

Parents' views on factors influencing the dental health of Trinidadian pre-school children.

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Objective To describe parents' views on the dental health of pre-school children in Trinidad. **Basic Research Design** Self-administered 22 item questionnaire by 138 parents and guardians of pre-school children. **Clinical setting** University paediatric dentistry clinic. **Participants** Consecutive parents or guardians of pre-school children attending a university paediatric dentistry clinic. **Main outcome measures** Views on dental health and dental care of pre-school children, perceptions of own oral health and demographic information. **Results** Most participants (80%) were educated up to secondary school level and 59% were from homes where the head of the household was either in manual work or unemployed. One-half of the participants (50.7 %) felt that teeth of young children should be brushed three times a day, with (75.4%) choosing a small brush. Most participants (65%) considered the position of supervised brushing of children's teeth from 'in front' to be the most effective method while 4.5% choose 'from behind'. Twenty seven percent did not know if their child's toothpaste contained fluoride and 82.6% did not know how much fluoride it should contain. Thirty three percent of the respondents had given their child a sweetened baby bottle or comforter at night. Fifty four percent felt a child's first dental visit should be when all baby teeth were present. Forty two percent would want a decayed baby tooth filled, 31.9 % would want it extracted and 22.4 % were unsure. **Conclusion** The generally inaccurate factual knowledge and low awareness of preventive care among parents suggest the need for accurate information about factors influencing the dental health of pre-school children. These findings have significant implications for the delivery of effective health promotion strategies and the accuracy of health education messages in Trinidad and Tobago.

Key words: Dental health, health promotion, pre-school children, West Indies

Introduction

There is a dearth of information on the oral health of pre-school children in the Caribbean. Oral health surveys have focused mainly on primary or secondary school children. The scant data on early childhood caries (ECC) does however suggest that caries in the primary dentition may be a significant problem in the region. For instance, in Anguilla (British West Indies), the prevalence of ECC among children aged between two and three years was 37%. (Adewakun and Beltran-Aguilar, 2002).

Trinidad and Tobago is a two-island state and the most southerly of the Caribbean archipelago. This developing country within the British Commonwealth, has a population of 1.3 million, with 23% below the age of fourteen years (PAHO, 2002). Unpublished preliminary data from the 2004 national oral health survey of school-children in Trinidad and Tobago reported a mean dmft of 2.54 (sd 3.12) for 6-8 year-olds. Caries involving the primary molars was found to be a common presenting complaint of patients attending a university paediatric dentistry emergency clinic in Trinidad (Naidu *et al.*, 2005). Decayed deciduous teeth presenting in primary school children indicate that such children were likely to have been at high risk for caries during their pre-school years (Holbrook *et al.*, 1993).

Children under the age of five years generally spend much of their time with parents and guardians even when they attend pre-schools or nurseries. These early years

involve 'primary socialization', during which the earliest childhood routines and habits are acquired (Blinkhorn, 1991). These routines include dietary habits and health behaviours established as norms in the home and are dependent on the knowledge and behaviours of parents and older siblings. Studies have reported that low parental knowledge and poor attitudes towards oral health are associated with higher caries experience in infants and young children (Hinds and Gregory, 1995; Blinkhorn *et al.*, 2001). The aim of this study was to describe the views of parents about the dental health of pre-school children in Trinidad and to discuss implications for the delivery of effective health promotion strategies to this population group.

Method

The sampling frame for this study comprised parents and guardians of patients attending the University of the West Indies (UWI) Paediatric Dentistry Clinic in Trinidad. Consecutive parents or guardians of children attending the clinic who were regular attenders, were asked by the authors (RSN and LD), if they currently cared for a child under five years (not necessarily a patient of the UWI clinic). Parents or guardians found to be in this category were then invited to participate in the study.

The 22-item questionnaire was based on one previously administered in the UK which covered parental knowledge and attitudes towards dental health for young

children, views about their own oral health and demographic information (Blinkhorn, 2001).

The criteria for ethnicity and occupation used by Singh *et al.*, (1999) were adopted in this study. The questionnaire was pre-tested for content and context validity in the same clinic on regularly attending parents / guardians (this data was not included in the main study) and some questions were modified in order to improve their clarity and appropriateness. Data were collected between October 2004 and March 2005. Approval to conduct the study was obtained from the North West Regional Health Authority, the governing body for the Dental Hospital.

Results

A one hundred percent response rate was obtained from the one hundred and thirty-eight parents/guardians invited to participate in the study. Fifty percent of participants were aged between 25 and 34 years. Most respondents (73 %) were female with Africans (37%) and Indians (36%) comprising the main ethnic groups. (Table 1). The majority (59%) of the participants were from homes where the head of the household was either engaged in manual work or unemployed and 80 % had secondary school education.

Nearly all (97.1%) participants felt that their teeth were very important to them (Table 2). Less than one-quarter (23.9%) of respondents claimed to visit a dentist every six months while over one-third (34.1%) claimed to attend only when in pain. Twenty three per cent rated their oral health as 'very good' or 'excellent', 30.4% rated it as 'good' and 46.4% rated it as 'fair' or 'poor'.

One-half the participants (50.7 %) felt that a young child's teeth should be brushed three times a day and 46% felt it should be twice a day. Three quarters (75.4%) felt that a small brush would be most suitable. One-third of the participants felt that the correct amount of toothpaste should be enough to cover the entire brush head while 29% chose a pea-sized amount. Supervised brushing of a young child's teeth from 'in front' was considered to be the most effective position by 65% of participants, while 14.5% chose 'from behind'. Over one-quarter (26.8%) did not know if their child's toothpaste contained fluoride and 82.6% did not know how much fluoride it should contain. Eighty seven percent 79%, 78% and 52% of participants chose sweets, chocolates, table sugar and soft drinks respectively, as the food items most likely to cause tooth decay. Forty two percent felt sugary snacks should be given only at mealtimes. Almost one-third (32.6%) claimed to have given their child a sweetened baby bottle or comforter at night.

Decay in baby teeth was thought to be important by 76.1% of participants. Most of the respondents (54.3%) felt that a child's first dental visit should be undertaken when all baby teeth were present while 21% felt it should be when the first baby teeth appear (Table 4). Less than one-third cited check-up as the most common reason for taking their child aged under five years to the dentist. Forty two percent indicated that they would want a decayed baby tooth filled, 31.9 % would want it extracted and 22.4% were not sure.

Analysis by the demographic variables 'age' and 'education' produced very few significant differences

Table 1. Demographic information for participants (N=138).

	<i>n</i>	%
<i>Age</i>		
18-24	11	8.0
25-34	69	50.4
35-44	43	31.4
45-54	8	5.8
55-64	6	4.4
Male	36	26.1
Female	102	73.9
<i>Ethnic group</i>		
African	51	37.0
Indian	50	36.2
Mixed	33	23.9
Other/not given	4	2.9
<i>Occupation of head of household</i>		
Professional	2	1.5
Middle professional	16	12.0
Lower non-manual	25	18.8
Skilled manual	37	27.8
Unskilled manual	27	20.3
Unemployed	14	10.1
Not known	17	12.3
<i>Level of education</i>		
Primary/Secondary	111	80.4
Technical College	13	9.4
University	8	5.8
Other	6	4.3

(Chi Square) except that a greater proportion of people in the younger age groups 18-24 and 25-34 years reported that the best time to give sugary foods or drinks was at mealtimes (64% and 50%, respectively) compared to people aged 45-54 (12.5%) ($p<0.05$). More people aged 18 to 24 and 25-34 had taken their child under five to visit the dentist (72% and 41%, respectively) compared to people aged 45-54 (13%). Almost two thirds of people aged 45-54 reported that they would want a decayed baby tooth filled (63%) compared to those aged 18 to 24 (9%) and 54% of those aged 18-24 would want it extracted compared to 25% aged 45-54 ($p<0.05$).

Those with 'primary' as their highest educational level less frequently included 'sugar' as a cause of decay (63%) compared to those with secondary education (83%) ($p<0.05$). Although equal proportions of those with primary or secondary education would brush their child's teeth from behind (17%), a greater proportion with primary education would brush from in front (67%) compared to secondary educated (17%). Also a greater proportion of those with secondary education reported that they did not know the best position to brush their child's teeth (67%) compared to (33%) ($p<0.05$) with primary education only.

Discussion

Although a convenience sample was selected, this preliminary investigation provides some useful insight into the views of parents and guardians about the dental

Table 2. Self perceptions of own dental health (n=138)

	<i>n</i>	%
<i>How important are your teeth to you</i>		
Not all important	0	0.0
Somewhat important	1	0.7
Very important	134	97.1
Not sure	3	2.2
<i>How often do you go the dentist</i>		
Never been	9	6.5
Only when in pain	47	34.1
Every 6 months	33	23.9
Once a year	23	16.7
Once in two years	8	5.8
Other	18	13.0
<i>How would you rate your overall dental health</i>		
Excellent	15	10.9
Very good	17	12.3
Good	42	30.4
Fair	47	34.1
Poor	17	12.3

health of pre-school children in Trinidad. It is suggested that these perceptions may have been influenced to some extent by previous attendance at the UWI paediatric dentistry clinic.

Dental services are more likely to be accessed by people of lower socioeconomic status (SES) if the services are provided locally and are free at the point of delivery (Tickle *et al.*, 2000). This may account for the greater proportion of participants with low SES in this study. The low SES and educational level of most of the respondents are important health indicators as it has been well documented that lower SES is commonly associated with poorer oral health and less favourable attitudes towards dental care (Kent and Croucher, 1998; Beal 1996). Consistent with this finding is the fact that few participants rated their own oral health as 'very good' or 'excellent' and over one-third only visited a dentist when in pain.

The significance of SES is illustrated by the findings of the UK national diet and nutrition survey. This assessed the oral health of over sixteen hundred children aged 1 ½ to 4 ½ years and found that the caries prevalence was strongly related to the receipt of income benefits (state welfare), educational status of the mother and social class of the head of household (Hinds and Gregory, 1995). Longitudinal data from the UK Camden studies indicated that despite a national trend of improvement in child oral health, high levels of dental disease were concentrated in pre-school children from families of lower SES (Holt *et al.*, 1996).

Although an oral health assessment was not included, based on SES alone, it is likely that many of the families in the present study in Trinidad have pre-school children at risk of dental caries.

Data from a 17 country study comparing health inequalities in early childhood among diverse communities, found that the odds of a 3-4 year old child being caries-free were increased by a combination of brushing before

age one, brushing twice a day and adult involvement in brushing (Pine *et al.*, 2004). Although most participants in this study advocated brushing their child's teeth at least twice a day, using a small brush, most felt brushing from in front of the child would be best. Posterior positioning of parents or guardians during supervised brushing of children is considered to be more effective (Blinkhorn *et al.*, 2001). The views expressed by respondents in this study are in contradiction to this finding. The inaccurate factual knowledge and low awareness regarding the amount of toothpaste to use, whether the toothpaste they used contained fluoride and how much it should contain, indicate a need for more effective health promotion and dental education messages. The British Society of Paediatric Dentistry recommends toothpaste containing 1000ppm fluoride for those children under six years who are at risk of developing caries (Faculty of Dental Surgery, Royal College of Surgeons, 1999).

A higher proportion of participants correctly identified soft drinks as being cariogenic when compared with those responding to a similar question in a UK study (Hood *et al.*, 1998). This proportion may reflect the dietary advice given in the UWI dental clinic, however few participants chose biscuits from the list. Although biscuits are considered to be highly cariogenic (Blinkhorn *et al.*, 2001), their sugar content is often not obvious and the low awareness of this fact may be compounded by the common perception in the Caribbean that biscuits and cookies are healthy snacks for young children.

Less than one-half of the participants felt that sugary snacks should be limited to mealtimes. A higher proportion of participants reported using a sweetened feeding bottle or comforter for their child at night compared with participants in the UK (Hunter *et al.*, 1997). Poor infant feeding practices and low SES have been respectively cited as markers of high caries risk in pre-school children (Hinds and Gregory, 1995; Holt *et al.*, 1996; Al Ghanim *et al.*, 1998.).

Table 3. Views on the dental health of pre-school children (n=138).

	<i>n</i>	<i>%</i>
<i>How often should you brush your child's teeth</i>		
Once a day	4	2.9
Twice a day	64	46.4
Three times a day	70	50.7
<i>What size of brush is best for a young child</i>		
Small	104	75.4
Medium	30	21.7
Large	4	2.9
<i>How much toothpaste should be placed on the brush</i>		
Enough to cover the whole brush head	46	33.3
Enough to cover half the brush head	45	32.6
Pea size	40	29.0
Don't know	7	5.1
<i>How should you be positioned to brush your child's teeth</i>		
In front of the child	91	65.9
Behind the child	20	14.5
By the side of the child	19	13.8
Don't know	8	5.7
<i>Do you know if your child's toothpaste contains fluoride</i>		
Yes	94	68.1
No	7	5.1
Don't know	37	26.8
<i>How much fluoride should the paste contain</i>		
1000ppm	6	4.3
1500ppm	1	0.7
500ppm	17	12.3
Don't know	114	82.6
<i>Which four of the following cause the most tooth decay</i>		
Chocolate	109	79.0
Jam	60	43.5
Sugar	108	78.3
Sweets	120	87.0
Biscuits	25	18.1
Fruits	3	2.2
Soft drinks	72	52.2
<i>When is it best to give sugary drinks and snacks to young children</i>		
Only in the morning	46	33.3
Only at night	1	0.7
At mealtimes	58	42.0
Anytime	4	2.9
Don't know	29	21.0
<i>Has your child ever used a sweetened baby bottle or infant feeder at night</i>		
Yes	45	32.6
No	83	60.1
Not sure	10	7.2

Table 4. Views on dental care for young children (n=138)

	<i>N</i>	<i>%</i>
<i>How important is decay in baby teeth</i>		
Not at all important	14	10.1
Somewhat important	3	2.2
Very important	105	76.1
Not sure	16	11.6
<i>When should a child first visit the dentist</i>		
When they get their first baby teeth	30	21.7
When they have all their baby teeth	75	54.3
When they start to get some adult teeth	10	7.2
Don't know	23	16.7
<i>Has your child under 5 visited the dentist</i>		
Yes	60	43.5
No	77	55.8
Not sure	1	0.7
<i>If yes, what did they have done</i>		
Check up	30	21.7
Filling	14	10.1
Tooth extraction	7	5.1
Given medication	9	6.5
Other treatment	6	4.3
Not sure	72	52.2
<i>If your child had decay in a baby tooth what treatment would you prefer</i>		
Leave it alone	5	3.6
Have it filled	58	42.0
Have it extracted	44	31.9
Not sure	31	22.4

Dietary counseling particularly with respect to feeding and weaning practices is strongly recommended for high caries risk infants (Faculty of Dental Surgery, Royal College of Surgeons 1999). Most participants felt that decay in baby teeth was important but less than one-half wanted a decayed baby tooth filled suggesting that awareness of the role of the deciduous dentition and methods available to restore them is low. Most of those participants who reported that their child had visited the dentist were not sure about the type of treatment that was provided. The low proportion of participants who felt that the first dental visit should be when the first teeth appear is of concern as early attendance at the dentist is recommended to allow preventive advice and monitoring. Caries prediction models indicate that the earlier a child visits the dentist the greater the likelihood of them being caries free later in childhood (Al Ghanim *et al.*, 1998).

Although the participants in this study were attending a University paediatric dental clinic, there were erroneous perceptions and a lack of accurate knowledge about factors that significantly influence the dental health of pre-school children. These findings are similar to those of a UK study in which the knowledge of mothers of pre-school children at high risk of caries, who regularly attended dental practices, was superficial (Blinkhorn, 1991).

The few significant differences reported when the analysis included age and education may have been due to the small sample size. However it was interesting to

note that the younger age groups were more knowledgeable about when to give sugary foods and drinks and were more likely to have taken their child under five to a dentist, suggesting slightly more preventive knowledge compared to the older groups, yet the fact that a greater proportion of the younger groups would want a tooth extracted rather than filled is of concern. Best brushing position appeared to be related to educational level, with a greater proportion of those with secondary education brushing from behind although confusion was again apparent, as a greater proportion in this group also reported to not know the best position.

It is suggested therefore that dentists may not be the most appropriate persons to deliver effective dental health education (DHE) messages to parents. Also, the dental surgery may not necessarily be the best venue, due to the environment and busy nature of the clinic and the focus being the treatment of the child in the chair. A randomized controlled trial in the UK showed that visits to a trained dental health educator for mothers of pre-school children at risk of caries (provided free by the Primary Care Trust), increased parental knowledge and improved attitudes toward the dental health of their offspring (Blinkhorn *et al.*, 2003). In the US, a combination of DHE (pamphlets and video) and Motivational Interviewing (a therapeutic technique related to decision making) for parents of infants at high risk of caries, resulted in significantly fewer new carious lesions compared with a control group that received only DHE.

Health promotion strategies have also involved the provision of DHE to parents of young children in the home setting. A randomized controlled trial has shown that DHE delivered at home to mothers of young children at the time of, or soon after eruption of the first primary teeth, was effective in reducing caries (Kowash *et al.*, 2000). Although early intervention appears to be crucial, the use of dental health educators at counseling sessions or home visits is presently not feasible in Trinidad and Tobago, as this type of dental care professional (DCP) does not yet exist in the Caribbean. In Trinidad and Tobago some DHE is undertaken at primary schools by dental nurses (the equivalent of dental therapists in the UK). However the time of intervention may be too late, as dietary preferences, feeding habits and associated routines are already established. Change management is therefore more challenging (Blinkhorn, 1991). Training mid-wives and community nurses in the delivery of DHE to the parents with infants and young children and extending the job description of dental nurses to deliver DHE in pre-schools and nurseries should be considered.

Conclusion

This study suggests that a lack of knowledge, low awareness and perceived need for preventive care exist among the parents and guardians of children attending a university paediatric dentistry clinic. Health promotion strategies for parents of pre-school children in Trinidad and Tobago require further development.

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