Expanded Scope of Practice for Dental Hygienists Associated with Favorable Children's Oral Health

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ABSTRACT

Objectives: The objective of this study was to estimate if variation in state-level scope of practice for dental hygienists was associated with children’s oral health outcomes.

Methods: This study used the Dental Hygiene Professional Practice Index (DHPPI) to measure the state-level scope of practice for dental hygienists. Demographic characteristics and oral health status of children aged 2-19 were extracted from the National Survey of Children’s Health. Several data sources were used to examine the supply of dental practitioners and other state-level sociodemographic and geographic characteristics. Multilevel logistic modeling was employed to test the association between state-specific scopes of practice for dental hygienists and oral health outcomes in the population of children in each state.

Results: The expanded scope of practice for dental hygienists was associated with the favorable outcome of having excellent or very good teeth in children with preventive dental visits compared to children who did not receive preventive services within the past year. A 10-point increase in a DHPPI composite score was associated with a relative increase of 3.6% in the likelihood of having excellent or very good teeth in children with recent preventive dental visits compared to other children.

Conclusions: The study findings indicated that a more expansive dental hygiene scope of practice was positively and significantly associated with favorable children’s oral health among those with recent dental office visits.

BACKGROUND

- Over the past decade, there have been concerted efforts to address children’s unmet oral health needs by increasing the use of community-based oral health services.
- Dental hygienists, as oral health preventive specialists, are the dental professionals most often providing services in these community-based programs.
- The ability of a dental hygienist to work in these settings depends on state-based occupational regulation governing the profession.
- The purpose of this study was to examine whether dental hygienists’ scopes of practice are significantly associated with the oral health status of US children.

METHODS

Data Sources:
- The 2011-2012 NSCH is a survey sponsored by the Maternal and Child Health Bureau of HRSA that gathers information about children’s health and well-being (n=96,677 children in the US)
- Individual level data on children’s demographics and socioeconomic characteristics
- Oral health information such as children seeing a dentist in the past year and condition of children’s teeth
- Dental Hygiene Professional Practice Index (DHPPI)
- A metric created by the OHWRC in 2001 and updated in 2014 to quantify the state in the state-level scope of practice (regulation, supervision, permitted tasks, reimbursement) for dental hygienists
- The highest possible composite score was 100 that indicates optimal supervision, permitted tasks, reimbursement) for dental hygienists in state communities appropriate to professional competencies and training
- Other State-Level Data
  - American Community Survey (ACS), 2009-2013: Computed rates of dental hygienists and dentists per 100,000 population
  - Centers for Disease Control’s (CDC) Water Fluoridation System, 2012: Estimated % of population on a fluoridated public water supply

Data Analysis:
- Outcome Measure
  - The binary outcome variable measured the condition of children’s teeth as excellent or very good as opposed to good, fair, or poor
- Predictor Factor Measures
  - State-level composite DHPPI score & each of the component scores
- Confounding and Moderator Effect Measures
  - Individual-level sociodemographic and state-level characteristics
  - Children’s dental visits for preventive services in the past year
- Statistical Analyses
  - Multilevel logistic models were run to test the association between the state-level DHPPI scores and the oral health status of children moderated by preventive dental visits within the past year, adjusting for the relevant confounding factors
  - All analyses were conducted using SAS v9.4

RESULTS

- Nationally, 64% of children had preventive dental visits within the past year and 71% reported teeth in excellent or very good condition.
- A 10-point increase in a DHPPI composite score was associated with a relative increase of 3.6% in the likelihood of having excellent or very good teeth in children with recent preventive dental visits compared to other children.
- Several variables exerted a strong positive individual-level effect on the condition of children’s teeth.
- Both the dental hygienist rate and the dentist rate were positively and significantly associated with favorable oral health outcomes.
- A 10-point increase in a DHPPI composite score was associated with a relative increase of 3.6% in the likelihood of having excellent or very good teeth in children with recent preventive dental visits compared to other children.

REFERENCES


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