Original Article

Knowledge and Awareness Regarding Various Aspects of Early Childhood Caries among General Dental Practitioners of Gujarat, India: A Questionnaire Study

Chirag M. Vaghela, Shantanu R. Choudhari, Parikrama J. Solanki, Sandip I. Saxena, Dipak K. Sharma

Department of Pedodontics and Preventive Dentistry, Government Dental College and Hospital, Ahmedabad, Gujarat, India

Abstract

Aim: The aim of this study was to evaluate the amount of knowledge and awareness regarding early childhood caries (ECC) among general dental practitioners of Gujarat state. **Materials and Methods:** A list of inquiries by means of questionnaires for gauging the knowledge regarding ECC was sent via E-mail to 500 general dental practitioners utilizing Google online survey form. **Results:** The results were based on the answers given by the participants according to their own perception and were quantified accordingly with the help of a pie chart. **Conclusion:** Although Dental Practitioners have good awareness regarding ECC, there is a need to update their knowledge in order to contribute towards the prevention and treatment of ECC.

Keywords: Early childhood caries, general dental practitioners, Google online survey form

Introduction

Dental caries is the most prevalent oral disease among children and a significant public health problem.[1] Apart from damaging the tooth, this disease is also responsible for various morbid conditions of the oral cavity and other organ systems of the body.[2] The major challenges of dentistry are prompt prevention of oral disease and adequate maintenance of oral health.[3]

Early childhood caries (ECC) is a particular form of rampant caries that affects the primary dentition and many begin as soon as the first tooth erupts in the oral cavity.[4] The frequent risk factors responsible for ECC are prolonged at will bottle feeding with sugar-containing fluids, especially before sleep; use of pacifiers dipped in sweeteners; and delayed weaning.[5] Other factors such as low birth weight,[6] low socioeconomic status,[7] and transfer of microbes from mother to child through the sharing of spoons and soothers have also been reported by several epidemiological studies.[8]

Deciduous teeth are most of the time inappropriately referred to as "temporary teeth," when in reality, they are very important for general health, mastication, phonetics, esthetics, and psychological comfort, which affect the quality of life.[9,10] Children tend to become uncooperative for extensive treatment when deciduous teeth infected by dental caries cause pain and discomfort. This sometimes necessitates the use of general anesthesia with its associated risks. In addition, very few dentists are willing to do treatment in such young children due to its time-consuming nature, monetary returns, and inadequate training.[11,12]

Deciduous teeth and permanent teeth are directly related to each other, and infection from deciduous teeth can easily pass on to permanent teeth.[13] Dental practitioners often advice restorations and pulp therapy in primary teeth to maintain the permanent teeth in good health; deciduous teeth are also called the "best natural space maintainer."[14] Many parents prefer to get deciduous teeth extracted due to financial and time constraints.[15]

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Address for correspondence: Dr. Chirag M. Vaghela, 33/A, Varahi Society, Ghogha Road, Bhavnagar - 364 001, Gujarat, India. E-mail: chirag987987@gmail.com

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It is unclear to what extent all the general dental practitioners are aware of the risk factors of ECC and its preventive strategies and to what extent they impart those strategies.[4] Furthermore, there are no published data which document such findings in Gujarat state. Thus, the present study was carried out to assess the baseline knowledge and awareness regarding various aspects of ECC among general dental practitioners.

Materials and Methods

The study was a pilot study conducted in the state of Gujarat, India, in which the study population consisted of general dental practitioners of the state with BDS degree or MDS degree regardless of their specialty. Practitioners who had retired, resigned, or were not practicing were excluded from this study. The list comprised 500 dental practitioners. The questionnaire [Table 1] was conveyed to 500 general dental practitioners by utilizing Google online survey form Reminder was sent after 15 days of initial mailing. Surveys were acknowledged up to 1 month after the starting date from January 17 to February 16, 2018.

There were 10 questions that focused on information regarding various aspects of ECC such as etiology, risk factors, prevention, and treatment of ECC. Responses were classified and information was examined. The questionnaire thus consisted of the following 10 questions:

1. Which factor is more important in causing ECC?
2. Which bacteria are mainly responsible for the occurrence of ECC?
3. Do you think night feeding may lead to ECC?
4. Do you think exclusive breastfeeding beyond 14 months can lead to ECC?
5. Do you think bacteria causing dental caries can be transmitted from mother to child?
6. Do you think family tendency can lead to ECC?
7. Do you think fluoride dentifrices and dental sealants will help prevent ECC?
8. Do you think diet counseling is helpful in the management of ECC?
9. Do you think prenatal counseling has benefit in preventing ECC?
10. Do you think pedodontists have a role in promoting oral health/in prevention of ECC?

Results

Of the 500 questionnaires sent to general dental practitioners of Gujarat state, a total of 380 responses were obtained. The response rate was 76%. The result of this study showed that totally 75.8% BDS practitioners and 24.2% MDS practitioners had participated in the study [Figure 1].

All the dentists were asked the following questions and they had to answer according to their own perception:

1. The first question was about causative agent which produced ECC. About 81.1% dentists were in favor of sugar intake frequency and 12% believed that amount of sugar is intake is important while the rest 6.9% said that none of these factors were important in production of ECC [Figure 2]
2. The second question was related to bacteria that cause ECC. About 77% dentists were in favor of *Streptococcus mutans* and 18.6% in favor of *Lactobacillus acidophilus* while 4.4% believed that none of these bacteria can lead to dental caries [Figure 3]
3. The third question was about relation of night feeding and ECC. About 74.3% believed that night feeding can cause ECC, 10.7% said that there is no relation between these two factors, and 15% believed that it may be the cause of ECC [Figure 4]
4. The fourth question was regarding exclusive breastfeeding beyond 14 months being the cause of ECC. About 33.2% dentists thought that there is a definite correlation between these two factors, 37.7% were against this opinion, and 29.1% said that there might be a causative relation between these two factors [Figure 5]

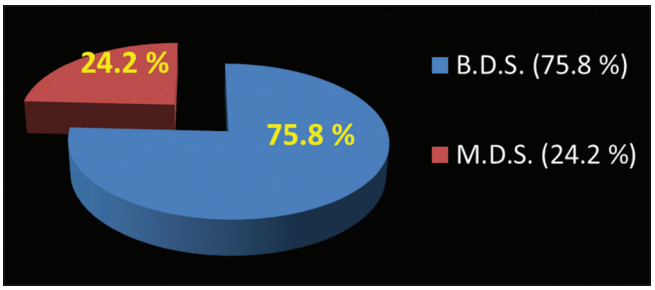

Figure 1: Chart showing percentage of various participants in the study.

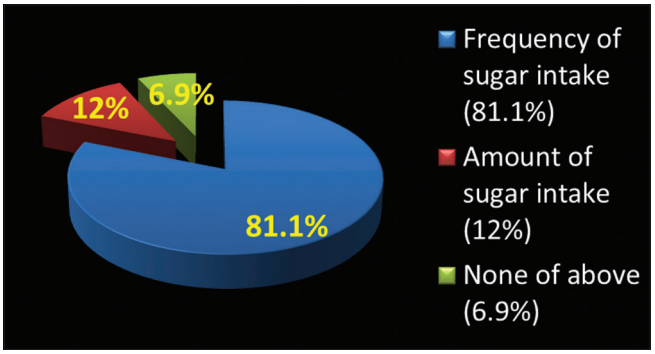

Figure 2: Chart showing the responses about causative agents which produced early childhood caries.

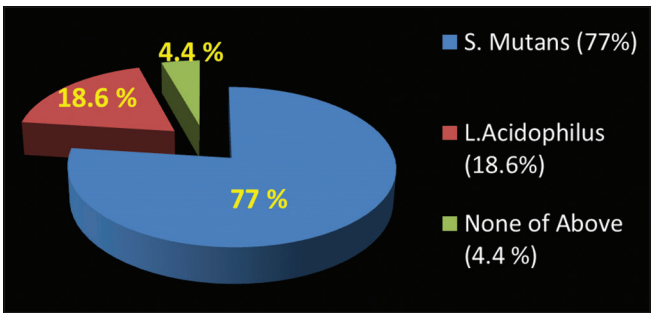

Figure 3: Chart showing the responses about various bacteria which cause early childhood caries.

5. The fifth question was related to maternal transmission of *S. mutans*. Majority of dentists (41.6%) were against this opinion while 40.5% were in favor of this opinion. About 17.9% believed that *S. mutans* might be maternally transmitted from mother to child during pregnancy [Figure 6]
6. The sixth question was regarding family tendency related to ECC. Interestingly 49.9% dentists believed that familial tendency can cause ECC, 27.6% were against this opinion, and 22.5% said that that there might be a family tendency responsible for ECC [Figure 7]
7. The seventh question was related to prevention of ECC with the help of fluoride dentifrices and dental sealant. About 76.2% dentists thought that these agents can prevent spread of ECC, 12.8% believed that there was no role of these agents, and 11% were in favor of usefulness of these agents in prevention of ECC [Figure 8]
8. The eighth question was related to management of ECC by diet counseling. Majority of dental practitioners (88.2%) believed that diet counseling is helpful while only 4.3% were against this opinion. About 7.5% thought that it may be useful to prevent ECC [Figure 9]
9. The ninth question was related to prevention of ECC by prenatal counseling. About 80.4% participants gave positive response with only 7.5% giving negative response. About 12.1% thought that it might be useful to prevent ECC [Figure 10]
10. The last question was about the role of pedodontist in the prevention of ECC. Majority of participants (88%) thought that the pedodontist plays a major role in the prevention of ECC while only 4.8% were against this opinion, and 7.2% thought that pedodontist might play a role to prevent ECC [Figure 11].

Discussion

As dental caries is an infectious disease, interventions are required to prevent its transmission or increase the defense mechanisms of the host. Caries risk assessment models point out that a primary predictor of future caries experience is the past caries.[16] Assistance is required from parents or caregivers and health-care professionals, as young children are unable to intervene the carious process on their own. A planned comprehensive and multidisciplinary approach is needed for the prevention and treatment of ECC.

Table 1: Questions regarding knowledge and awareness of early childhood caries

1. Which factor is more important in causing ECC?
2. Which bacteria are mainly responsible for the occurrence of ECC?
3. Do you think night feeding may lead to ECC?
4. Do you think exclusive breastfeeding beyond 14 months can lead to ECC?
5. Do you think bacteria causing dental caries can be transmitted from mother to child?
6. Do you think family tendency can lead to ECC?
7. Do you think fluoride dentifrices and dental sealants will help prevent ECC?
8. Do you think diet counseling is helpful in the management of ECC?
9. Do you think prenatal counseling has benefit in preventing ECC?
10. Do you think pedodontists have a role in promoting oral health/in prevention of ECC?

ECC: Early childhood caries

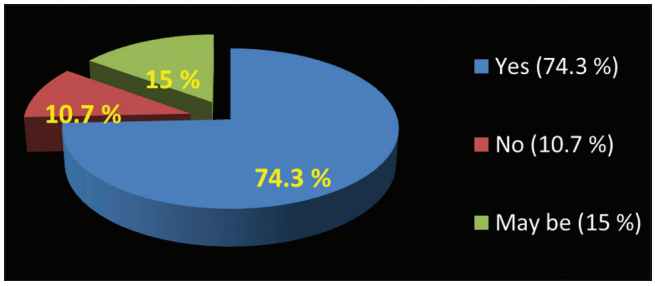

Figure 4: Chart showing the responses about relation of night feeding and early childhood caries.

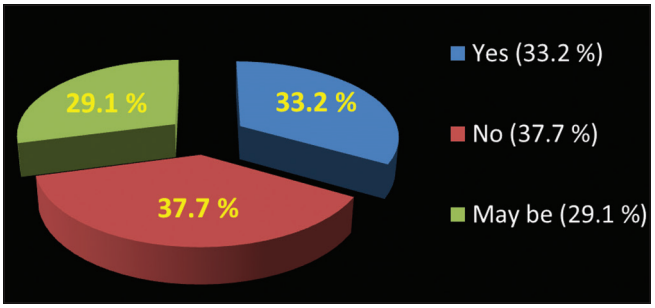

Figure 5: Chart showing the responses about relation of breastfeeding and early childhood caries.

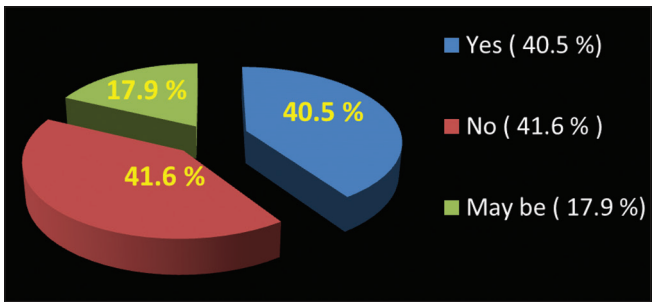

Figure 6: Chart showing the responses regarding maternal transmission of *Streptococci mutans*.

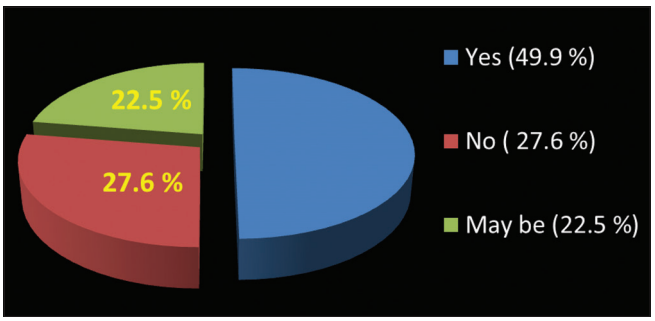

Figure 7: Chart showing the responses about family tendency related to early childhood caries.

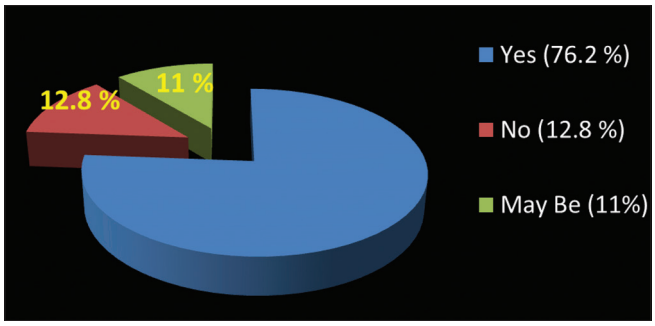

Figure 8: Chart showing the responses regarding prevention of early childhood caries with the help of fluoride dentifrices and dental sealant.

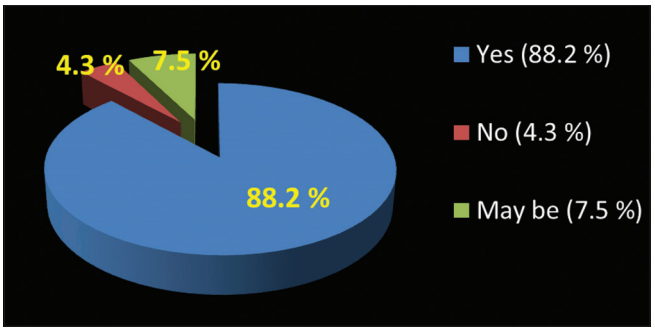

Figure 9: Chart showing the responses about management of early childhood caries by diet counseling.

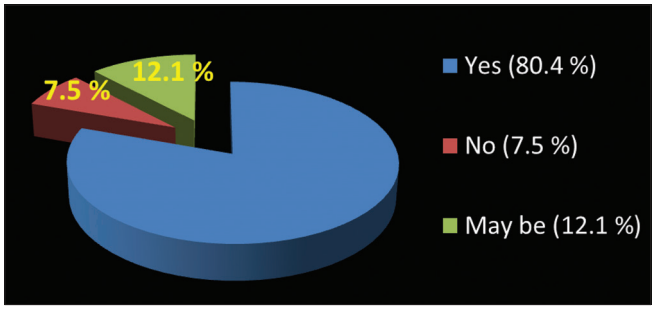

Figure 10: Chart showing the responses about prevention of early childhood caries by prenatal counseling.

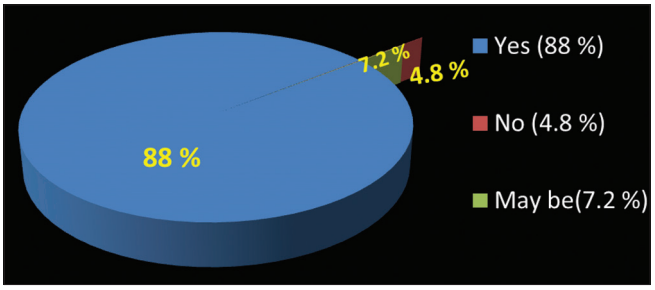

Figure 11: Chart showing the responses regarding role of pedodontist in the prevention of early childhood caries.

The present study shows participation of 75.8% BDS practitioners and 24.2% MDS practitioners in the survey [Figure 1]. This shows that majority of general dental practitioners were those with BDS degree, with MDS practitioners doing exclusive specialized practice. Hence, this survey was mainly useful to assess the knowledge of BDS practitioners regarding ECC.

It is generally accepted that the amount, form, and frequency of sugar intake influence the length of time that teeth are exposed to sugar.[17] Numerous studies state that the frequency of eating sugars is of greater etiological importance than the total consumption of sugars for caries to occur. The Vipeholm study gives the primary evidence for this belief.[18] In the present study, majority of the practitioners (81.1%) believed that the frequency of sugar intake influences the carious process in ECC [Figure 2].

As per the study conducted by Bowen and Lawrence,[19] human milk is found to be more cariogenic than bovine milk. Accordingly, the American Academy of Pediatric Dentistry (AAPD) recommends breastfeeding for 9 months and limits it to twice a day after the age of 1 year. Appropriate breastfeeding is said to be the best feeding method for infants. However, Sabbagh *et al*.[20] reported that nocturnal breastfeeding, at will breastfeeding, and weaning delayed beyond the age of 2 years could have a harmful effect on the primary dentition. In the present study, 74.3% practitioners believed that night feeding is harmful [Figure 4].

It is a known fact that the most important bacteria responsible for dental caries are *S. mutans*. da Silva Bastos *et al*.,[21] in a systematic review and meta-analysis, concluded that there is scientific evidence of mother-to-child transmission of *S. mutans*. The AAPD has recommended that maternal dental health should be preserved through proper oral health education and regular dental checkups during and after pregnancy in order to reduce the risk of bacterial colonization and thus transmission to infants.[22] As opposed to this, in our study, a mixed opinion regarding this was obtained with 17.9% participants who were unsure about this [Figure 6]. Hence, there is a need for proper maternal counseling during pregnancy and creating awareness about the same.

The use of fluoride in various forms (varnish, fissure sealants, mouth rinse, toothpaste, etc.) has been recommended by the AAPD to effectively reduce the risk of dental caries. It also suggests the use of fluoride as a safe and effective measure that needs to be planned based on a risk andneed assessment of individual children to avoid the risk of fluorosis.[23] In our study, majority of general dental practitioners (76.2%) believed that fluoride is an effective means of preventing caries [Figure 8].

In the present study, majority of the general dental practitioners reported to play an important role in promoting the oral health of children. Regular exposure of dental practitioners to cases with oral health problems, better knowledge, and in-depth study of oral health-care delivery could be the reason for good awareness about ECC. Although the knowledge of dental practitioners was good, emphasis should be given to update their knowledge owing to their lack of capability in diagnosing and managing the early stages of ECC.

Conclusion

Although the dental practitioners have good awareness regarding ECC, there is a need to update their knowledge so that they can contribute toward the prevention and treatment of ECC and provide early intervention to maintain good oral health of a child. This, in turn, will also help in improving the general health condition. In addition, awareness to visit the dentist before the child's first birthday can be created through general dental practitioners.

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Conflicts of interest

There are no conflicts of interest.

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