research on unmet dental care needs in CSHCN (Fulda et al., 2013; Lewis, 2009; Lewis et al., 2005; Van Cleave and Davis, 2006).

Interpersonal (family) level covariates

Covariates at the interpersonal (family) level included the relationship of the respondent to the CSHN (mother, other), number of children living in the household, and number of adults living in the household. These factors were included because of their inclusion in prior research on unmet dental care needs in CSHCN (Fulda et al., 2013).

Community (state) level covariates

Community (state) level data for the year 2010 were used in the analysis to be consistent with the 2009/10 survey data. Covariates included the following variables: percent population below poverty; percent children who were Medicaid enrollees; percent children who received dental treatment while enrolled in Medicaid; number of dentists per 10,000 population; number of physicians per 100,000 population; and percent population that lived in Dental Health Professional Shortage Areas (dental HPSA).

Policy level variables

Variables at the policy level included dental benefits covered by Medicaid (yes/no) and Medicaid co-payment (yes/no). In the U.S., children's dental treatment may be covered by private health insurance (personal- or employer-sponsored insurance), public health insurance (Medicaid or State Children's Health Insurance Program), or self-payment (Albino et al., 2012). Adherence to federal guidelines for Medicaid is required; yet, each state determines its program eligibility, rate of payment for services, type of dental coverage, and other factors (Albino et al., 2012).

Statistical analysis

SPSS 22.0 was used to conduct the analysis. Descriptive statistics were provided for covariates for each of the four geographic regions. Chi-square analysis and analysis of variance (ANOVA) were used as appropriate to determine differences in variables by geographic region for both the individual and family level factors (Table 1) and the

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