CAREGIVERS' KNOWLEDGE, ATTITUDES, AND ORAL HEALTH PRACTICES FOR INFANTS ATTENDING DAY-CARE CENTERS IN TWO CITIES IN SOUTHERN SAUDI ARABIA

Rafi A. Togoo, Master Luqman, Atheer A. Al-Hammadi, Nada A. Al-Rabai, Shatha M. Ahmasani, Bayan D. Al-Qahtani

ABSTRACT

Background: As the number of young infants attending day-care centers is increasing exponentially, secondary caregivers have assumed the prime role in the prevention of early childhood caries.

Objective: The objective of this study is to assess caregivers' knowledge, attitudes, and oral health practices for infants attending day-care centers in two major cities in southern Saudi Arabia.

Materials & Methods: This study was conducted among caregivers in two cities, Abha and Khamis Mushyat in Saudi Arabia. Participants who met the inclusion criteria comprised 302 caregivers from 48 day-care centers. Data was collected using a questionnaire focused on the knowledge, attitudes, and oral health practices of caregivers for infants attending day-care centers.

Results: Factors causing dental caries in infants were known to the majority of the caregivers. Of the 302 respondents, 94.4% were aware of the food that caused dental decay, and 84.1% agreed that a child should not be allowed to sleep with a bottle in their mouth. Moreover, 86.1% participants were aware that a child should visit the dentist regularly even if they have no teeth-related complaint. Among the participants, 41.5% had never checked for a tooth cavity, and 45.2% had never cleaned or brushed the infants' teeth. However, 90% of the participants had read or made an effort to learn about oral health.

Conclusion: A national oral health campaign focused on oral healthcare for infants should be a priority. Parents and secondary caregivers should be involved in dental health education programs to improve their knowledge about infant oral health and practices that would help in the prevention of early childhood caries.

Keywords: Caregivers, early childhood caries, oral health practices

Citation: Togoo RA, Luqman M, Al-Hammadi AA, Al-Rabai NA, Ahmasani SM, Al-Qahtani BD. Caregivers' knowledge, attitudes, and oral health practices for infants attending day-care centers in two cities in southern Saudi Arabia. Gulf Medical Journal. 2017;6(1):35–41.

INTRODUCTION

Oral health is a vital facet of general health in infants and children. This has an enormous bearing on the quality of life and health consequences[1, 2]. Infants with early childhood caries (ECC) may develop associated problems, such as local infections and dental pain, which could lead to difficulty in eating and sleeping, psychosocial problems, stunted growth, and the increased possibility of caries in permanent dentition[2, 3]. White demineralized areas in the cervical regions of the maxillary anterior teeth may be the first symptom of dental caries lesions in infants who could develop ECC[4, 5]. The appearance of even a single caries lesion on any tooth surface in an infant or toddler should be regarded as a serious health issue[6]. ECC can be considered in the presence of any sign indicating dental caries lesions on a tooth surface during the first three years of life[4, 5]. Other related health problems are also observed in infants with rampant dental caries[5, 7].

Correspondence: Dr. Master Luqman, Assistant Professor, Department of Diagnostic Sciences, College of Dentistry, King Khalid University College of Dentistry, Abha, KSA. Email: mluqman@kku.edu.sa

A number of risk factors related to ECC have been mentioned in various literatures. Prolonged or at-will breast feeding; prolonged/frequent bottle feeding; bottle feeding during night time; size of the family; the child's birth order, oral hygiene practices, and dietary habits; and delay in the child's first dental visit are factors that may lead to early caries activity[2, 3, 5, 8, 9].

With regard to oral well-being, mothers are the earliest sources of education for children [3, 10]. However, the 21st century has witnessed the rise of employment among women. Even women with young infants seek employment, possibly in an effort to improve their quality of life. As a result, the situation demands that they leave their infants to spend a substantial amount of time at day-care centers. In these centers, the caregiver's role is significant as they are concerned with the children's daily diet, general cleanliness, and even oral healthcare[1, 7, 11].

Limited literature can be found in Saudi Arabia on caregivers' knowledge, attitudes, and practices related to a child's oral health. Thus, the study is aimed at assessing caregivers' knowledge, attitudes, and oral health practices for infants attending day-care centers in two major cities in the southern region in Saudi Arabia.

MATERIALS & METHODS

This cross-sectional study was conducted on caregivers who worked at day-care centers at Abha and Khamis Mushyat in Saudi Arabia. From the 302 caregivers from 68 day-care centers approached for the survey, 48 agreed to participate in the study. We acquired consent from the proprietor of each nursery after explaining the nature of research. All the caregivers who met the inclusion criteria were approached. The caregivers were selected based on the following inclusion criteria: (1) aged 18 years or above, (2) cared for normal/healthy children, and (3) worked as caregivers for over three months. Since all the subjects fulfilled the inclusion criteria, none were excluded. We then acquired informed consent from every caregiver who participated in the study.

A modified questionnaire from the study by Mani *et al.* (2010) was used and prepared in the Arabic language to gather information about caregivers' knowledge and attitudes related to oral health in infants attending the day-care centers where they were employed[1]. The questionnaire was pre-tested, and suitable modifications were made to ensure the statements were comprehensible to the caregivers. The questionnaire was a self-administered one and comprised 26 items: 16 questions were directed at assessing knowledge, and 10 were focused on identifying the attitudes and oral hygiene practices of the caregivers for the children. The caregivers' attitudes and practices were scored using the criteria "never," "sometimes," "often," and "always," and knowledge using the criteria "true," "false," and "don't know". The survey was completed within four weeks.

We tested the caregivers' knowledge by questioning them on their understanding of various events associated with oral health: age of tooth eruption, the age at which a child should begin brushing their teeth, causes of dental caries, dietary habits (primarily sugar consumption), brushing methods, and at what age should a child make their first visit to the dentist. Through the responses to these questions, we attempted to determine the caregivers' attitudes toward the prevention of dental caries, and the oral health practices, such as brushing and rinsing, that they followed for the infants at the day-care centers. We also investigated the caregivers regarding certain feeding habits, such as sharing their utensils with the infants or making the infants share utensils among themselves, and feeding the child using the same spoon with which the caregivers tasted the food.

RESULTS

Although the caregivers appeared to have a fairly vast knowledge of oral health, certain practices they followed at the day-care centers

were found to be flawed and inadequate. We tested the caregivers' knowledge on the first occurrence of a tooth eruption, the time when a child should begin brushing their teeth, the cleaning method before the tooth erupts, the amount of toothpaste to be used, dental visits, and the factors that could cause dental decay. The factors that caused dental caries in infants were known to the majority of the caregivers (Table 1 displays the caregivers' knowledge on oral health). Of the respondents, 46% agreed that dental decay could affect infants aged two years or even less. Moreover, 77.2% were aware that the first tooth appears in a baby's mouth at around six months of age, and 66.2% knew that a complete set of primary teeth appear in a baby's mouth by two years of age. Just 1.3% of the respondents were unaware of the type of food that could cause tooth decay, whereas 94.4% were aware that decay was caused by consuming sugary food.

Table 1. Caregiver's knowledge regarding oral health in children

No.	Items	True (T) n (%)	False (F) n (%)	Don't know n (%)
1	Dental decay can affect infants below two years of age	139(46%)	107 (35.4%)	56 (18.5%)
2	The first tooth appears in the baby's mouth at around six months	233 (77.2%)	51 (16.9%)	18 (6%)
3	The complete set of milk teeth appear in a baby's mouth by around two years	200 (66.2%)	77 (25.5%)	25 (8.3%)
4	The type of foods that primarily could cause tooth decay are sweet and contain sugar	285 (94.4%)	13 (4.3%)	4 (1.3%)
5	The child should be made to give up the bottle and use a sipping cup by one year of age	266 (88.1%)	24 (7.9%)	12 (4%)
6	The baby's mouth should be cleaned after each feed even before the first tooth eruption	200 (66.2%)	72 (23.8%)	30 (9.9%)
7	The child should be made to begin brushing their teeth with the appearance of the first milk tooth	195 (64.6%)	71(23.5%)	36 (11.9%)
8	Have you ever used or seen a finger toothbrush?	63 (20.9%)	188 (62.5%)	50 (16.6%)
9	Just a smear of toothpaste should be used on the brush of a 2–5 year old child	227 (75.2%)	43 (14.2%)	32 (10.6%)
10	A child could suffer from dental decay if feeding utensils are shared among the infants and between the child and caregiver	107 (35.4%)	117 (38.7%)	78 (25.8 %)
11	A child should not sleep with a bottle in the mouth as it could cause tooth decay	254 (84.1%)	31 (10.3 %)	17 (5.6%)
12	On-demand bottle/breast feeding during night time could cause dental decay	218 (72.2%)	51 (16.9%)	33 (10.9%)
13	Prolonged use of a pacifier could cause dental decay in children	180 (59.6 %)	76 (25.2%)	46 (15.2 %)
14	It is important to clean the child's teeth after each feed	198 (65.6%)	63 (20.9 %)	41 (13.6%)
15	Effective teeth cleaning can be achieved by the child themselves and no assistance is required	103 (34.1%)	176 (58.3%)	23 (7.6%)
16	The child should visit a dentist for a regular checkup even if they have no teeth-related complaint	260 (86.1 %)	21 (7%)	21 (7%)

Of the participants in our study, 88.1% were aware that the child should be made to give up the bottle and use a sipping cup by one year of age. Conversely, 23.8% were unaware that a baby's mouth needs to be cleaned after each feed even prior to tooth eruption. However, 64.6% were conscious that a child should start brushing their teeth with the

appearance of the first milk tooth. It was interesting to note that 62.5% of the participants had never used or seen a finger toothbrush; 75.2% agreed that just a smear of toothpaste should be used on the toothbrush of a child in the 2–5 year age group. Furthermore, 38.7% did not agree that a child could suffer from dental decay if feeding utensils were shared among the infants and between the infants and caregivers. However, 84.1% were aware that a child should not sleep with a bottle in the mouth as this could cause tooth decay. It was also found that 72.2 % of the caregivers agreed that on-demand bottle/breast feeding during night time could cause dental decay. Moreover, 59.6% were aware that the prolonged use of a pacifier could cause dental decay in children. 65.6% of the caregivers agreed that the infants' teeth should be cleaned after each feed; 58.3% did not agree that "effective teeth cleaning can be achieved by the child themselves and no assistance is required." It was also noted that 86.1% were aware that a child should visit the dentist for a regular checkup even if they have no teeth-related complaint.

We asked certain questions to assess the caregivers' attitudes toward oral health, which revealed the practices they followed for the infants attending their day-care centers (Table 2). 34.8% caregivers used the same spoon for feeding the infants with which they tasted the food. Just 24.8% of the infants did not share their utensils with the child or make the infants share utensils among themselves. It was also found that 33.2% of the caregivers often bit into the food to make smaller morsels for the child before feeding them, and 26.2% were noted to always follow this practice.

Table 2. Caregiver's attitude and oral health practices

No.	Question	Never n (%)	Sometimes n (%)	Often n (%)	Always n (%)
1	Do you feed the child using the same spoon with which you tasted the food?	9 (3%)	91 (30.1%)	97 (32.1%)	105 (34.8%)
2	How often do the infants share their feeding utensils with each other or with the caregivers?	75 (24.8%)	147 (48.7%)	61 (202%)	19 (6.3%)
3	How often do you bite into the food to make smaller morsels for the child before feeding them?	29 (9.6%)	93 (30.9%)	100 (33.2%)	79 (26.2%)
4	How often do you feed sweet food to the infants in the nursery?	82 (27 2%)	150 (49.7%)	54 (17.9%)	16 (5.3%)
S	Do you give water to the infants after each feed?	24 (7.9%)	103 (34.1%)	102 (33.8%)	73 (24.2%)
6	How often do you give sweetened liquids or juices to the children?	92(30.6%)	144 (47.6%)	49 (16.3%)	16 (5.3%)
7	Do you dip the pacifiers in sweet liquid before using them on children?	190 (62.9%)	79 (26.2%)	27 (8.9%)	6 (2%)
8	Do you check the tooth cavities of the Infants in the nursery?	124 (41.2%)	112 (37 2%)	45 (15.3%)	19 (6 5%)
9	Do you clean the children's teeth in the nursery by brushing or using a soft cloth?	136 (45.2%)	87 (28.9%)	43 (14.3%)	35 (11. 6%)
10	Do you read about oral health or make an effort to learn about it?	32 (10 6%)	100 (33.1%)	98 (32.5%)	72 (23.8%)

Of the participants, 49.7% regularly fed sugary food to the infants, and just 34.1% gave water to the infants after each feeding. It was also found that the caregivers sometimes gave sweetened liquids or juices to the infants (47.8%); however, 62.9% claimed that they

never dipped the pacifiers in sweet liquid. It was further observed that 41.2% of the caregivers never checked the tooth cavities infants of the infants in the nursery, but 37.2% stated that they sometimes conducted such checks. Moreover, it was noted that 45.2% never cleaned the teeth of the children in the nursery by brushing them or using a soft cloth. It was also found that 33.1% of the caregivers sometimes read about oral health or made an effort to learn about it, but 23.8% always made the effort to gain more knowledge on the topic.

DISCUSSION

In spite of unending, extensive precautionary methods to prevent dental caries, this disease still continues to be a major threat for oral health. It could lead to physical, social, and financial challenges. The parents of an infant play an imperative role in their health-related practices and health statuses by rectifying and guiding them to observe the right habits. Similarly, knowledgeable and efficient caregivers could play an important role in caries prevention for infants who attend day-care centers as they spend a significant amount of time at these centers[5, 9, 12, 13]. Due to their parents' working hours, infants spend their majority day hours at the centers. Moreover, at most times, parents are unaware of the services and health practices followed at the day-care centers as entry into the nurseries is mostly restricted. Additionally, procedures among caregivers are not standardized[1]. Therefore, dental practices followed by caregivers related to a child's oral health, which certainly have a significant influence on the child's overall oral well-being, have to be monitored. Though the majority of the caregivers appeared to have sound knowledge of good oral health habits for children, infants the practices they implemented were found to be inadequate. The study results indicated that the caregivers' attitudes were strongly correlated with their oral health practices. In our study, it was observed that 77.2% of the caregivers were aware that the first tooth appears in a baby's mouth at around six months of age. This figure was found to be 91.2% in a study by Mani *et al.*, which was conducted at day-care centers in Malaysia. Other various aspects of information obtained regarding the oral health related knowledge of caregivers were comparable with other studies[1, 3, 11–16].

In our study, the major share of the caregivers was aware of the time that the first milk tooth and the complete set of milk teeth erupted in a child. In addition to this information, 94.4% of the caregivers knew that tooth decay among infants was a result of their consuming sugary food. The caregivers were also aware that on-demand bottle or breast feeding during night time, leaving the bottle in the child's mouth when they were asleep, and the use of a pacifier could cause dental decay. In our study, 65.6% of the caregivers were aware of the importance of cleaning a child's mouth after each feed. Moreover, 35.4% were aware of the possibility of cross-contamination by sharing utensils among infants and between themselves and the infants. An encouraging fact was that about 90% of the caregivers in our study made an effort to learn about oral health, and the majority (86.1%) supported the fact that the child should visit the dentist for a regular checkup. An interesting fact observed in the study was that in spite of having sound knowledge of the various aspects of oral health and dental decay, the attitudes of a number of the caregivers toward oral health practices were found to be unhealthy and flawed. This indicated that they were unable to translate their knowledge into everyday practice. This important fact needs to be discussed and scrutinized. Although the majority of caregivers had sound knowledge about oral health in children, low motivation and enthusiasm, and lack of practical training could be a result of poor implementation of knowledge. Generally, caregivers were found to follow poor feeding practices, such as feeding the infant using the same spoon with which they tasted the food, sharing their own utensils with the infant or making the infants share utensils among themselves, or even biting into the food to make smaller morsels for the infant before

feeding them. A minority of the caregivers were aware that these practices were incorrect and had never observed such practices. Although the participants had sound knowledge of oral health practices for children, it was found that some did not follow the correct practices regularly. However, the results were found to be truly encouraging, and sufficient information and proper supervision would help the caregivers implement the right oral hygiene practices at day-care centers. This would certainly aid in the prevention of early childhood caries and other oral health related complications observed in children. This study was conducted at two locations in Saudi Arabia; thus, the results may not have achieved the exact inferences and may not be applicable to the entire population of Saudi Arabia. Extended studies need to be conducted with larger samples. However, the preliminary outcomes of our study indicated that the attitudes and oral health practices of caregivers at day-care centers required improvement. Their educational backgrounds could be correlated to their inadequate health practices. If the caregivers were given regular training related to child health, including oral health advancements, the community would certainly benefit from it. The supervisors of day-care centers also have a role to play by supporting and encouraging caregivers to undergo training to improve the quality of oral care at the centers. It would be interesting, in future studies, to explore the prevalence of caries in infants who attend day-care centers. These results could be compared with those of studies conducted on infants who are cared for by their mothers to recognize the risk involved.

CONCLUSION

Although most of the caregivers who participated in our study were found to be knowledgeable about oral health, this was not reflected in their attitudes and practices. It is essential to identify the reasons for this and conduct systematic and regular oral health education programs for the caregivers. It can be noted in the present study that community-based dental health education for caregivers and parents is essential in changing their knowledge, attitudes, and oral health practices, which would better aid in the prevention of common childhood dental diseases. Improving the knowledge of and awareness among parents and caregivers is a fundamental component in dental disease prevention in children below 6 years of age[17, 18].

ACKNOWLEDGEMENTS

The authors would like to thank the administrators of the day-care centers who were approached for the study and the caregivers who participated.

REFERENCES

1. Mani SA, Aziz AA, John J, Ismail NM. Knowledge, attitude and practice of oral health promoting factors among caretakers of children attending day-care centers in Kubang Kerian, Malaysia: a preliminary study. J Indian Soc Pedod Prev Dent. 2010;28(2):78–83.
2. American Academy of Pediatric Dentistry. Policy on early childhood caries (ECC): classifications, consequences, and preventive strategies. Pediatr Dent. 2015;36:50–2
3. Al-Zahrani AM, Al-Mushayt AS, Otaibi MF, Wyne AH. Knowledge and attitude of Saudi mothers towards their preschool children's oral health. Pak J Med Sci. 2014;30(4):720–4.
4. Jose B, King NM. Early childhood caries lesions in preschool children in Kerala, India. Pediatr Dent. 2003;25(6):594–600.
5. Sankeshwari RM, Ankola AV, Tangade PS, Hebbal MI. Feeding habits and oral hygiene practices as determinants of early childhood caries in 3- to 5-year-old infants of Belgaum city, India. Oral Health Prev Dent. 2012;10(3):283–90.
6. Originating Council, American Academy of Pediatric Dentistry. Policy on early childhood caries (ECC): unique challenges and treatment options. Pediatr Dent. 2003;25(2):114–8.
7. Schroth RJ, Brothwell DJ, Moffatt ME. Caregiver knowledge and attitudes of preschool oral health and early childhood

caries (ECC). Int J Circumpolar Health. 2007;66(2):153–67.

8. Wyne AH. Early childhood caries. A review. Indian J Dent Res. 1996;7(1):7–15.
9. Castilho AR, Mialhe FL, Barbosa Tde S, Puppin-Rontani RM. Influence of family environment on children's oral health: a systematic review. J Pediatr (Rio J). 2013;89(2):116–23.
10. Riedy CA, Weinstein P, Milgrom P, Bruss M. An ethnographic study for understanding children's oral health in a multicultural community. Int Dent J. 2001;51(4):305–12.
11. Ashkanani F, Al-Sane M. Knowledge, attitudes and practices of caregivers in relation to oral health of preschool children. Med Princ Pract. 2013;22(2):167–72.
12. Naidu R, Nunn J, Forde M. Oral healthcare of preschool children in Trinidad: a qualitative study of parents and caregivers. BMC Oral Health. 2012;12:27.
13. Vinay S, Naveen N, Naganandini N. Feeding and oral hygiene habits of children attending daycare centres in Bangalore and their caretakers oral health knowledge, attitude and practices. Indian J Dent Res. 2011;22(4):561–6.
14. Chan SC, Tsai JS, King NM. Feeding and oral hygiene habits of preschool children in Hong Kong and their caregivers' dental knowledge and attitudes. Int J Paediatr Dent. 2002;12(5):322–31.
15. Singhal K, MA Prasanth, Singh V, Choudhary R. Knowledge, attitude & practice of parents about child oral health in Jodhpur city: a questionnaire survey. International Journal of Oral Health and Medical Research. 2015;1(6):37–41.
16. Dülgergil CT, Colak H. Do the more caries in early primary dentition indicate the more caries in permanent dentition? Results of a 5-years follow-up study in rural-district. J Int Soc Prev Community Dent. 2012;2(2):48–52.
17. Bertness J, Holt K, editors. Promoting oral health in young children: a resource guide. Washington, DC: National Maternal and Child Oral Health Resource Centre; 2013.
18. Oredugba F, Agbaje M, Ayedun O, Onajole A. Assessment of mothers' oral health knowledge: towards oral health promotion for infants and children. Health. 2014;6:908–15.