Rural Puerto Rican Women's Views on Children's Oral Health: A Qualitative Community-based Study

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ABSTRACT

Purpose: The purpose of this study was to examine women's views on beliefs, preferences, and behaviors relevant to children's oral health.

Methods: Women of childbearing age and mothers of women of childbearing age were recruited from 2 rural Puerto Rican communities to participate in 24 focus groups. One hundred fifty women participated. Participants were asked about their awareness and knowledge of childhood decay and their child-feeding and oral care attitudes and practices. Analysis consisted of a comprehensive content review of participant's responses.

Results: Participants used a variety of infant and toddler feeding practices, including breastfeeding and prolonged bottle use. Children progressed through feeding stages based on mother's experience, older relatives' advice, and child readiness. Grandmothers were considered trusted and reliable sources of information. Many believed that dental disease did not affect infants and were unaware of *el síndrome del biberón* (baby bottle tooth decay, SIB). Participants believed that decay was caused by too much sugar and prolonged bottle use and only affected children. Dental visits were rare in very young children, unless conspicuous decay or pain was present. Mothers' dental experiences influenced seeking children's preventive and treatment visits.

Conclusions: This study highlights caregivers' perceptions, which are inconsistent with maximizing children's oral health. This information can be used to develop culturally appropriate, community based oral health programs. (J Dent Child 2005;72:61-66)

KEYWORDS: CHILDREN'S ORAL HEALTH, WOMEN, FOCUS GROUP, RURAL COMMUNITIES

The past 30 years have seen a substantial decline in the number of decayed, missing, and filled teeth in US children.[1] Despite this decline, however, dental care for many US children is the most unmet health need.[2,3] Children from low socioeconomic and racial/ethnic minorities continue to have poorer oral health compared to other children.[4-7]

For example, Hispanic children have poorer oral health status compared to their majority counterparts.[4,8] Hispanic and African American children have been identified as being at the highest risk for childhood dental disease. The existence of disparities in oral health status suggests the need to tailor interventions to the particular community targeted for improvement. To ultimately improve oral health status, culturally appropriate educational campaigns need to be developed.[9] Furthermore, campaigns should not be developed without input from the target community.

An earlier study in rural Puerto Rican communities found that over one third of the children had dental caries, approximately 20% of whom had rampant caries.[10] Additionally, of those children with rampant caries, 63% had posterior caries alone and 33% had anterior and posterior caries. Several dietary and behavioral factors were associated with decay. Therefore, this study attempted to gain insight into the beliefs, preferences, and behaviors of rural Puerto Rican women of childbearing age and mothers of women of childbearing age related to the decisions they made relative to their children's oral health and the pros and cons of these decisions.

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METHODS

This study was conducted in 2 rural municipalities in Puerto Rico. Both municipalities are proximate by industrial and commercial zones and located between major urban centers. Residents in both towns access services or work outside of their municipalities. Services relevant to these discussions (ie, maternal child health and dental services) are mostly accessible outside of the residents' municipalities.

PARTICIPANTS

Participants (N=150) were low-income women registered at 2 rural community health or Head Start centers. Included in this study were: (1) pregnant women; (2) women with daughters of childbearing age (grandmothers); and (3) women with children: (a) younger than 12 months; (b) ages 12 to 24 months; (c) ages 24 to 36 months; and (d) ages 3 to 5 years old. Group composition was homogenous, based on the child's chronological age. The Institutional Review Board of the University of Puerto Rico, San Juan, Puerto Rico approved the research, and informed consent of the participant was obtained prior to the discussions.

RECRUITMENT

Potential participants were recruited from primary care centers in Loíza and Gurabo, 2 rural Puerto Rico municipalities. Within each municipality, 6 of the previous mentioned categories of participants were selected to study. Potential participants from the categories were further classified into:

1. participants with 1 child/grandchild (primiparous);
2. participants with more than 1 child/grandchild (multiparous).

A total of 24 groups were targeted for the study—12 in each municipality. Of the 24 groups targeted to study, recruitment for Loíza groups met with obstacles. Study personnel were unable to identify any grandmothers with only one grandchild. Therefore, no groups were conducted within this category. Additionally, Loíza had a higher percentage of no-shows, which meant that its group sizes were smaller compared to Gurabo groups.

A health educator at each site recruited potential participants from health clinics (ie, gynecological, pediatric, dental, family medicine, adult primary care, and immunization). Potential participants were selected from clinic rosters and were contacted by health educators by phone or at the clinic. Participants were told that they were invited to attend a health education session on *el síndrome del biberón* (baby bottle tooth decay, SIB). Participants received either phone or mail reminders in advance of the discussion. Overall, there were approximately 6 to 8 women per group.

FOCUS GROUP METHODOLOGY

Each discussion was conducted in Spanish by an experienced moderator and trained assistant moderator in a community setting. Initially, participants were told they were attending a health education session. Once they arrived at the discussion, however, they were asked to assume the "teacher's role" and to provide their knowledge about the discussed topics. A semi-structured interview guide provided a uniform framework for general topics across the groups. Time was allowed at the beginning of the session to establish rapport between the moderator and discussants.[11] Each participant was asked to provide her own honest and candid response to each question, even when it differed from other participants. Additionally, the assistant moderator was invited to clarify participants' comments or to ask about any topic or question inadvertently unexplored. Discussions lasted approximately 50 minutes and were audiotaped.

DATA ANALYSIS

Audiotapes of the discussions were transcribed by an individual unaffiliated with the study. Data analysis consisted of a comprehensive content review of participants' responses from the transcripts, including categorization of responses and extraction of major concepts and views[12] based on the interview guide. Major themes and responses were compared across all participant groups. If responses were unique to a particular group, the data were reported with the group identification (eg, women with 3- to 5-year-olds). Additionally, it took into account the language employed by participants as well as underlying meanings of their expressed opinions.

Table 1. Attitudes and Behaviors Related to Early Childhood Feeding

Shortened breast-feeding duration with supplementation
Reliance on bottle-feeding and difficulty with weaning
Complexities of using the cup
Influential sources for introducing solid foods
Parenting style in relation to feeding

Table 2. Awareness of Decay in Early Childhood

Attitudes about baby teeth: Normally developing and aesthetically pleasing
Oral infection vs tooth decay: Perceived causes
Awareness of *el síndrome del biberón*
Sources of oral health information

Table 3. Oral Care in Early Childhood

Oral care practices: Fluoride use
Traditional oral care strategies
Timing of and attitudes about dental visits
Impact of maternal experiences

RESULTS

Participants' responses were cataloged into 3 a priori themes: (1) early childhood feeding; (2) awareness of early childhood decay; and (3) early childhood oral care. These 3 themes were further divided into subthemes (See Tables 1 to 3).

ATTITUDES AND BEHAVIORS RELATED TO EARLY CHILDHOOD FEEDING

SHORTENED BREAST-FEEDING DURATION WITH SUPPLEMENTATION

Most participants rarely reported prolonged breast-feeding. Women discontinued breast-feeding for several reasons, including inadequate supply/nutrition and a child's intolerability of feeding. Primiparous pregnant women intended to breast-feed because it was best for their babies. Participants were also probed about supplementation, as they may have forgotten to report instances of other feeding practices. Usually, mothers used a bottle with formula or milk in combination with breast milk. Few reported feeding their infants extracted breast milk in bottles. Even some mothers that extracted their own milk, however, found they needed to supplement using either cow's milk, powdered milk, canned evaporated milk, or formula.

RELIANCE ON BOTTLE-FEEDING AND DIFFICULTY WITH WEANING

Bottle-feeding was the most commonly reported method of feeding for all participants, despite residence and parity. Bottle feeding is:

1. a convenient way to track the amount eaten and a child's normal development;
2. an expedient way to introduce other foods ("stronger foods" disguised with milk) to fussy children;
3. convenient for mothers with other children or who work outside the home;
4. easier and less messy than cup-feeding.

Mothers reported adding foods such as sugar, vanilla extract, custard, yogurt, cereals, bananas, and other food staples to their infant's bottled milk. For some, this was part of a night-time feeding strategy recommended by health professionals.

Weaning was considered difficult. Many mothers did not perceive of any danger in using a bottle; an empty bottle indicated an adequately nourished child. Some women, however, on the advice of pediatricians, considered gradual elimination of the bottle an appropriate strategy to alleviate recurrent ear and throat infections. Furthermore, eliminating night-time feedings was reported to be a difficult recommendation to follow. Other mothers, however, were successful in weaning their child by establishing a sleep routine.

COMPLEXITIES OF USING THE CUP

Most participants considered bottle-feeding easier and less complicated than cup-feeding. Common responses included, "The cup is messy. I have to be cleaning after him." Still, mothers were trying to get their children to gradually use the cup. Mothers often used cups for drinks other than milk in children under 2 years; some mothers followed their child's lead on the type of liquids a cup could contain.

Many women reported that cup-feeding (and weaning) usually occurred around the time of toilet training and near the age of entering day care. Some women, however, reported that, although children may use a daytime cup, they may also receive a morning and/or evening bottle.

INFLUENTIAL SOURCES FOR INTRODUCING SOLID FOODS

Mothers reported that they were not solely responsible for an infant's or child's diet. Other relatives were influential in deciding the child's diet, including when and which foods to introduce early. Most mothers reported following their older relatives' (mothers') recommendation for introducing foods—even if it may have conflicted with their doctor's advice.

PARENTING STYLE IN RELATION TO FEEDING

Most mothers described the general process of introducing new behaviors (eg, weaning, cup-feeding) as slow and gradual as well as dependent on the child's personality and needs. Multiparous mothers reported modifying their parenting style/tactics depending on the child's personality. Differential parenting was based on such things as birth order and a child's intellectual and physical character. Mothers also recognized that birth order played a role in whether they used a more permissive parenting strategy.

AWARENESS OF DECAY IN EARLY CHILDHOOD

ATTITUDES ABOUT BABY TEETH: NORMALLY DEVELOPING AND AESTHETICALLY PLEASING

Each developmental milestone that their children achieved further enhanced the mothers' pride. Tooth eruption was considered a significant landmark in a child's development. Eruption during the specified developmental period reassured families that a child was progressing normally.

All mothers placed a high value on dental health. Most mothers placed a high aesthetic value on teeth, describing healthy teeth as "looking beautiful," "no tooth missing," "evenly spaced," and "nonstained teeth, having white teeth." Some women described healthy teeth as those that were strong and pain- and treatment-free. Mothers also reported that problems with primary teeth would disappear when they were replaced with the permanent teeth.

ORAL INFECTION VS TOOTH DECAY: PERCEIVED CAUSES

Perceived causes of oral disease are conceptually different among mothers across all groups. Oral disease in infants occurs in the mouth and is referred to as "infection," "sapo" (candidosis), or "bad breath." Oral disease in children occurs in the teeth and can be categorized as "carious," "stained," or "trauma." The idea that caries can develop in infants is virtually unheard of. Women perceive "sapo" as a cause of milk

consumption (ie, milk left in the mouth, milk that putrefies in the mouth if not cleaned, and indigestion), bottle use (ie, prolonged chewing on a bottle's nipple, using colored nipples), and microbes (ie, chewing on a dirty or worn-out pacifier, crawling on a dirty floor, using toys or hands to seek relief for achy gums). Both mothers and grandmothers cite the most common source of oral infections in babies is microbes.

Mothers reported that children more commonly have tooth problems such as:

1. tooth decay caused by:
   a. sugary snacks or sweetened milk;
   b. chewing on a dirty/worn-out pacifier;
   c. "soft"/weak teeth, calcium deficiency;
   d. irregular tooth-brushing;
2. stained teeth caused by some vitamins or calcium deficiency;
3. tooth trauma caused by an unintentional injury.

The idea that dental decay is the result of an infection was nonexistent among most women.

Ideally, mothers and grandmothers believed that children should not have cavities. They felt proud if their child did not have any cavities. They also reported, however, that cavities were a normal part of childhood. Mothers reported paying attention to teeth experiencing pain or which had very noticeable spots or stains. Early recognition of cavities was reported by most women to be difficult. Those who had seen noticeable color changes in their children's teeth consulted a dentist and were reportedly told "not (to) worry since these are not the permanent teeth and when the permanent appears, they would be OK." Furthermore, some mothers and grandmothers felt that "some children have innate deficiencies" and were more "naturally prone" to develop cavities.

AWARENESS OF BABY BOTTLE TOOTH DECAY

As aforementioned, mothers were more aware of frank decay than baby bottle tooth decay or the term used to describe it. When asked by the moderator, the women's first impressions of *SIB* were, "a fungus or something that can appear in the mouth of a child—a disease."

The common perception about the cause of SIB in babies was that it did not exist, while the cause of SIB in children was a mother's negligence (eg, prolonged sleeping with the bottle, chewing on the nipple, and milk in the mouth), poverty, and a natural deficiency. Participants recognized that the bottle in itself was not considered a risk for cavities, but how it was used (eg, leaving a child to play with/chew the bottle after finishing the contents). Mothers' perceived decay was associated with bottle usage and such practices as adding too much sugar, infrequent changing of nipples, and not teaching the child a tooth-brushing or rinsing routine.

Few women recalled learning about the prevention of baby bottle tooth decay by health professionals. Of those who did, most learned through their pediatrician advising them to rinse their infant's mouth after giving milk and to wipe their gums with a clean, damp cloth, although this was reported to be time consuming and difficult.

SOURCES OF ORAL HEALTH INFORMATION

Commonly cited sources of oral health information across all groups were: (1) health care professionals; (2) relatives and friends; (3) mass media; and (4) other influential sources. Women reported that pediatricians were important and believable sources of children's health information. Mothers, particularly of 3- to 5-year-olds, mentioned that they would get children's oral health information from their own dentists. Mothers, however, reported confusion about sometimes conflicting messages from health care providers.

Grandmothers and relatives with children were reported to be sought-after and trusted sources of information. Besides trust, women perceived grandmothers and relatives as accessible and reliable when they were needed. Furthermore, mothers reported learning their practices and behaviors by modeling trusted relatives and friends.

Mothers also mentioned TV and magazine advertisements as another information source. Only primiparous mothers reported finding information through prenatal/child care leaflets and books. Other commonly mentioned sources of oral health information were child care attendants, teachers, social workers, and clinic health educators. Prenatal classes/health education sessions were not considered sources by most women.

ORAL CARE IN EARLY CHILDHOOD

ORAL CARE PRACTICES: FLUORIDE USE

Mothers considered fluoride to be an important preventive strategy for eliminating cavities. They reported various sources of fluoride such as fluoride supplements, "baby water," and fluoridated toothpastes. Although fluoride supplemental use is not well known, participants indicated that pediatricians at the 2 health centers prescribed fluoride dietary supplements to infants and children. Another source of fluoride used by mothers was commercially available "baby water." One mother said, "Baby water helps the baby to develop healthy teeth," so mothers felt compelled to include it as part of their child's diet.

Mothers reported that they introduce toothpaste and tooth-brushing as soon as their child's teeth erupt. Tooth-brushing was introduced through modeling. Mothers felt that it was a good time to introduce brushing when the child started to play with the adult's brush, eat adult paste, and imitate adults and older siblings.

TRADITIONAL ORAL CARE STRATEGIES

Participants mentioned using several strategies or products to care for their infants' oral health. The use of *miel rosada* (pink honey sold over the counter) for a baby's mouth was most often reported, "...use it to clean the baby's tongue. Babies get infections in the mouth from the milk." Other participants reported rinsing out children's mouths after feeding, particularly after bottle-feeding. Some grandmothers recalled learning to clean their mouths by chewing on leaves of a popular plant, *la hoja del gandul.* Although recalled by grandmothers in both communities, they reported that this folk remedy seemed to be slowly disappearing.

TIMING OF AND ATTITUDES ABOUT DENTAL VISITS

Mothers reported being commonly advised to take children to the dentist when they reached 3 or 4 years old. This is typically the entrance age for Head Start, which requires dental exams for enrollment. Mothers reported, however, that they would seek dental services earlier if they saw problems or if their pediatrician alerted them to a potential problem with their child's dentition.

Mothers appeared to go out of their way to find dentists who:

1. would treat their children with respect;
2. were able to skillfully handle frightened children;
3. would win their trust.

Some mothers felt that providers judged them about their mothering abilities when they took their fearful and reluctant children to see them.

IMPACT OF MATERNAL EXPERIENCES

Few women reported that they were users of preventive dental visits. As previously mentioned, utilization of care appeared conditioned by a perception of aesthetic correction. In reality, however, most sought care due to symptomatic cues like pain, bleeding, or trauma to the mouth. Fear of pain, judgment, and of harming the fetus if pregnant appeared to be large components for avoidance of care. As part of their prenatal care, pregnant women are referred for dental exams. Several, however, reported canceling their appointments or not showing up. Some women reported not seeing a dentist in over 10 years. Childhood experiences colored many women's views about dental care. Most did not want their children to have a similar experience.

DISCUSSION

This study gathered information from women in 2 rural Puerto Rican communities about their child care practices related to oral health. Qualitative methodology was employed, as this type of research aids in assessing subjective material, such as unobservable thoughts, attitudes, and beliefs.[13] Focus groups also provide a deeper understanding of, or richer insight into, a particular problem. They have been particularly useful in dentistry for the in-depth exploration of caregivers':

1. cultural beliefs and attitudes related to their and their children's oral health[14,15];
2. attitudes and perceptions related to dental care and access to care.[16,17]

Additionally, focus group discussions allow program planners to design culturally tailored programs based on participant input and acceptance, which may reduce qualms associated with outsider-initiated programs.[13]

Participants implemented various practices and strategies to feed their children. It was clear that women were not receiving consistent information about nutrition and oral health from any common source. For example, mothers depended on a variety of sources for implementing a new feeding or child care strategy, including their own experience, older relatives, and their children's ability or personality. One potential way to provide clear, consistent messages to women about child care practices related to oral health is to ascertain the roles of the health professionals (eg, Women Infants and Children staff, pediatricians, health educators). These health professionals could educate mothers on culturally appropriate strategies for adopting new behaviors and providing preventive messages.[18,19] Furthermore, given the influential role of older relatives (grandmothers), it would be essential to educate and engage this group in communicating preventive messages about healthy dietary and oral care practices for teeth.

Most women were concerned with having a normally developing child; tooth eruption was seen as a significant milestone. These mothers placed a high value on the aesthetic appeal of teeth, similar to Caucasian populations.[20] White, straight teeth were highly valued. On the contrary, they felt that cavities were a normal part of development and that any primary teeth problems would be corrected once the permanent teeth appeared. The low value placed upon primary teeth may be due to their unawareness of early signs of dental decay in their children and the impact of primary teeth on permanent tooth development, as well as the mother's trepidation at subjecting her child to the same fear-provoking dental experiences. This has been found in other low-income caregivers.[14]

For the most part, caretakers paid attention to the tooth's physical attributes (ie, darkening color) and especially complaints of pain. The early stage of dental disease can be more easily reversed with simple, pain-free techniques. For this reason, any health promotion efforts need to:

1. emphasize the early warning signs of dental decay;
2. encourage visits to the dentist at this early stage;
3. suggest uncomplicated strategies for recognizing and treating it.

Furthermore, caregivers and other health professionals need to be educated about the importance of early dental visits, in general.

Interestingly, participants described oral disease in infants, *sapo*, that was differentiated from oral disease in children, namely dental decay. The now commonly held thought that dental caries can occur in infants and is a transmissible, infectious disease exacerbated by dietary and oral hygiene practices was not well known to these women. In these communities, both caretakers and professionals need to be educated about the cause and proliferation of dental disease in young children.[21] As in other populations, first-time mothers appeared to be more open to receiving education/information on healthy tooth strategies.[14] In deciding how to begin a health promotion effort, it may be worthwhile to start with individuals who are open to new information and are motivated by being a new parent.

There were several limitations associated with this study:

1. Due to the small number of participants per group and the few groups, the information gathered was not representative of the entire community and cannot be generalizable.
2. Just as in survey research, participants' responses may be biased by their desire to provide socially acceptable answers. This is unlikely, as many of the women across the groups responded similarly to the topics discussed.

3. The high rate of no-shows to the discussions in the one community made it difficult to compare and contrast the perceptions between the 2 communities.

Data from these discussions will be used to suggest areas for potential preventive community intervention that, if implemented, may ultimately reduce the prevalence of early childhood caries in this population. Overall, these data suggest a need to increase caretakers' knowledge about infant/child dental disease and effective behaviors in childhood feeding and its relationship to dental disease, and skill sets for early childhood oral care. It also suggests that knowledge and skills need to be provided in a culturally appropriate and encouraging manner.

CONCLUSIONS

Based on this study's results, the following conclusions can be made:

1. Participants' low value of primary teeth and their aversive experiences with symptomatic dental care appear to be important determinants of health beliefs and subsequent behaviors. Health promotion efforts should focus on the importance of healthy primary teeth for future healthy permanent teeth, as well as pain-free functioning of primary teeth.
2. Grandmothers and other health professionals (pediatricians and family physicians) are reliable informational sources. Health promotion efforts should include primary care practitioners, as most of the regular contact with children during this early age is with these professionals.
3. Decay was not viewed as an infectious, transmissible disease process. Health promotion efforts should provide specific and clear educational information and recommendations that dentists, pediatricians, and health educators could give their patients about the disease process and simple strategies for infants and young children's oral care.

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