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Benefits of Oral Health Education in Nutrition Programs for At-Risk Infants, Children, and Mothers

Deborah J. Mattheus, PhD, CPNP, APRN-Rx
School of Nursing and Dental Hygiene, University of Hawaii at Manoa, Honolulu, HI, USA

Background/Purpose: The United States' (US) Special Supplemental Nutrition Program for Women, Infants and Children (WIC) distributes infant formula and supplemental food checks at no cost to the families. Families are eligible for this WIC benefit if they are at nutritional risk and have income disparity. Early childhood dental caries is the most common chronic childhood condition in the US occurring six times more often than asthma. Common risk factors for dental caries include low income, limited parental education, unhealthy nutritional choices including high sugar diets, lack of access to dental service, as well as cultural views that may not recognize the value of preventive dental services.

Methods: The University of Hawai'i at Manoa, School of Nursing and Dental Hygiene developed and introduced an oral health pilot education program to the Kona WIC clinic in 2015. It involved a single oral health questionnaire to document parents of children and pregnant women's oral health beliefs and behaviors followed by an oral health education and if needed a referral to a dental home. Education included age specific messages about oral hygiene practices, proper nutrition related to oral health, the importance of fluoride supplements and the need for semi-annual dental appointments starting when their children were one year of age. This project was then replicated in 2017 at Kapi'olani Medical Center for Women and Children (KMCWC) WIC clinic in Honolulu but added a three to six-month follow-up visit after the intervention. The goals of the KMCWC WIC oral health project were to: 1) assess the oral health beliefs and behaviors of parents of children and pregnant women; 2) demonstrate the ease of providing oral health education at WIC; and 3) document changes in beliefs and behaviors over time based on the educational intervention. Oral health beliefs and behaviors were measured twice using a child oral health questionnaire for parents of children and/or prenatal questionnaire for pregnant women during WIC visits: 1) prior to the study's educational intervention; and 2) 3-6 months after the educational intervention.

Results: The initial sample consisted of 85 families with data collected on 176 children and 4 pregnant women. Among those completing the initial questionnaire 57% of mothers of children older than 6 months reported using fluoride toothpaste; over a third of the children were not given a prescription for fluoride supplements by their primary care pediatrician; and 40% had never received a the application of fluoride varnish by a dental or other health professional. Of those completing the follow-up survey (40 families reporting on 84 children) there were notable changes in oral health behaviors. The oral health education had a positive impact on parents oral health behaviors with a 6.61 fold increase in use of fluoride toothpaste reported by parents during the follow-up visit compared to their initial visit (95% confidence interval [CI]=3.12-14.00). There was also a statistically significant improvement in children's daily tooth brushing (odds ratio [OR]=2.15, 95% CI=1.33-3.46); and for children receiving the application of fluoride varnish over time (OR=2.66, 95% CI=1.50-4.73).

Conclusion: The results of the WIC Clinic project provide further evidence that initiating a simple educational intervention can have a positive impact on oral health behaviors in groups that are at highest risk for developing dental disease in Hawai'i. The oral health education in this project was completed in approximately 5-7 minutes and was found to be easily integrated into clinic appointments. WIC Clinic visits provide an ideal opportunity to make sure that parents of infants and young children, as well as pregnant women and women who may become pregnant receive information about the importance of oral health and dental care during pregnancy and, if possible, prior to conceiving. Interventions that can improve oral health, and ultimately the overall health of infants, children and pregnant women are essential to prevent adverse health consequences of dental decay in these vulnerable groups.

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Abstract Summary:
Dental caries affects disadvantaged infants and children worldwide. An evaluation of parent's oral health beliefs and behaviors and education was provided during nutrition program visits for high risk families. This simple education intervention positively impacted parent's oral health behaviors which could ultimately impact oral health outcomes of vulnerable populations.

Content Outline:
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1. Introduction

A. Oral health and relationship to overall health

B. Background on early childhood caries and dental problems during pregnancy

II. A. Dental caries: strategies to improve oral health outcomes

1. Background on Nutrition Programs in the US
    1. *Qualification for participating*
    2. *Current utilization of service State-wide and Nationally*
2. Benefits of nutrition programs for high risk families

    1. *Nutritional education*
    2. *Supplemental foods and additional services*
3. Oral health pilot project in Kona WIC
    1. Project development
        1. *Questionnaires: Child Oral Health and Perinatal Oral Health*
        2. *Education materials*
        3. *Project outcomes*
    2. Oral health project at Kapiolani Medical Center for Women and Children
        1. Goals of Project
            1. *Assess oral health beliefs and behaviors of parent of children and pregnant women*
            2. *Document changes in beliefs and behaviors*
        2. Methods
            1. *Survey questions*
            2. *Educational materials utilized*
            3. *Family incentives*
        3. Results
            1. *Initial questionnaire responses*
            2. *Follow-up responses*
            3. *Significant changes in parent's oral health behaviors*
    3. Conclusion
        1. Results indicate positive results from this simple intervention
        2. High risk families are in need of simple and consistent messages about oral health to improve outcomes

First Primary Presenting Author
Primary Presenting Author
Deborah J. Mattheus, PhD, CPNP, APRN-Rx
University of Hawaii at Manoa
School of Nursing and Dental Hygiene
Assistant Professor
Honolulu HI
USA

Author Summary: Deborah's research interest is in oral health in children and families. She has authored several peer review articles on oral health promotion in pediatrics, and presented internationally on oral health topics. She received funding to support her research on oral health beliefs and behaviors of families in Hawaii and is currently the PI on a 5 year HRSA dental hygiene workforce training grant focused on improving oral health outcomes for children 0-5 years of age.