Getting to Know the Early Childhood Caries Through Qualitative Analysis

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This study aimed to perform a social diagnosis of a cross-section of a low-income population as a means of developing prevention strategies for Early Childhood Caries. The subjects of the study were 65 children from 0 to 5 years of age and their mothers. The methodology used was the Qualitative Analysis of Surveyed Data technique. The results showed that social factors as well as behavioral and educational conditions of this disease were related.
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INTRODUCTION

The majority of studies about Early Childhood Caries (ECC) focus on factors like the enamel quality, the contents of the baby bottle, and the frequency with which the teeth are cleaned. However, these factors are not enough. It is also necessary to investigate the factors that constitute an indirect influence so that one can better understand the phenomenon and identify the preventive methods for the harmful effects of the disease. Therefore, one should look into the behavioral approach concerning the cause of this disease in order to evaluate the reasons why mothers offer a baby bottle, extend the habit of feeding (breast and baby bottle), the contents of the baby bottle, and how often the baby bottle is used during the day.[18]

Shantinath *et al* showed behavioral factors relate to prolonged feeding, breast or bottle-feeding, feeding associated with sleeping problems, and the use of cariogenic liquids (juice, milk and formulas). However, one knows very little about how each eating behavior might develop.[19]

The association between the caries experience and social class has been confirmed in several epidemiological studies.[2,8] The caries experience is from 2 to 5 times higher in children who belong to lower social economic classes. There is also an association between the parents' educational levels and eating habits and preventive behavior.

The purpose of the present study is to evaluate, through qualitative methodology, the psychosocial factors involved with ECC.

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METHODOLOGY

The subjects in the study were 65 children 0-5 years of age and 46 mothers responsible for their respective children. They reside in environmental risk areas due to the insalubrious conditions such as the absence of an adequate water supply system, sanitary sewage system, urban drainage, and garbage collection. The residents belong to a low socioeconomic and educational group. Children aged 0-5 living in these places and showing at least 2 maxillary teeth were included in the study. The present study was approved through the Research Ethical Committee of the School of Medicine – Antônio Pedro Hospital – "Universidade Federal Fluminense".

The qualitative treatment was applied to the situations in question and the answers given by the subjects during the interviews were analyzed.[1] The interviews took place in the residences of the subjects. The semi-structured interview comprised of open questions about habits, behavior, knowledge, values and perceptions about dental health.

All the interviews were recorded and transcribed by the researcher on the same day. Following the interview with the respective parent, the children were examined. An oral cleaning was performed by the researcher with a toothbrush and without the use of dentrifice. With a flashlight and after having dried the surfaces with gauze, the dental exam was performed through visual means. The exam data were registered in files in order to bring out the DMFS scores. White spot lesions were reported as caries.

RESULTS

The subjects' place of residence could be characterized as poor construction and a lack of adequate sanitation conditions. These precarious conditions place this population far from ideal hygienic conditions and the maintenance of total health. Low socioeconomic and educational levels impair the maintenance of appropriate health conditions.

The thematic analysis of the interview was conducted for the classification of two groups: caries-active and caries-free children. The interviews carried out were planned based on each theme: behavior of the parent responsible for the child and knowledge and attitudes

concerning oral health.

In the responses made by parents of the caries-active children, one observed frequent complaints about the great number of episodes of illnesses and hospitalizations. This fact provoked changes concerning eating habits. During convalescence, the child would often have a decreased appetite. The mother would then provide sugar-containing and pasty foods which please the child. Several mothers' statements express this kind of behavior:

"He always gets ill. He was breast-fed until the age of 4 whenever he wanted to... didn't like fruit or vegetables; he likes black beans, rice, potatoes and pasta".

"He can't sleep well, always wakes up crying and I bottle feed him. He got very ill when he was younger".

"He often suffers from bronchitis. When facing a (bronchitis) crisis, he can't eat well, all he has is milk. He bottle feeds in the morning and soon asks for more, he has more milk in the afternoon, once more before going to sleep and I bottle feed him while he's asleep".

In this same group, changes in mothers' behavior concerning their children's diet were noted when children had problems sleeping. Mothers adapted to children who wake up several times during the night by offering foods that were highly cariogenic. This was more prevalent when the child was over the age of one year old. Some mothers did not try to find the reason for some kinds of behavior their children showed. They just adapt to the situation. For the sake of their night's sleep or because there is no other option in terms of time or space, many mothers sleep together with their children, which makes it easier for them to breastfeed at will:

"He wakes up to feed, but he sleeps with me, clings to me, breast-feeds and sleeps. Food? He doesn't like to eat meat or fish, doesn't like many vegetables either. Just potatoes. Ah! He likes rice and black beans".

Other mothers made comments about how difficult it is to provide their children with proper nourishment:

"It is difficult for her to eat, I have to feed her while she's sleeping (baby bottle)".

"It is very difficult for him to eat, I have to mix everything in a blender; he likes to have soup and lots of milk".

In the group of caries-free children, it was observed that children had good systemic health, slept well during the night, and ate well. This group of mothers worried about creating unhealthy eating habits. Also these mothers tried to find the reason behind any certain behavior or situation such as problems sleeping or why the child was not eating well when he or she was ill. It was also observed that parents from both groups offered sweets to their children to please them or to compensate for their long absences due to work:

"Ah! Sweets, they eat too much. My husband brings a packet of sweets on his way back from work and they eat all on a single day" (mother from the caries-free group).

"It is not always, but whenever I have a coin in my pocket and I give it to her, she buys sweets straight away" (mother from the active-caries group).

Unlike other mothers, mothers of an only child and mothers of very young children, in the active caries group, revealed their inability to control and set limits with their children.

"She wakes up many times during the night, feeds all night long. She sleeps with my husband and me. If I don't let her breast-feed she cries, she has a fit. And my husband also complains if I don't. The other girls (oldest children) were easier. The youngest one is worse".

"He has sweets and lollipops. When we go to the bakery, he keeps crying, then we give them to him" (only child).
"Ah! He cries, I buy some sweets. Ah! Sweets! I know they're no good, but when you wanna end up with their crying, it's worth it" (youngest child).

When mothers were asked about the causes of caries, they were all unanimous that the consumption of sweets, the lack of oral hygiene and, above all, the fact of going to sleep "without brushing the teeth" were the primary causes. Mothers have chosen sugar as "the villain in the increase of caries".

Observations regarding mothers of caries-free children showed a positive attitude concerning care with their children's oral hygiene:

"I've brushed them since the very first teeth, when he was about one year old, his teeth are just perfect. There are no caries, nothing at all".

"I brush his teeth, he doesn't like it, but I do. I give him a bath, then I brush them. I brush them when he comes back from school and before he goes to sleep".

In the group of active-caries children, mothers did not show the same positive attitude or any particular effort to monitor oral hygiene care. This kind of responsibility is often delegated to the child. Many mothers from this group only monitored their children's tooth brushing after knowing that they developed carious lesions

"I tell him he's got to brush his teeth, I keep on fighting, but sometimes I get tired of speaking".

"They brush their teeth in the morning. After lunch, when I haven't got much to do, like many clothes to wash, I have them eat their lunch and then brush their teeth".

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Children's oral health conditions reflect their mothers' oral health. Most of mothers who showed good oral health have caries-free children. Also, poor oral health has been verified in both children and their mothers. Inadequate dental treatment and non-paid dental services combined with financial difficulties are the reasons mentioned by mothers to justify the fact that they have dental problems. However, feelings of laziness and fear concerning dental treatment

were also observed.

DISCUSSION

Various studies demonstrate that dental caries remain prevalent among groups of low socioeconomic and educational levels. [2, 8, 11, 12, 13, 17, 18, 20, 21] Low-income people show that they find it difficult to get access to information regarding oral health care and dental services, to live in a healthy environment with an adequate water supply and sewage system, and adequate nutrition. One can suggest that these socioeconomic conditions affects caries risk in that social and material disadvantages put these people's capacity concerning their own personal care at risk.[18] Low educational levels might interfere with knowledge about health and prevention of diseases.[6, 9, 13, 19, 21, 22]

Birth order such as being an only child or the youngest child in this age group put the child at the greatest risk. The data collected from direct observation and confirmed by the statements made by mothers from the caries-active group children, which include "only children", show different behavior towards these children compared to the other siblings. The difficulty to set limits to the children's demands also increases the risk of caries. This reflects the mothers' behavior and attitude concerning oral health. These mothers related it is difficult to quit either breast or bottle-feeding habits. There was no control regarding the intake of cariogenic products and established habits of oral hygiene. These results agree with the studies by Benitez *et al.*[3] and Muller.[16] The first author verified that long-term feeding habits happen more constantly with the first-born, while Müller observed closer association between caries and youngest children.[16]

The child's physical health is seen as directly effecting the maintenance of oral health conditions. There is a correlation between children who are frequently ill and Early Childhood Caries. This correlation was explained by some mothers' statements from the group of active-caries children: when their children are ill they allow changes in their eating habits by restricting their meals to pasty and sugar containing foods. The failure to maintain good oral hygiene was also associated with the prevalence of carious lesions in children who are ill. The mothers admitted that during the child's convalescence they do not maintain or perform good dental hygiene.

The present study tried to correlate children's behavior and that of their respective parents in order to identify the behavior that favors Early Childhood Caries. The data collected showed mothers whose children had problems sleeping at night, that is, would wake up many times during the night, or were not encouraged to eat healthy foods were at the greatest risk for ECC. These mothers would frequently breast or bottle-feed them at will to get eliminate the problem. These are inadequate habits and they were more frequent in the group of active-caries children. The mothers tend to breast or bottle-feed every time the child wakes up during the night and the child then tends to wake up always at these same times in order to get their mother's attention, developing a conditioned reflex. Mothers believe this is the easiest way to make their child stop crying and put them back to sleep. These findings comply with the works of Del Valle *et al.*, and Everdingen *et al.* and Shantinath et al., which point out the existence of behavioral factors related to long-term feeding, either breast or bottle-feeding, and highlight that the most important risk factors are: the time the child is sleeping and the mothers' practices for the child to stop crying at night.[4,5,19]

Children with ECC showed a high frequency pattern of sugar consumption that does not derive exclusively from feeding.[18] Their parents' inability to control the consumption of delicacies has also been observed. Parents, once again trying to quiet and please their children, give them sweets during the day. Mothers have pointed out that sweets and candies are causative agents in the process of the caries disease; in spite of this, they are not able to fight their children's demands for delicacies. Finding pleasure is a cultural feeling. Mothers from both groups (active-caries and caries-free ones) give delicacies to their children, however, there was evidence showing that mothers from the group of caries-free children set a limit as to the consumption of these products. The literature also refers to behavioral, cultural and educational factors linked to children's consumption of sugar. Another aspect related to the supply of delicacies has been mentioned in the work of Maupomé highlighting the process of granting prize and comfort, by parents of low socioeconomic level people. Among the prizes offered one can find such as foods as soft drinks, sweets and other foods.[15]

The literature reports that lack of information and knowledge is a risk factor for the presence of carious lesions and this factor is associated with the educational and income level of the subject.[21] The present work has demonstrated that every parent showed knowledge of the relation between sugar consumption/ lack of oral health and dental caries. They also knew how to prevent it, which complies with the findings of Gomes Filho *et al.*[9], Maupomé[15] and Volschan *et al.* [22], who verified that most people know about some way to prevent the caries disease. Therefore, it is not the lack of parental knowledge about the causes of the caries process caused the children to be at high risk for caries. The need for prevention of this disease touches a more complex issue: evaluation of social pattern influence, educational level, cultural and behavioral factors, values and health experience.

The present work has analyzed the mothers' attitude to maintain their own oral health and the one of their children. Mothers of the group of caries-free children often showed positive attitudes concerning care with their children's oral hygiene, and the same attitude was not observed in the group of active-caries children. In the active-caries group, the children constantly performed the dental cleaning by themselves. The lack of motor ability in preschool children was demonstrated by Maltz.[14] In this age group, hygiene must be performed by parents and children will need some help up to 8-9 years of age. Small children held responsible for their own dental care reflected mothers' lack of devotion to their children's oral health, which resulted from lack of time, lack of patience and lack of the importance to oral health. In some cases, the mothers' resistance to brushing their children's teeth due to their difficult behavior at this moment is very clear. This fact takes into account the conclusion of Fraiz & Walter's work, in which the children's negative behavior during home hygiene practices is regarded as a risk factor for the Early Childhood Caries.[7]

Difficulty in access to dental care that meets their children's needs has been reported by many of the mothers. They revealed that the Public Health Service does not treat small children. This kind of assistance is only provided by private services; however, they are unable to pay for them. Vasconcelos *et al.* [21] denounce the exclusion of the preschool age group from the public programs of dental assistance.

CONCLUSION

This study identified some mothers' positive actions concerning their children's health. Despite this, it is necessary to promote this population's quality of life, taking into account the factors related to residence conditions, family income, education, and self-esteem. Then this population will be able to control their children's dental destiny.

The qualitative interpretation of the parents' statements has identified behavioral factors that favor Early Childhood Caries: children with sleep problems, lack of proper nutrition and/or oral hygiene, frequent episodes of systemic diseases, only children, first-born and youngest children increase the parents' inability to control their children's wishes. With regard to their knowledge of the caries disease process, the parents were able to identify a diet high in sugar and a lack of oral hygiene as causative factors for this disease. Although they were aware of these factors in the process of caries development, positive actions about the aspects of oral health care have not in the caries population prevailed in the population studied. There was low motivation concerning implementing good oral hygiene, good nutrition, and changing bad eating and snacking habits.

One suggestion to reduce the risk of dental caries is oral health care should be implemented as part of an interdisciplinary health program. One should highlight that the educational approach to dental health issues should be aimed at changes in the behavior of this population. Parents should not be simply blamed for the situation but understood and supported. The use of dental professionals for the development of their social sensibility will definitely help to build new oral health values for this population.

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