

Preventing caries in young children of immigrant Bangladeshi families in New York: Perspectives of mothers and paediatricians

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Objective: Childhood caries is common in South Asian immigrant families. Few children visit a dentist by 12 months, as recommended by current guidelines. The paediatric visit has important potential for linking children to preventive care. The aim of this study was to understand the barriers and facilitators to caries prevention for young children of immigrant Bangladeshi families in New York. Qualitative data were collected as a preliminary step in the development of an oral health counselling intervention for South Asian children.

Basic Design: Qualitative interviews on child feeding and oral health prevention were conducted with Bangladeshi mothers. Qualitative interviews were conducted with paediatricians regarding their experiences with providing care. The data were analysed using standard qualitative approaches. **Setting:** Paediatric practices serving low income Bangladeshi immigrants in New York City. **Participants:** 26 mothers of children aged 6–24 months receiving services in five paediatric settings and 15 paediatricians providing care in these settings.

Results: Both mothers and their paediatricians described risky feeding practices, communication problems and a lack of compliance. Oral health for young children was a low priority for some mothers. Most, however, were concerned about childhood caries but lacked skills or resources to decrease caries risk. **Conclusions:** Results support our plan to develop an empowerment-based counselling intervention to address caries risk in children. Paediatric dentists should be aware of the barriers to caries prevention in this group.

Key words: minority health, primary prevention, dental caries, oral health, South Asians, eigrants and immigrants, patient education counselling

Introduction

Dental caries among children is a problem of major public health significance in western societies. In the US, it affects 20% of children aged 2–5, with poor and ethnic minority children much more likely to be affected (Dye and Thornton-Evans, 2010). Untreated childhood caries has major effects on health and social functioning, and is associated with poor oral health in adulthood (Mouradian and Berg, 2003).

Since effective prevention efforts must begin in infancy and early childhood, the American Association of Paediatric Dentistry guidelines advise an oral health visit at the time of first tooth eruption (around 6 months) or no later than 12 months of age. Yet only 1.5% of infants and one year olds visit a dentist each year (Department of Health and Human Services, 2010).

South Asian immigrants from India, Pakistan and Bangladesh are one of the fastest growing immigrant groups in the US (Asian and Pacific Islanders Health Forum, 2006; United States Census Bureau, 2009). Bangladeshis experience high rates of poverty, cultural isolation, and unmet service needs, compared to other South Asian groups (South Asian Council for Social Services, 2004). Data from Canada and the UK indicate that South Asian immigrant children are at particularly high risk for dental caries compared to native populations even when socio-economic status is taken into account (Bedi and Uppal, 1995; Gray *et al.*, 2000; Prendergast *et al.*, 1997; Williams and Hargreaves, 1990; Wong, 2000).

In addition to the lack of access to oral health providers, several socio-cultural and behavioural attributes may contribute to high rates of dental caries among South

Asian children. Known risk factors include delayed bottle weaning and bottle additives (Godson and Williams, 1996; Kannan *et al.*, 2004; Watt, 2000) and a lack of a concept of preventive oral health care. Many families view regular tooth brushing as unnecessary for young children (Williams and Hargreaves, 1990).

Many health promotion interventions are designed based on the premise that providing information on the risks and benefits of health behaviours can bring about sustained behaviour change. Accumulating evidence suggests the weaknesses of this approach, especially the neglect of the social and cultural context of health behaviour (Marks, 1996; Williamson and Drummond, 2001; Yevlahova and Satur, 2009). Interventions which focus attention on individual agency without regard for the contextual factors constraining health behaviour choices may be doomed to failure in the long run (Boyce, 2001; Good, 1986; Wallerstein and Bernstein, 1988).

The development of culturally sensitive interventions that address the structural and social context of health behaviours is particularly important in traditional communities. In the South Asian community, for example, many young married women traditionally occupy a low status within the family and do not participate in family decision making. Furthermore, South Asian mothers are particularly vulnerable to depression and demoralisation, perhaps due in part to their marginalised status (Buckshee, 1997; Karasz, 2005; Ulrich, 1987). Maternal depression has been associated with both prolonged bottle feeding and childhood caries (Weinstein *et al.*, 2004).

The paediatric visit has important potential for linking children to oral health care (Ismail *et al.*, 2002; Lewis *et al.*, 2000). Our team is developing a home-based intervention aimed at preventing caries among South Asian children treated in primary care settings. Drawing both on Motivational Interviewing strategies and Freire's theories on popular education, our intervention focuses on supporting and empowering mothers to explore their values regarding child oral health and determine their own plan for change. The present study was conducted as a preliminary step prior to developing the intervention. For the study, we sought the views of two groups of stakeholders: paediatricians providing care to Bangladeshi children and Bangladeshi mothers of young children.

Methods

We recruited convenience samples of mothers and paediatricians.

Paediatrician interviews were conducted at paediatric practices associated with South Asian Practice Partnership for Health Improvement and Research (SAPPHIRE), a new research network of clinical practices serving South Asian patients. The second author, a physician, recruited paediatricians by approaching them directly in their health centres and interviewing 15 paediatricians, of whom about half were paediatric residents. Interviews lasting about 10 minutes were conducted with paediatricians in the lounge or precepting room of the health centres during regular clinic hours. A short topic guide focusing on physician attitudes and experiences related to caring for Bangladeshi toddlers in their practices was used. We inquired about impressions related to oral health and feeding practices and experiences working with families. Demographic data were not collected from paediatrician participants.

Focus groups and in depth interviews were conducted with mothers receiving services or attending programs at a community-based organisation in the Bronx, New York, called Sapna NYC. To recruit mothers, flyers describing the study were distributed to program participants at Sapna NYC. Participants were also asked to spread the word among their friends and neighbours. In all, 13 mothers participated in interviews. An additional 13 mothers participated across two focus groups.

Focus groups and individual interviews with mothers ranged from 30-60 minutes and focused on beliefs, attitudes and practices related to feeding and oral health. A topic guide was used to guide questions; but in keeping with standard qualitative interviewing technique, participants were encouraged to tell their stories in their own words. Basic demographic data were also collected. Interviews were conducted by a bilingual Bengali speaking graduate student not known to participants. They were audio-taped and transcribed directly into English. The focus groups were conducted by a Bengali speaking social worker with experience in group dynamics and group work. The focus group leader was known to some of the participants. Both groups were recorded through detailed field notes. One focus group session was taped and transcribed. However, due to an equipment failure, we constructed a transcript of the second group from the field notes alone immediately following the session.

A descriptive thematic analysis of individual and focus group transcripts was conducted to gain an understanding of the attitudes and practices of Bangladesh mothers and the paediatricians who treat them. We developed a brief prior coding scheme based on the literature and our knowledge of the topic for each of the two participant groups. Using standard qualitative analysis techniques, the first and the third authors applied the coding schemes to a subset of data, and subsequently revised the schemes. This process was repeated until the coding schemes were judged to fit the data conceptually. The third author then coded all the data using the revised coding schemes. The data were uploaded into NVivo, a qualitative data analysis program that facilitates the rapid organisation and retrieval of thematically linked data. The study was approved by the Albert Einstein College of Medicine Institutional Review Board.

Results

The 13 focus group participants had a mean age of 31 and an average of 13 years of formal education. None were comfortable speaking in English. The demographics of the 13 interview participants were similar, with an average age of 32, 10½ years of education, and a mean of 4.3 years in the US.

Many paediatricians we spoke to believed Bangladeshi children to be at high risk for dental caries; about a third reported that the problem was worse among Bangladeshi toddlers and older children compared to other low income groups. Though most were aware of the American Association of Paediatric Dentistry guidelines and agreed with them, only a few paediatricians actually followed the guidelines in referring children to a dentist by age 12 months. Paediatricians noted access issues as barriers to guideline-concordant care. South Asian cultural values and priorities also played a role.

Even if I told parents to make a dentist appointment I'm not sure that they'd even buy into it...because there's other stuff going on and they probably don't see the benefit when the kid has new teeth or not many teeth.^{#11,Attending}

Paediatricians were frustrated and mystified by the prevalence of feeding problems and issues among their Bangladeshi patients.

There's something going on. There are a lot of issues around feeding – how the kids should feed, when to start solids, what to give the kids. The babies are tough to feed. [Actually] I'm not [even] sure what all the reasons are.^{#4,Attending}

One paediatrician who worked in the hospital as well as in the clinic setting noted a high percentage of Bangladeshi children with failure to thrive (FTT) among admissions.

Whenever we have an FTT admission, we just assume it's a Bangladeshi patient. It's not something organic going on, it's because there is not enough caloric intake.^{#13,Resident}

Once children enter toddlerhood, the problem is reversed. Over half the paediatricians in the sample note a pattern of underweight infants and young toddlers, along with high rates of obesity in older toddlers.

Babies are often FTT, but as they get older, obesity becomes an issue – they [parents] just shovel the food

into them because they seem to be so worried about them eating/gaining weight.^{#12,Attending}

Respondents theorised that parents of underweight infants were often obsessed with getting food into their children, leading to forced feeding. In itself, forced feeding could lead to food refusal, creating a vicious circle and worsening the problem of underweight.

I would say that [Bangladeshi] attitudes towards feeding are poor. The mothers tend to push the kids to eat—there's a lot of force feeding. As a result, the kids aren't eating. I'm not sure what it is that's happening, but it's very clear that a lot of the kids start to fall off the growth curve.^{#6,Attending}

Paediatricians hypothesised that force feeding worsened the problem of underweight infants, but paradoxically could lead to obesity in older children.

There's a lot of force feeding, so as a result there are picky eaters, food refusal. A lot of them are below the 10th percentile. But when they get older, all the teenagers seem to have insulin resistance.^{#9,Resident}

Other feeding issues such as prolonged use of the bottle, delayed introduction of solids, and frequency of sweets and junk food in the diet, were frequently reported. Paediatricians commonly commented that Bangladeshi parents did not adhere to their advice around feeding issues.

When the kids are older the parents start introducing fast foods, cookies, cakes, candies, soda, junk – when I [talk to them about this] they seem to understand, but they don't change any behaviour.^{#11,Attending}

Our first questions to mothers related to their values and goals regarding children's health and oral health. Mothers were deeply concerned about their children's health. A healthy child was defined variously as healthy looking, happy, meeting developmental milestones, and free of disease.

A healthy baby? Smiling, walking, eating and sleeping well, laughing... happy.^{#12}

Many emphasised that a healthy child is *not* the same as a chubby child.

If a child is fat it doesn't mean the child is okay. Some skinny children eat, do potty, sleep regularly and they are healthy too.^{#6}

When we asked mothers to define a “healthy mouth” in their infants and young toddlers, most responses indicated that mothers took oral health seriously.

They will fall ill if their teeth are not cleaned. They can have diarrhoea. ... There can be cavities or germs in the teeth. So if we don't clean our teeth then those germs can make us fall sick.^{#2}

Signs of a healthy mouth included white teeth, straight teeth, the absence of discoloured, black or broken teeth, and the absence of pain. Many mothers were concerned about keeping their children's mouths clean.

Sometimes her mouth starts smelling bad . . . And she doesn't feel like eating. When I wash her mouth, she feels fresh, and then she also feels hungry.^{#10}

Mothers' beliefs about oral health care aligned closely with current guidelines. Most noted the importance of frequent brushing, even for small children with few teeth. Few mothers suggested that baby teeth were disposable.

The milk teeth do not fall out until a child is 6-7 years of age . . . In the meantime the child needs those teeth and if there is decay it is going to hurt.^{#1}

Despite their beliefs, mothers noted barriers to consistent brushing.

[Sometimes] *I might not clean his mouth at night.*

Maybe I am not feeling well, I am feeling tired and I wish that he just falls asleep.^{#12}

Perhaps reluctant to admit that they themselves did not care for their children's teeth as well as they thought they should, some mothers referred to the unsound practices of ‘most people.’

Most people don't clean baby teeth.... Mostly we are lazy. People think that if there are only two or three new teeth, why is it necessary to take care of them?^{#11}

In keeping with traditional views about the importance of cleanliness and washing to health, many mothers washed their children's mouths with water in lieu of brushing.

When they eat candy they should rinse their mouth several times after having it. This will prevent the bacteria from growing between their teeth.^{#9}

Many acknowledged serious dental problems in their children.

I have seen lots of kids eating candy and it gets stuck between teeth and then it becomes black and there is a hole between the teeth. My son has this problem.^{#4}

We found that the concept of preventive care was undeveloped. Most went to the dentist themselves or took their children only after noticing problems.

I don't have any trouble with my teeth so I don't need to go to the dentist.^{#4}

Among older children, we found that mothers were often undisturbed about evidence of significant oral health problems in their children.

So what are you doing about the black marks on his teeth? Till now I haven't done anything. His Abu [father] is talking about taking him to a doctor.^{#4}

Of note, none of our participants mentioned lack of access or ability to pay for a dentist for their children as an issue.

Regarding child feeding, all participants in the focus groups agreed that candy and junk food were bad for children.

Usually young children like to eat candy, chips etc. Those foods also supply lot of calories and fat in body. On top of all this junk food makes babies lose their appetite for healthy food.^{FG#2}

Many mothers distinguished between candy, which was seen as unhealthy and traditional South Asian milk-based sweets and puddings.

A little sweet has to be fed because brain development demands it. I know this after I read a Bengali book.^{#9}

Many mothers believed that fruit juices were beneficial to children. One participant noted that in Bangladesh, sweetened juices sold for children might contain toxic chemicals. She was afraid to feed her child these juices. In the US, however, she felt safe to do so.

Over here you get fresh juice without preservatives. I read the labels and see that these are preservative free. Over here [Americans] are very conscious about children... If the children drink juice here there will no problem.^{#9}

Regarding bottle additives, mothers commonly added cereal to the milk in their child's bottle, while at least half added sugar or chocolate or strawberry flavouring. Most participants gave their child juice in the bottle. Many mothers mixed ‘sugji’ (rice cereal) or rice vermicelli with milk and sugar and fed it to their children in the bottle. Mothers cut large holes in the nipple to accommodate these semi-solid foods.

Mothers were well aware of paediatricians' advice to start weaning their children from a bottle to a cup after the first birthday. Many noted that bottles, or "feeders," were not good for children's teeth. In our focus group, about half of participants felt that bottles should be stopped at one year. However, even among mothers who agreed with their paediatricians' advice to transition their one year old to a cup, delayed weaning was almost universal. Almost all the mothers in the sample provided bottles long past the recommended age.

Mothers noted a variety of barriers to changing these patterns, including exhaustion:

I think that when mothers become tired running after the child and see that feeding the child from a bottle keeps him quiet for some time, they do it. They do it out of fatigue and also that they have other housework apart from looking after the child.^{#1}

However, the most common reason for prolonged use of the bottle had to do with maternal anxiety that the child was not getting enough to eat. Using a bottle allowed the mother to measure precisely how much food her child was getting. This assuaged her anxiety.

If I feed my child table food I don't know exactly how much he has eaten. If she is drinking from a glass then she will spill it - and how can I tell how much she has had in total? If she feeds from the bottle then the amount consumed can be seen. I can tell that my child consumed four, five or six ounces.^{#4}

Many mothers preferred the bottle to the spoon or cup because it was easier to force feed children with a bottle. Some mothers reported being told by their doctors not to force feed, but their anxiety was so great that they could not follow this advice.

The doctors in this country forbade us to force feed the babies... It might create a pressure on the baby's brain. He will think, "I do not want to eat and I am being forced." But [as his mother] I know that it has been three hours and he must be hungry, so I feed him again.^{#10}

Mothers also resorted to other strategies, such as following their child around the house with food or a bottle and putting it in the child's mouth when he became distracted.

Sometimes I show him television shows, take him to the walker, show him water, and blow some balloons or toys. If he is having fun he forgets that he doesn't want to eat and I can get the food in his mouth.^{#10}

Many mothers lacked confidence that they could change their children's feeding practices:

I know it's not healthy to feed with bottle. Bottles affect the child's teeth. The teeth will get black stains and holes... So [I know this is not good and it's better to feed her another way.] But it's difficult to feed her without the bottle. I cannot make her get rid of it.^{#4}

Many mothers continued bottle feeding past the recommended age because their children did not want to give up the bottle.

Many times children including my child don't want to eat solid food. My child doesn't want to eat rice, and then the quantity of milk consumption goes up. I give her the feeder thrice a day if she doesn't want to eat rice. Around 2-3 am in the night she needs to be fed with the feeder.^{#4}

In general, we noted a strong disinclination among mothers to deny their children's wishes:

If a child is asking for sweets, chocolate and chips, is it tough to say no? Yes, because they start screaming and crying and won't stop until they get it.^{FG #1}

Some mothers expressed the belief that crying was bad for babies:

I feel that there might be problems regarding their heart or brain if they cry so much. . . Their heart is small so it might beat too fast which can be bad, right?^{#5}

Some mothers acknowledged that their fear of their child becoming malnourished or losing weight was not reasonable.

The doctor shows me a chart that shows me the baby is growing properly; her height and weight are proportionate to her age. . . Still the fact that my baby is not chubby creates doubt in my mind. It is my weakness! I feel that if she is a little fat then she will be healthier.^{#10}

Many mothers did not have control over decision making about their children's health and feeding. Most participants consulted at length with their husbands, parents, and in-laws regarding matters of children's health.

I consult with my parents about what will be good for the baby. Whatever they conclude I will try to feed my baby in that way. If they tell me something will not be good for the baby then I will not feed my baby that way.^{#3}

My husband does that...He is the decision maker.^{#8}

Many immigrant families lived in small, crowded apartments. Denying children's wishes or changing feeding habits could cause fussing or crying, creating misery for the whole family. When we asked, "If you are home with your husband or other family members and your children start demanding sweets or junk food, how would they react?" almost all participants agreed that family elders would expect mothers to give in to the child and stop the crying.

Yes. My husband asks me why the child is crying. Give him what he wants.^{#4}

Discussion

Our data reflect previous findings in the literature regarding attitudes towards preventive care. Though most mothers showed awareness of the importance of oral health care, many lacked a developed concept of oral health prevention. Most mothers reported that they took their children to the dentist only when they noticed pain or other problems. In contrast to some research, our results suggest that, at least among this small sample of Bangladeshi immigrant mothers, many mothers understood the importance of brushing teeth and oral hygiene behaviours such as decreasing bottle use and avoiding night- and nap-time bottles. But while most mothers understood the paediatrician's advice on feeding, they had difficulty complying with this advice. We found that mothers' anxiety over food intake and desire for a chubby baby contributed to the persistence of feeding practices that put their children at risk both for caries and for other problems, such as obesity and overweight. Prolonged bottle feeding, in particular, seemed to be associated with maternal anxiety over feeding. Using a bottle allows the mother to gauge her child's food intake and facilitates force-feeding. These feeding practices may be self-defeating, in that

they can lead to food refusal, which in turn reinforces the mother's anxiety and leads to further efforts to force feed. A lack of autonomy in maternal decision making created a further barrier to change.

Regarding future work, the standard approach to early childhood caries prevention is to provide health education (information) regarding caries risks and prevention strategies. Yet early childhood caries prevention interventions have generally met with poor results (Weinstein *et al.*, 2004). A counselling approach, by contrast, assumes that information alone will not be sufficient. Instead, participants must be sufficiently motivated to bring about change and empowered to address barriers to change (Weinstein *et al.*, 2004; 2006).

In this study, we identified a gap between maternal knowledge of caries prevention and caries prevention behaviours. Both paediatricians and mothers indicated that mothers often hear and understand medical advice regarding child feeding, yet they are unable to comply for the reasons described above. Simply reinforcing the paediatrician's message is unlikely to change behaviour. Results support a counselling approach that engages mothers in dialogue and attempts to strengthen motivation for change by providing support and troubleshooting. We propose that a counselling approach that recognises the mother's ambivalence and supports her values and motives as a promising strategy for affecting change. Paediatric dentists providing care to mothers may improve chances of adherence to advice if they support mothers' priorities and understand social and cultural barriers to adherence.

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