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Assessment of Mothers' Oral Health Knowledge: Towards Oral Health Promotion for Infants and Children

Folakemi Oredugba[1*], Maarufah Agbaje[2], Oladipo Ayedun[3], Adebayo Onajole[4]

[1]Department of Child Dental Health, College of Medicine, University of Lagos, Lagos, Nigeria
[2]Department of Child Dental Health, Lagos State University College of Medicine, Lagos, Nigeria
[3]Department of Child Dental Health, Lagos University Teaching Hospital, Lagos, Nigeria
[4]Department of Community Health, College of Medicine, University of Lagos, Lagos, Nigeria
Email: *fola_ored@yahoo.com

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Abstract

Aim: To assess the knowledge and oral health practices of a selected population of mothers in order to develop appropriate oral health promotion program for children in the area. Method: A cross sectional study was carried out among a convenient sample of mothers who attended two well-baby clinics—a tertiary and a primary health care centre in Lagos, Nigeria. A questionnaire requesting personal information, previous exposure to and source of oral health education (OHE), knowledge of oral health, diet and oral hygiene practices was administered. Results: There were 104 participants, aged 21 - 46 years (mean 32.01 ± 4.85 years); 58.7% had received OHE, 23.1% from electronic media, 22.1% dentist and 9.6%, doctor or nurse. Only 44 (42.3%) had attended the dentist, 5 (4.8%) in <1 year and 10 (9.6%) within 1 - 2 years. Most younger mothers, compared with older mothers had knowledge of fluoride (x^2 = 8.51, p = 0.014). Only 44 (42.3%) and 20 (19.2%) respectively believed the type of baby food and supplement affect the child's teeth. Conclusion: Participants in this study showed inadequate knowledge of preventive oral health care. Regular OHE is recommended for mothers at the well baby and immunization clinics where they can be easily reached by health professionals.

Keywords

Mothers, Children, Knowledge, Oral Health Promotion

*Corresponding author.

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1. Introduction

Oral and craniofacial conditions have a significant impact on children's overall health and well being [1]. This includes development processes such as physical growth and motivation, social, cognitive, emotional development, learning and achievement of independence. Therefore, poor oral health often has a negative impact on the quality of life and well being of affected persons and their families. Moreover in school aged children, poor oral health has been related to decreased school performance, poor social relationships and significant influence on family income. The commonest dental diseases affecting children—dental caries and periodontal diseases are preventable and are strongly influenced by lifestyle. Developed countries that have invested in preventive oral health care have observed positive trends in terms of reduction in the prevalence of oral diseases and savings in dental expenditure. In developing countries such as Nigeria, children tend to utilize emergency and curative dental services rather than preventive services [2]. This is an unsatisfactory approach to oral health care which is a vital component of general health. Globally, health promotion is at the centre stage of medical and dental practices which encourage adoption of healthy lifestyle to prevent diseases and its resultant associated morbidity and mortality [3]. Oral health practices and development of healthy attitudes towards oral health care are all influenced by family factors [1]. In promoting and improving access to oral health care in children, mothers have been identified to be crucial in helping their children develop healthy oral habits early in life. Mothers are known to assume the role of primary caregivers in the early formative years of their children and also the point of primary socialization for the child. The relationship between the dental health of mothers and that of their children has been highlighted by researchers [1] [4]. The tooth brushing habits, dietary habits, and food choices of mothers are directly associated with those of their children. Dental care professionals accept that efforts aimed at improving parental oral health behaviors could result in improved health in their children. However a number of factors have been identified to indirectly influence mother's health habits and their children's health. Some of these factors include mother's education, occupation, age, current knowledge, attitude, and behavior relating to health. The importance of a mother's knowledge on health including oral health cannot be overemphasized because most of her decisions with regard to the health of her child will be based on her knowledge. There is growing evidence that health promotion and education efforts to influence preventive behaviors must be targeted to specific audiences [5]. Thus to improve the oral health care access for children there is a need to assess the oral health knowledge of their mothers who are the primary care givers for the children.

Therefore, the purpose of this study was to assess the knowledge and oral health practices of a selected population of mothers in order to develop appropriate program for oral health promotion for children in the area.

2. Methodology

This is a cross sectional study carried out among a convenient sample of mothers at two well-baby clinics in two health institutions—a tertiary health care centre and a primary health care centre in Lagos, Nigeria in June 2013. Permission to carry out the study was obtained from the Heads of Departments of the two institutions. Consent of the mothers was also obtained before the commencement of the study.

A questionnaire requesting the participants' bio data (age, level of education and occupational status), previous exposure to and source of oral health education, level of knowledge of child's dentition and fluoride, causes of tooth decay and bleeding gums, oral hygiene habits of both mother and child, history of dental clinic visit, diet and snacking habits and type of supplementary feeds was administered using both open and closed ended questions.

The data obtained were analyzed using Epi Info Statistical software Version 6.0a. Chi square and student t-test were used as appropriate and statistical significance was set at $p < 0.05$.

3. Results

One hundred and four mothers out of 115, (a response rate of 90.4%), completed the questionnaire. They were aged 21 - 46 years (mean 32.01 ± 4.85 years). Thirty three (31.7%) were in the age group of 20 - 29 years, 65 (62.5%) were in the age group of 30 - 39 while 6 (5.8%) were in age group of 40 - 49 years. The majority (94.2%) were married and all were from various Nigerian ethnic groups. More than half (68.3%) had post secondary or tertiary education; 36.5% were professionals, while others were business women, skilled workers traders and housewives (**Table 1**). The mean number of children per participant in this study was 2.07 ± 1.07.

Table 1. Sociodemographic characteristics of the study population.

Variables	Frequency (%)
Age group	
20 - 29	33 (31.7)
30 - 39	65 (62.5)
40 - 49	6 (5.8)
Marital status	
Married	98 (94.2)
Single	6 (5.8)
Educational status	
None primary	6 (5.8)
Secondary education	27 (26.0)
Tertiary education	71 (68.3)
Occupational status	
House wives/unemployed	11 (10.5)
Student	8 (7.7)
Traders/businesswomen	32 (30.8)
Skilled workers	15 (14.4)
Professionals	38 (36.5)

More than half of the respondents (58.7%) had received some form of oral health education (**Table 2**), the major source being from the electronic media (23.1%) followed by the dentist (22.1%) and the doctor or nurse (9.6%) (**Figure 1**). More respondents in the younger age group had been exposed to oral health education compared with the older mothers (x^2 = 9.73, p = 0.007) (**Table 2**). Only 44 (42.3%) had attended the dental clinic previously, with only 5 (4.8%) in less than a year, 10 (9.6%) within 1 - 2 years and 28 (26.9%) in more than 2 years (**Table 3**). Only 15 (14.4%) had attended for check-up and 26 (25.0%) because of pain. However, those with higher educational status attended the dental clinic more frequently (p = 0.00).

Seventy five (72.9%) knew that there are two sets of dentition while 19.2% did not know. The majority (77.9%) however knew the functions of children's teeth; 95.2% knew that they are important and should be taken care of. Sixty seven (64.4%) knew the cause of tooth decay, 65 (62.5%) knew it can be prevented by regular use of toothbrush and fluoride toothpaste. A significant number of those in the younger age group had knowledge of fluoride compared with older mothers (x^2 = 8.51, p = 0.014).

The younger age group and higher educational status impacted positively on knowledge of fluoride and its effect on the teeth, while higher educational and occupational status impacted positively on previous dental visits (**Table 4**).

Eighty four (80.2%) responded that bleeding gum is caused by ineffective tooth brushing and accumulation of plaque. Fifty five (52.9%) respondents claimed they brushed twice a day while 32 (30.8%) cleaned their children's teeth twice a day. Thirty-two (30.8%) mothers used toothbrush and fluoride toothpaste, 66 (63.4%) used cotton wool while 3 (2.9%) did not clean their children's mouths. Forty nine (47.1%) mothers brushed their teeth once daily while 55 (52.9%) brushed twice. Sixty nine (66.3%) brushed their children's teeth once daily while 32 (30.8%) brushed their children's' teeth twice daily.

Sixty nine (66.3%) mothers fed their children exclusively breast milk, 10 (9.6%) formula and 24 (23.1%) both breast milk and formula. Only 44 (42.3%) believed the type of baby food has effect on the child's teeth, 55 (52.9%) believed there is no effect while 5 (4.8%) did not know. Twenty (19.2%) mothers believed that the type of supplementary feed affects the baby's teeth, 49 (47.1%) believed it has no effect on the teeth, while 35 (33.7%) did not know. On knowledge of effect of supplements on babies' teeth, only 20 (19.2%) felt the type of supplement affects children's teeth, while 49 (47.1%) felt the teeth are not affected and 35 (33.7%) did not know.

Table 2. Previous oral health education according to age group of respondents.

Age group	Yes (%)	No (%)	Total
20 - 29	15 (45.5)	18 (54.5)	33 (31.7)
30 - 39	45 (69.2)	20 (30.8)	65 (62.5)
40 - 49	1 (16.7)	5 (83.3)	6 (5.8)
Total	**61 (58.7)**	**43 (41.3)**	**104** (100)

$x^2 = 9.73$, p = 0.007.

Table 3. Previous dental clinic attendance.

Previous visit		No (%)	
Yes		44 (42.3)	
No		60 (57.7)	
Last visit			
Less than 1 yr		5 (4.8)	
1 - 2 yrs		10 (9.6)	
More than 2 yrs		29 (27.9)	
Educational status and previous visit			
	Yes (%)	No (%)	Total (%)
None/primary	1 (16.7)	5 (83.3)	6 (5.8)
Secondary education	6 (22.2)	21 (79.8)	27 (26.0)
Tertiary education	37 (52.1)	34 (47.9)	71 (68.3)
Total	44 (42.3)	60 (57.7)	105

$x^2 = 20.82$, p = 0.00.

Table 4. Effect of age, education and occupational status on knowledge and oral health habits.

Knowledge and habits	Age group	Educ status	Occup status
Knowledge of causes of tooth decay	0.08	0.32	0.30
Knowledge of fluoride and effect on the teeth	0.014*	0.009*	0.1
Knowledge of causes of bleeding gums	0.58	0.55	0.29
Previous dental visit	0.1	0.00*	0.0*
Frequency of cleaning child's mouth	0.73	0.15	0.17

*Significant at p < 0.05.

4. Discussion

In this study, only 58.7% respondents, though with nearly 70% who had post secondary education, had been adequately exposed to oral health education. Oral health promotion and disease prevention, including development of good dietary and oral health habits must begin early in life [1].

Mothers, being the child's primary care giver should be adequately exposed to oral health care issues which will be ultimately transferred to the child. Parental behavioral factors determine the oral health status of their children [6] and therefore they should be adequately educated on prevention of oral diseases. This should be done during the first two years of the child's life, which is the most important period [7]. Result from this study showed that the major source of oral health education was from the electronic media, such as radio, television and internet, more than from the dentist. Patients attending the dental clinic usually receive some oral health

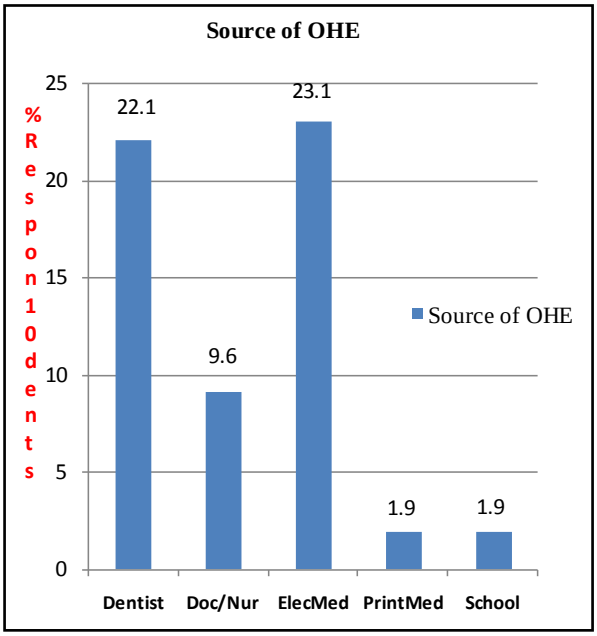

Figure 1. Source of oral health education.

information. However, since dental clinic attendance is still very low in developing countries, outreach programs should also be emphasized for young mothers, pre-school, school age and adolescents on a regular basis. It has been reported that improvement in dental health education materials is one of the concrete methods of increasing oral health knowledge. When this is combined with other health promotion interventions, will reduce oral health disparities [8].

Only 9.6% of the respondents in this study had received some form of oral health education from doctors or nurses. The paediatric primary care setting is a popular site to deliver preventive oral health interventions because it allows access to preschool age children before they develop a trajectory of poor oral health [9]. One of the strategies formulated by the World Health Organization (WHO) Global Oral Health Programme towards improvement of oral health is the integration of oral disease prevention and the promotion of oral health with chronic disease prevention and general health promotion because the risks to health are linked [3].

One of the best places to reach mothers and mothers to be is the well baby and immunization clinics. Dentists, primary care physicians and primary care nurses involved in taking care of pregnant women and young mothers at the well baby clinics should be coopted into participanting in both oral and general health promotion. It was recommended that nurses become knowledgeable about early childhood caries (ECC), health promotion and prevention interventions to facilitate their efforts in everyday patient encounters and improve the overall health status of infants and children [10].

Paediatricians and nurses can influence parental behavior at their regular well baby clinics and so require organized training in oral health promotion and counselling incorporated into their curriculum. A study found that paediatricians were important sources prompting a child's first dental visits, resulting in a visit on average around 2.5 years of age [11]. Because more young children visit a medical provider than a dental provider, paediatricians can play a role through oral health screenings and dental referrals [7] [12]. It was therefore recommended that the common risk factor approach be adopted in achieving the objectives of integrating oral health promotion and care in an overall strategy to influence health [13].

Only 42.3% had visited the dentist previously, a significant number being from the higher educational status compared with those from the lower educational status ($p = 0.00$). In a study on the family environmental, and dental health disparities among urban children in Burkina Faso, results showed that the dental health status of the mother, social integration of the householder and socioeconomic level of the household were associated with the dental health of the children [14].

Even in developed countries, studies indicate that dental care use in young children was better when their mothers had regular dental care [15] [16]. It was also indicated that the lower socioeconomic group especially

need extra motivation and help in taking the initiative to visit the dentist [16]. This is consistent with the result of this study, where more mothers from the higher educational status had visited the dentist than those from the lower educational status ($p = 0.00$). The practice of health behaviors is generally influenced by personal and community social norms, which can be related to social class and education [17]. Care giver factors such as own preventive care seeking positively influence child dental visit behavior [18].

The initiation of preventive dental services early in life and shortly after tooth emergence seems to be important for maintaining good oral health [19]. Early dental visits result in fewer restorative needs and therefore reduced cost for treatment later in life [20] and also more positive views about dentists and dental visits [21]. Some researchers have found that parents might have poor knowledge and practice of effective preventive measures [22], might not understand the relationship between the child's diet and oral disease or might accord low value to primary teeth or might not recognize early signs of oral health problems in their children [23] [24]. However, the majority of this study participants knew that children have two sets of dentition and that the first set is important and should be taken care of. Most of them also knew the functions of the primary dentition. This is gratifying and the information should be continually enforced to motivate mothers on the need to protect the primary dentition. A study of carers of young children of different cultural backgrounds in California concluded that lack of knowledge and beliefs about primary teeth created barriers to early preventive care [23].

Findings from this study showed that 64% knew the causes of tooth decay and that it can be prevented. This proportion is slightly higher than that reported in an earlier study in the same environment in which only half of the respondents knew the correct aetiological factors of dental caries [25]. Also, over 80% of respondents in this study knew the cause of bleeding gums, in contrast to the 20% in the previous study by Orenuga and Sofola [25]. Since this latter study, a lot of improvement has occoured in the use of social media as tools for communication and dissemination of information on education and health issues.

Only about half of the mothers who participated in this study claimed they cleaned their mouths twice daily while only 32% cleaned their children's mouths twice daily. In a study carried out in Lithuania, it was found that parental attitudes towards their children's oral health were significantly associated with positive parental oral health behavior [26]. Only 30% of mothers used tooth brush for their baby's mouth. Majority used cotton wool and only 20% used dental floss.

Most mothers fed their children exclusively with breast milk and only 19% knew that the type of supplementary food given to children affects the erupting teeth. Effective use of fluoride, healthy diet and nutrition and oral health of children are some of the WHO priority action areas for the improvement of oral health worldwide [27] [28]. Member states of the WHO are urged to develop and implement the promotion of oral health and prevention of oral disease for preschool and school-aged children as part of activities in health promoting schools [29].

Most of the mothers who participated in this study did not associate supplementary diet with early dental decay. An earlier study on the risk factors for early childhood caries (ECC) in Lagos, Nigeria, showed that babies given supplements of local high fibre Nigerian diet had lower risk of ECC than those on proprietary canned, refined cereal meals [30]. Regular oral health education for young mothers which addresses issues on oral hygiene, healthy diet and regular dental visits will improve mothers' knowledge and ultimately, children's oral health.

Family income was not considered in this study because most people in Nigeria engage in various economic activities to earn their income. These are not regular and therefore they may not be able to give an accurate figure of their income. It is therefore more appropriate to look at their educational and occupational status which determine exposure and health seeking behavior.

One limitation of this study is that it was carried out in only two institutions. A larger study will be beneficial to give a wider picture of the knowledge and habits of mothers in other parts of the country.

5. Conclusion

The knowledge of oral health of the mothers who participated in this study is inadequate and therefore they will benefit from regular oral health education by all health professionals through well baby and immunization clinics and electronic/social media.

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