



RESEARCH ARTICLE

IMPACT OF MOTHERS' ORAL HEALTH CARE KNOWLEDGE ON THE ORAL HEALTH STATUS OF THEIR 3-5 YEARS OLD CHILDREN

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ABSTRACT

Aim: This study was aimed to assess the mothers' oral health care knowledge and its impact on oral health status of their children.

Methodology: 100 mothers along with their children in the age group of 3-5 years were included in the study. 17 point questionnaire was distributed to mothers to assess their knowledge regarding oral health care practices of their children. Oral examination of children was done and dmft score was recorded. Mothers were divided into two groups: group 1 whose children had dmft score <3 and group 2 whose children had dmft score ≥3.

Results: Very few mothers had knowledge about importance of deciduous teeth and oral hygiene practices. Significant difference (p<0.05) were found between group 1 and group 2 mothers' knowledge about the role of prolonged breastfeeding and bottle feeding in causing tooth decay. 90% of mothers did not know about the role of fluoride in preventing dental decay.

Conclusion: Children below 5 years spend most of their time with mothers. Mothers function as role model for their children. Therefore mothers' knowledge, attitudes and beliefs regarding dental care need to be improved for better oral health status of their children.

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INTRODUCTION

Health is the universal need of all human being. General health cannot be attained without oral health. The mouth is regarded as a mirror of body and gateway of good oral health (Grewal and Kaur, 2007). Parents play a central role in imparting the information and encouragement to their children for healthy lives (Christensen, 2004; Gussy et al., 2008). Their attitudes have a significant impact on the children's dental health and overall health. Studies have reported that poor attitude of parents toward oral health of infants and young children are associated with increased caries prevalence. Children below 5 years of age spend most of their time with parents or guardians, particularly mothers (Suresh et al., 2010). Within the family, the role of mother has been emphasized in relation to a child's oral health habits (Åstrøm, 1998; Okada et al., 2002; Saied-Moallemi et al., 2008).

Despite changing roles and areas of responsibility within the family in the child's oral health-related lifestyle, the mother still seems to play the key role (Okada et al., 2002; Poutanen et al., 2007; Shetty et al., 2016). Developing countries like India, face many challenges for providing oral health care to children of 1-5 years of age, mainly in the rural areas (Grewal, and Kaur, 2007; Pine et al., 2004). Parental knowledge and awareness of oral health care and oral hygiene habits of these children, dietary and feeding habits, care of deciduous teeth and regular dental visits are necessary for required behavioral changes towards health and early disease prevention (Green and Kreuter, 1999; Shetty et al., 2016). Without basic knowledge of caries risk factor, importance of deciduous teeth and oral maintenance, it is difficult to employ effective disease preventive strategies (Finlayson et al., 2005; Suresh et al., 2010). Parent's knowledge and positive attitude toward good dental care are very important in the preventive cycle (Suresh et al., 2010). The aim of this study was to assess the impact of mothers' oral health care knowledge on the oral health status of their 3-5 years old children.

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MATERIALS AND METHODS

A total 100 mothers along with their children 3-5 years of age were randomly chosen for the study. Informed consent was obtained from the mothers. A 20-point questionnaire including parent's background information, dietary and feeding practices, oral hygiene practices and the importance of dental visits, was designed to assess the knowledge of mothers regarding the oral health of their child. The questionnaire was prepared in English and also translated into the local language.

Questionnaire was distributed to mothers. The answers were recorded by asking the mothers to respond to the questions by indicating the suitable option, which were expressed as scores of 1, 2 and 3 for the options in that order. Oral examination of 100 children was performed on upright chair with the help of mouth mirror, and probe and dmft score was recorded. On the basis of dmft score, mothers were divided into two groups: group 1 mothers whose children have dmft score <3 and group 2 mothers whose children have dmft score ≥3.

Table 1. Mother's knowledge related to feeding and dietary habits

Questions	Responses	No of mothers	Group 1	Group 2	P value
1. Do you think prolonged breast feeding causes dental caries?	A. No	12	3 (6.60%)	9 (16%)	NS p=0.56
	B. Yes	31	19 (42%)	12 (21.80%)	
	C. Don't know	57	23 (53%)	34 (61%)	
2. Do you think prolonged bottle feeding causes dental caries?	A. No	24	9 (20%)	15 (27.02%)	SIG p=0.03
	B. Yes	31	20 (44.40%)	11 (20%)	
	C. Don't know	45	16 (35.50%)	29 (52.72%)	
3. Excesses intake of food for infants containing sugar can cause cavities?	A. Agree	92	43 (95%)	49 (89%)	NS p=0.46
	B. Disagree	3	1 (2.20%)	2 (3.60%)	
	C. Don't know	5	1 (2.20%)	4 (7.27%)	
4. When is it best to give sweets to young children?	A. At meals	14	9 (20%)	5 (9.09%)	NS p=0.69
	B. In between meals	53	26 (57%)	27 (49.09%)	
	C. When child demands	33	10 (22.22%)	23 (41.81%)	
5. Which of the following foods cause most decay in children?	A. Chocolate	90	41 (90%)	49 (89%)	NS p=0.8
	B. Biscuits	8	3 (8%)	5 (9%)	
	C. Fruit juice	2	1 (2%)	1 (1.81%)	
6. Do you agree that It harms a baby's tooth to let him/her sleep all night with a milk bottle in its mouth?	A. Agree	31	20 (44%)	11 (20.10%)	SIG p=.04
	B. Disagree	16	4 (9%)	12 (21.81%)	
	C. don't know	53	21 (46.66%)	32 (58.18%)	
7. Bacteria from mom's cavities can infect baby's tooth if mom uses the same spoon when feeding the baby	A. Agree	49	30 (66.6%)	19 (34.54%)	SIG p=0.005
	B. Disagree	22	7 (15.5%)	15 (27.2%)	
	C. Don't know	29	8 (17.7%)	21 (38.1%)	

Table 2. Mother's knowledge regarding brushing habits

Questions	Responses	No Of Mothers	Group 1	Group 2	P -value
1. How often should a child's teeth be brushed?	A. Twice a day	87	42 (93%)	45 (81.81%)	NS p=0.21
	B. Once a day	3	1 (2.22%)	2(3.63%)	
	C. After every meal	10	2 (4.4%)	8(14.54%)	
2. What type of brush is best for a young child?	A. Small	62	32(71.11%)	30(54.54%)	NS p=0.2
	B. Large	3	1 (2.22%)	2(3.63%)	
	C. Doesn't matter	35	12 (26.66%)	23(41.81%)	
3. How much toothpaste should be placed on the brush?	A. Small pea-size	56	30 (66.66%)	26 (47.27%)	NS p=0.06
	B. Full length	29	12 (26.66%)	17 (30.90%)	
	C. Doesn't matter	15	3 (6.66%)	12 (21.81%)	
4. How much fluoride should the paste contain?	A. 1000 ppm	3	1 (2.22%)	2 (3.63%)	NS p=0.4
	B. 500 ppm	2	1 (2.22%)	1 (1.8%)	
	C. Don't know	95	43(95.5%)	52 (94.54%)	
6. How your child brushes his teeth?	A. Happily	79	39(86.66%)	40 (72.7%)	NS p=0.11
	B. Sad	13	5 (11.1%)	8 (14.5%)	
	C. Resistant	8	1 (2.22%)	7 (12.7%)	
7. How should you brush your Child's teeth?	A. Standing behind the child	51	30(66.6%)	21 (38.18%)	NS p=0.05
	B. Standing in front of the child	34	11 (24.44%)	23(41.8%)	
	C. Don't know	15	4(8.8%)	11 (20%)	

Table 3. Mother's knowledge regarding dental awareness

Questions	Responses
1. From where you have received information on taking care of your child?	<ul style="list-style-type: none"> • Dentist • TV
2. At what time babies should have their first dental visit?	<ul style="list-style-type: none"> • Elders in family • At the time when the first tooth erupts • 1-year • When you see decay in tooth
3. Cavities in baby's tooth don't matter because those teeth will fall out anyway.	<ul style="list-style-type: none"> • Agree • Disagree • Don't know
4. The eruption of the first baby teeth, parents can begin to clean them with a piece of gauze or clean washcloth.	<ul style="list-style-type: none"> • Agree • Disagree • Don't know

The data were collected and descriptive statics were obtained. Study data were analyzed using SPSS.

RESULTS

The study sample comprised 100 mothers along with their 3-5 years old children. There were 58 boys and 42 girls with an average age of 4.30 years. The average age for boys was 4.3 years and for girls 4.2 years.

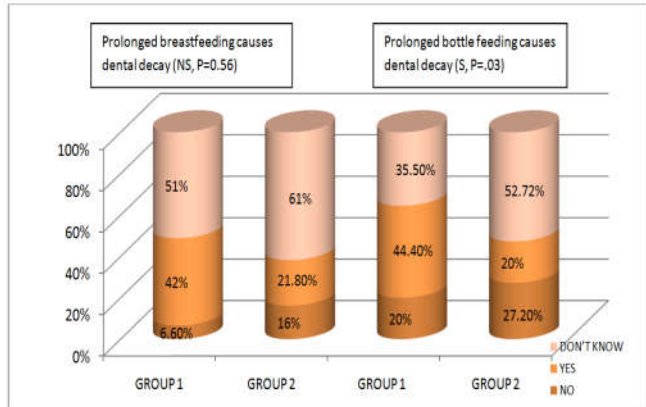


Figure 1.

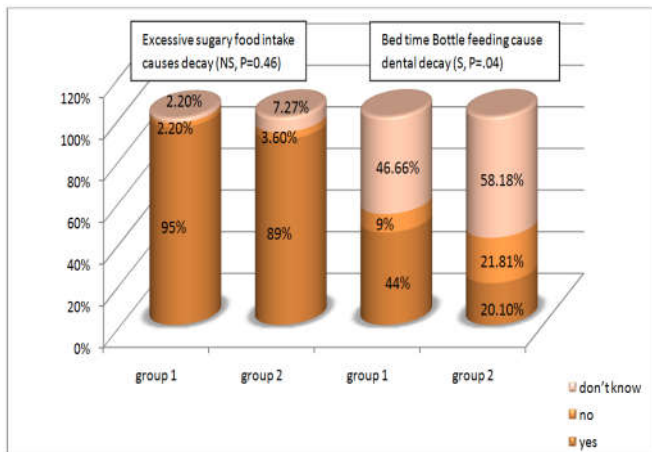


Figure 2.

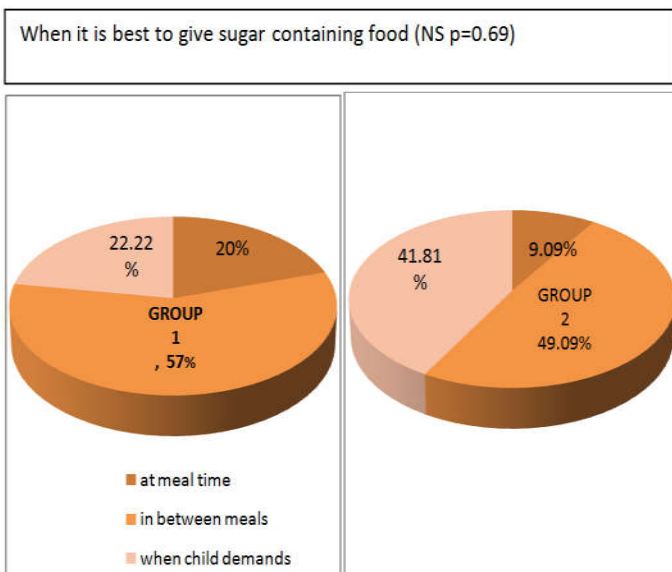


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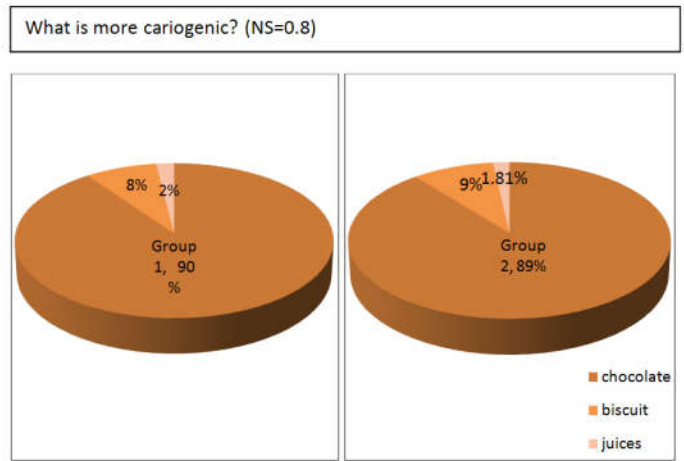


Figure 4.

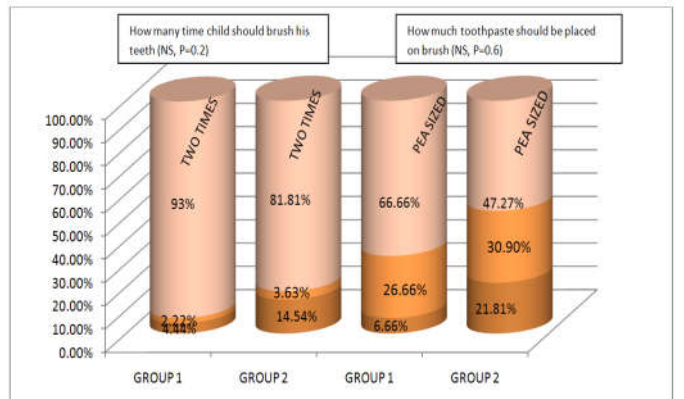


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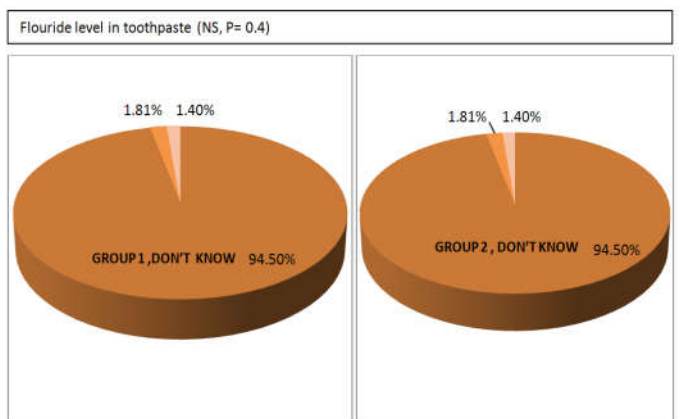


Figure 6.

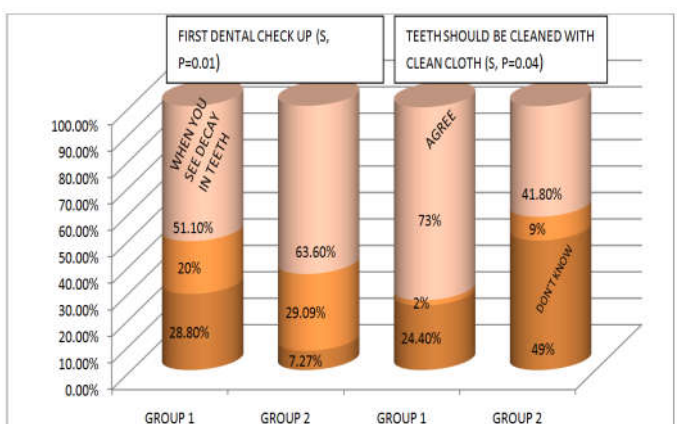


Figure 7.

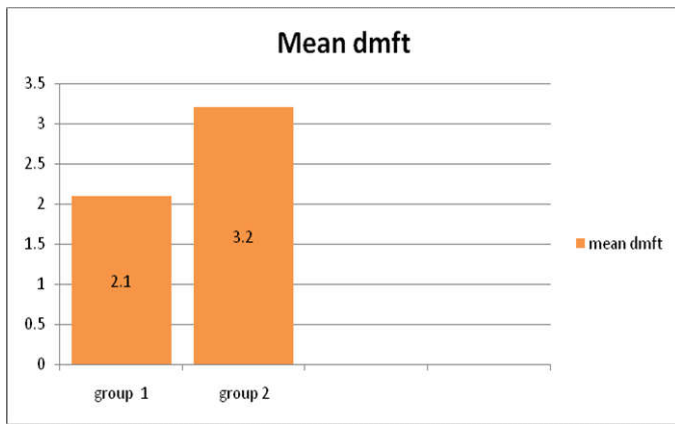


Figure 8.

DISCUSSION

The oral health knowledge of the parents establishes the oral health and related habits of the children during infancy and maintained throughout the preschool years. Table 1 shows the mothers' knowledge in relation to the dietary and feeding practices (Green and Kreuter, 1999; Suresh *et al.*, 2010). 42% group 1 and only 21.80% group 2 mothers thought that prolonged breast feeding may lead to caries, whereas 44.4% group 1 and only 20% group 2 mothers thought that caries are caused due to prolonged bottle feeding (Fig. 1). 46.66% of group 1 and 58.18% of group 2 mothers don't know the fact that leaving milk bottle whole night in the child's mouth harms their teeth (Fig. 2). Majority of the mothers had poor knowledge about the feeding practices. Suresh *et al.* reported that many mothers used nursing bottles at bed time, similar to the findings of Gussy *et al.* in rural mothers in Australia. It was seen that parents had adequate knowledge about feeding practices. 92% of the total mothers believed that excessive intake of sugar containing food causes dental cavities (Fig. 3). 90 mothers out of 100 found chocolates to be the most cariogenic agent (Fig. 4). Almost half (49%) mothers had adequate knowledge regarding sharing of utensils when feeding the baby, can transmit bacteria from mothers to their children and snacking in between meals. 57% of group 1 and 49.09% of group 2 mothers believed that in between meals is the best time to give sweets to children. Majority of the mothers had fair knowledge about the dietary practices except the knowledge that snacking in between meals causes' dental decay. The findings of the present study were in line with the findings of Suresh *et al.*, Lin *et al.*, and Kumar *et al.*, who also reported that parents of preschool children had good knowledge about dietary practices (Suresh *et al.*, 2010; Lin *et al.*, 2001).

Table 2 shows the knowledge of the mothers relating to oral hygiene practices. 87% of total mothers said that the child's teeth should be brushed twice daily, and 62% of total mothers agreed that a small sized toothbrush was best for preschool children. More than half of the mothers (56%) placed a small pea-sized amount of toothpaste on the brush. 66.6% group 1 mothers thought that standing behind the child during brushing was the right method whereas 38.18% of group 2 mothers thought that standing in front of the child during brushing is the right method. However, 95% mothers were unaware about the optimal fluoride levels that a paste should contain (Fig. 5). This showed that majority of the mothers had adequate knowledge about tooth brushing and oral hygiene, except for their knowledge about fluoride. 95% of the mothers did not know about the fluoride content of the toothpaste.

As Fluoride has a protective action against the development of caries. However, it was unfortunate to find that there was lack of awareness by parents regarding the role of fluoride in preventing decay, about background level of fluoride in drinking water and appropriate use of fluoridated toothpaste. Parents need to educate about the importance of fluoride. The results of this study were much higher than the findings of Chhabra and Chhabra who found that only 41.3% of the children brushed twice a day (Chhabra, 2012). In this study, it was observed that there is lack of dental awareness among mothers. Table 3 shows the knowledge of mothers related to dental awareness. 73% mothers of group 1 agreed to the fact that with the eruption of the first baby teeth, parents can begin to clean them with a piece of gauze or clean washcloth similar to the findings of Gussy *et al.*, but 49% of group 2 mothers don't know about this fact. However, 58% of total mothers would visit a dentist only in cases of tooth decay. And 60% of group 1 mothers know the importance of primary teeth. Only 17% of the mothers were aware of the fact that the first dental visit should be preceded with the eruption of the first primary teeth. Surprisingly, 67% of the total participating mothers' received child care information from the elders in the family and they had good knowledge about tooth brushing habits and other dietary habits and only 21% mothers received oral health care information from dentist showed lack of regular dental visit and it was not considered to be important by many mothers.

The studies conducted by Chhabra and Chhabra, Wong *et al.*, and Matila *et al.*, also suggested that the elders of the family had a much higher influence on the parents for child care (Chhabra, and Chhabra., 2012; Mattila *et al.*, 2000; Wong *et al.*, 2005). Only 33% mothers believed that cavities in primary teeth should be treated, since they can lead to further caries in the permanent teeth. This was in line to the findings of study conducted by Chhabra and Chhabra and Harrison and Wong (Chhabra, and Chhabra., 2012; Harrison *et al.*, 2003; Wong *et al.*, 2005). It has been reported that the lower attention paid towards the importance of primary teeth can prove to be an obstacle to develop effective preventive programs. The parents believe that primary teeth are present in mouth only for a short duration, and are ultimately replaced by permanent teeth (Chhabra, and Chhabra., 2012). The children whose parents ignored the importance of primary teeth or paid less attention toward decay in these teeth were more susceptible to early childhood caries. When the knowledge of both group of mothers were compared, significant results had been seen in 6 out of 17 questions. Average dmft score of children of group 1 mothers and group 2 mothers was 2.1 and 3.2 respectively. There are certain limitations of the present study. Every population group has variations in beliefs and practices by socio-economic status, education level, religion, etc. Those determinants to a child's oral health were not considered in this study. Since the study was conducted among the children and mothers of urban area. Thus, further studies with children and parents of rural areas and a larger sample are encouraged. Also data reported in this study cannot be generalized to the entire Indian population. Further quantitative and qualitative research studies on a larger sample and for a longer period are essential for the better understanding of the knowledge, attitudes and awareness of parents about preschool oral health. This will aid in the formulation of preventive programs that targets the rural population and increase awareness, knowledge and help in the removal of negative attitudes among the rural population. Parents, particularly the mothers should be encouraged to

improve their child's oral habits since they are role models for their children.

Conclusion

The results of this study suggested that the knowledge of the mothers' regarding bedtime bottle feeding, prolonged breastfeeding in causing decay, role of fluoride in preventing decay was less, but their response regarding the role of frequent intake of sweets and sticky food products in causing decay was quite fair. Health professionals and pediatrician, who are the first to come into contact with expectant and new mothers, need to give appropriate and accurate information, especially the use of nursing bottle at night, the value of tooth brushing and regular dental visits to develop positive attitudes among parents and subsequently the children, towards oral health care. When developing oral health promotion programs for children and adolescents, the considerable potential of mothers should be taken into account and advocated by oral health professionals

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Questionnaire:

Table 1. Mother's knowledge related to feeding and dietary habits

Questions	Responses
1. Do you think prolonged breast feeding causes dental caries?	A. No B. Yes C. Don't know
2. Do you think prolonged bottle feeding causes dental caries?	A. No B. Yes C. Don't know
3. Excesses intake of food for infants containing sugar can cause cavities?	A. Agree B. Disagree C. Don't know
4. When is it best to give sweets to young children?	A. At meals B. In between meals C. When child demands
5. Which of the following foods cause most decay in children?	A. Chocolate B. Biscuits C. Fruit juice
6. Do you agree that It harms a baby's tooth to let him/her sleep all night with a milk bottle in its mouth?	A. Agree B. Disagree C. don't know
7. Bacteria from mom's cavities can infect baby's tooth if mom uses the same spoon when feeding the baby	A. Agree B. Disagree C. Don't know

Table 2. Mother's knowledge regarding brushing habits

Questions	Responses
1. How often should a child's teeth be brushed?	A. Twice a day B. Once a day C. After every meal
2. What type of brush is best for a young child?	A. Small B. Large C. Doesn't matter
3. How much toothpaste should be placed on the brush?	A. Small pea-size B. Full length C. Doesn't matter
4. How much fluoride should the paste contain?	A. 1000 ppm B. 500 ppm C. Don't know
6. How your child brushes his teeth?	A. Happily B. Sad C. Resistant
7. How should you brush your Child's teeth?	Standing behind the child Standing in front of the child Don't know

Table 3. Mother's knowledge regarding dental awareness

Questions	Responses
1. From where you have received information on taking care of your child?	A. Dentist B. TV C. Elders in family
2. At what time babies should have their first dental visit?	A. At the time when the first tooth erupts B. 1-year C. When you see decay in tooth
3. Cavities in baby's tooth don't matter because those teeth will fall out anyway.	A. Agree B. Disagree C. Don't know
4. The eruption of the first baby teeth, parents can begin to clean them with a piece of gauze or clean washcloth.	A. Agree B. Disagree C. Don't know
