Secondary Data Analysis based on Children Health Survey: On Factors Associated to Overall Dental Health of Children in USA

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ON FACTORS ASSOCIATED TO OVERALL DENTAL HEALTH OF CHILDREN IN USA: Secondary Data Analysis Based on Children Health Survey (2011-2012) By Kavita Gohil, MPH (c), Hani Samawi, Ph.D

INTRODUCTION

- Oral health is your window to your overall health. Thus, it is highly important to maintain the healthy oral conditions.
- Like many parts of our body, oral cavity is full of bacteria, among them most are harmless in certain amounts and are also controlled by human defense system & oral hygiene habits like brushing, flossing etc. However, in excess amount of these bacteria can cause oral health problems which can affects gums, teeth and supporting periodontal structures.
- Oral health is contributes to various systemic diseases and conditions and are linked to endocarditis, premature birth, diabetes, and many more.
- Dental caries or tooth decay is the most common chronic disease of children worldwide.
- Based on most oral health literatures, it has been found that genetic factors, biological factors, the social environment, health behaviors, dental & medical care impact on oral health outcomes in children.

PURPOSE

- In this study, we are aiming to elaborate the concern of oral health of children by describing the importance of primary/deciduous dentition and external factors that might affect the overall children’s dental health in United States, as childhood oral disease has significant medical and financial consequences.

METHODS

- Secondary data analysis done on the National Survey of Children’s Health for this purpose with having 847,881 households with age eligible children among which 95,667 completed interviews.
- Analysis done using SAS 9.4 survey procedures with stage sampling plan using STATE and SAMPLE variables as Strata, IDNUMR as cluster and NSCHWT as weight in the analysis.
- Our primary interest variable is overall dental health of children. Most of the variables are defined in the two groups and created as binary response. The variable of interest is coded as 1 with good or fair overall dental health and 0 being poor overall dental health.
- A frequency analysis done with our primary interest variable and with variable factors that might be associated or are affecting directly or indirectly the overall dental health.
- Survey Logistics procedures are used to fit the logistic model overall dental health given possible risk factors. SAS Macro Procedure used for model selection for weighted survey data, backward selection method is used for this purpose.

RESULTS

- Univariate analysis suggests, boys are 1.25 times more prone to have bad oral health as compared to girls. Children of age 0 to 5 years have less deteriorated oral health as compared to children of age 12 to 17 years. Poor oral health is two times more common in Hispanic then non-Hispanic children. Children’s who did not breastfed in earlier age, having conditions like ADHD, autism, developmental delay, cerebral palsy, speech, Tourette syndrome, asthma, joints problems, and residing in family with low FPL% are prone to have deteriorated dental health.

PUBLIC HEALTH SIGNIFICANCE

- Children’s oral health is one the important factor that can give glance to overall health of the child and also of the adults that might have current health effects of their childhood exposure or childhood health care, which is the main reason to carry out epidemiological studies related to dental health to determine the prevalence, causes, and patterns of oral health and associated risk factors.
- Dental care is the most prevalent unmet health need in US children with wide disparities currently existing in oral health and access to oral health in children of low income and minority families facing poor oral health outcomes. The Affordable Care Act, if expanded in such a way that it can improve the pediatric dental coverage which could be of great help.
- According to Centers for Disease Control and Prevention, childhood tooth decay can be prevented by water fluoridation & Water fluoridation is described as environment friendly since it ensures maximum utilization of natural resources and it also reduces waste.
- Social and behavioral factors play significant role in maintaining healthy being. Behavioral interventions for children includes teaching them healthy oral habits, preventive measures to avoid dental diseases. Social interventions are needed to target the group of children in schools, parks, communities, churches to promote healthy habits and awareness among them.

STRENGTHS & LIMITATIONS

- STRENGTHS
  - Using a powerful statistical tools to analyze the data
  - The data is National survey data which represents the population of eligible children from all age groups.
  - We have a large sample size
- LIMITATIONS
  - This survey data has some missing observations on which we don’t have control.
  - It is self reported survey.
  - Water fluoridation: We didn’t have access to the data include in our analysis.

CONCLUSIONS

- Based on our statistical analysis gender, age, race, general health, presence of tooth decay, systemic conditions like ADHD, autism, speech problems, asthma, muscle & joints disorders, seizure, being on medications, accessibility of health care need & getting health care, financial problems, and families’ socio economic status has strong association with child’s oral health.
- Oral health of children is highly important therefore, it is highly recommended to take care of their primary dentition as well as other related external factors and thus can get better overall health & can reduce the financial burden of it.

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- Thus, to health or health Disease, important which race, behaviors, human health promotes awareness analysis with this children oral the need for better health.
- The important which race, behaviors, human health promotes awareness analysis with this children oral the need for better health.
- Limitation of some existing factors, an important case for standardization and logistics analysis needed for better health outcomes.
- Of children’s with conditions (ADHD, autism, developmental delay, cerebral palsy, speech, Tourette syndrome, asthma, joints problems), residing in family with low FPL% are prone to have deteriorated dental health.
- The prevalence of oral health is two times more common in Hispanic than non-Hispanic children.
- Joints issues are related to overall children’s health outcomes and are significant in the child’s dental health.
- Social and behavioral factors play a significant role in maintaining healthy being. Behavioral interventions for children include teaching them healthy oral habits, preventive measures to avoid dental diseases. Social interventions are needed to target the group of children in schools, parks, communities, churches to promote healthy habits and awareness among them.