



RESEARCH ARTICLE

ATTITUDE AND KNOWLEDGE OF ANGANWADI WORKERS OF MANGALORE CITY TOWARDS
EARLY CHILDHOOD CARIES

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ABSTRACT

Aim: An Anganwadi worker (AWW) can be a vital link in the health care delivery system as she provides a package of services to mothers and children. Oral health knowledge among these workers is an integral component of preventing early childhood caries (ECC). The present study is aimed to assess the existing knowledge of early childhood oral health related factors among anganwadi workers.

Materials and Methods: A questionnaire based survey was conducted among AWW in Mangalore city, India. The study involved face to face interviews and the response to a pretested 15 item questionnaire was recorded. 100 AWW participated in the study and responded to the questionnaire.

Results: Of the 100 respondents, 43% knew the right age for the child to visit the dentist while 57% were not aware. 53% of the respondents thought that it was fine to put the baby to sleep with bottle containing fluid. The major drawback was that 89% of the participants didn't know what was fluoride which is a major constituent in the prevention of dental caries.

Conclusion: Our study concluded that AWWs showed some degree of knowledge about certain aspects of ECC. The knowledge however appeared to be inconsistent. We recommend that AWWs need to be educated by conducting periodic oral health education programs, which will increase their awareness about ECC.

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INTRODUCTION

"The development of children is the first priority on the country's developmental agenda, not because they are most vulnerable, but they are our supreme assets and also the future human resources of the country." (Integrated child development services (ICDS), 2009) In pursuance to the national policy for children, the Government of India launched the Integrated Child Development Services (ICDS) scheme which was introduced on experimental basis on 2nd October 1975. Today, this scheme represents one of the world's largest programmes for early childhood development. It aims in enhancing survival and development of children from the susceptible and deprived sections of society. (Thakare *et al.*, 2011) Early childhood caries is defined as the presence of one or more decayed, missing or filled tooth surfaces in any primary tooth in a child 71 months or younger. ECC is a chronic, transmissible, infectious disease with a complex multifactorial etiology, (Qin *et al.*, 2008) and it is a significant public health problem in both developing and industrialized countries, which continue to affect babies and preschool

children worldwide. (Douglass *et al.*, 2004; Livny *et al.*, 2007; Douglass *et al.*, 2002; Milnes, 1996; Saravanan *et al.*, 2005) A comprehensive review of the epidemiology of ECC showed that its prevalence varies from population to population, however disadvantaged children, regardless of race, ethnicity or culture are most vulnerable. (Milnes, 1996) In these populations, prenatal and perinatal malnutrition are often the causes of enamel hypoplasia, reduced salivary secretion and low buffering capacity. (Davies, 1998; Slavkin, 1999; Caufield and Griffen, 2000; Jose and King, 2003; Ribeiro and Ribeiro, 2004) Additionally, oral hygiene is usually poor, exposure to fluoride is probably insufficient, and general psychosocial stress is common. These variables may impede the natural resistance to the disease cycle of bacterial invasion, demineralization, and dental caries. Untreated ECC can lead to harsh consequences such as abscesses, pain, malocclusions and lasting psychosocial impediments. (Ribeiro and Ribeiro, 2004; Quinonez *et al.*, 2001) India with a population that exceeded 1 billion in 2001, is the second most populous nation in the world. Eighty percent of the population live in rural areas. The oral health care system consists of medical research institutes with departments of dentistry, more than 120 dental schools spread throughout its 27 states, medical colleges with departments of dentistry in cities and district head quarters, and

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private dental clinics. The majority of dental care is provided in the later. (Ramachandran, 1997) The primary health care approach has been advocated as the strategy to achieve health for all. Integrating dental strategies into this approach would require oral hygiene instruction, as part of general hygiene instruction, be carried out by community health workers and so on in addition to dental personnel. (Srnidhi Palagatti *et al.*, 2013) Under the ICDS an anganwadi usually covers a population of 1000 in both rural and urban areas and 700 in tribal areas. Services at ananganwadicentre (AWC) are delivered by an Anganwadi worker (AWW), who is a part time honorary employee. She/he is a person of same vicinity, selected by the people having educational qualification of middle school or Matric or even primary level in some areas. (Integrated child development services (ICDS) 2009) The usual functions of the anganwadi workers are health checkups and health education about diet and nutrition to nursing mothers, other women (15-45 years) and children. Increasing the oral health knowledge of the AWW provide an opportunity to educate an important segment of the public that has access to a large population of young people. (Ashcroft *et al.*, 2008) The present study was aimed to assess the existing knowledge of early childhood oral health-related factors among AWW of Mangalore city, Karnataka state, India.

MATERIALS AND METHODS

The study was carried out in Mangalore city, located in Dakshina Kannada district of Karnataka state, India. There are around 205 anganwadi workers in Mangalore city. Permission to conduct the survey was obtained from Child Development Project Office, Mangalore. Informed consent was also obtained from the individual subject. Convenience sampling technique was used. Those who were willing to participate were included in the study. For comparison, the study population was categorized on the basis of their age, educational qualification and years of experience. On prefixed dates, we visited the Child Development Project office, where the anganwadi workers gathered for their monthly meetings. The purpose of the study was explained, and consent was obtained from the workers. A total of 100 anganwadi workers participated in the study. A 15 item questionnaire addressing knowledge of early childhood oral health-related factors was designed jointly by the research group, which included a pediatric dentist and a community health dental health specialist. All aspects of early childhood oral health, including oral development, nursing habits, oral hygiene habits, fluoride, transmissibility of oral bacteria and the importance of primary teeth were discussed in the questionnaire. The scoring in the knowledge domain included Yes/No. A section for socio-demographic data was included at the beginning of the questionnaire to assess the years of experience, marital status and educational level of level of AWW. The questionnaire was constructed in English and later translated to Kannada. The study involved face to face interviews and recording the response. The reliability of the questionnaire was assessed by asking 20 subjects to complete it through a face to face interview. Cronbach alfa was used to measure reliability. Analysis was performed using the statistical package for social science version 17(SPSS INC., Chicago, IL, USA).

RESULTS

A total of 100 anganwadi workers responded to the questionnaire. The demographic data of the participants are

represented in Table 1. Among the 100 anganwadi workers who participated in the study 83% had secondary school education and only 18% were graduates. 54% of them had less than 10 years of experience as an anganwadi worker, 28% had an experience of 11-20 years and only 18% had an experience of 21 years and above. Correlating the knowledge of anganwadi workers towards early childhood caries based on their education and years of experience showed no statistically significant differences ($p=0.137$).

Table 1. Demographic data of the anganwadi participants

Variable	Frequency	percentage
Education		
Secondary	83	83
Tertiary	17	17
Experience in years		
<10	54	54
11-20	28	28
21 and above	18	18

Table 2. Response of anganwadi workers to the questionnaire

Questions asked	Response in percentage	
	Yes	No
1. Do you know what is dental caries?	82	18
2. Are you confident in identifying dental caries?	52	48
3. Do you know how the early signs of tooth decay appear as?	24	76
4. Do you know the right age for the child to visit the dentist?	43	57
5. Have you ever visually examined teeth ,gums of children?	90	10
6. Will mother diet during pregnancy affect development of baby teeth?	57	43
7. Does babies without teeth need mouth cleansed?	77	23
8. Are baby teeth important?	95	5
9. Can problems in baby teeth affect adult teeth?	25	75
10. Is it ok to put baby to sleep with bottle containing sweetened liquid?	47	53
11. Is breast feeding important for childs teeth?	88	12
12. Can bacteria that cause decay spread from mother to child?	37	63
13. Do you know the right age to stop demand breastfeeding?	14	63
14. Does untreated dental decay affect general well being of the child?	88	12
15. Do you know what is fluoride?	11	89

The response of the anganwadi workers to the questionnaire is presented in Table 2. Though the overall knowledge was high among the anganwadi workers, 76% of them did not know how the early signs of tooth decay appear as while 75% were not aware that problems in primary teeth affect permanent teeth. Of them, 63% did not know that bacteria that cause dental decay spread from mother to child and 63% of the people didn't know the right age to stop demand breast feeding. Of all the questions asked, much to the dismay, 89% of the anganwadi workers didn't know what was fluoride and that it helps in preventing decay. Almost all the anganwadi workers were positive towards the importance of oral health education. When asked about their opinion on educating people and children about dental health, almost all of them agreed that it helps in preventing dental disease. Majority of the anganwadi workers expressed their willingness to teach children how to brush properly and obliged to advice a child needing dental care to go to a dentist.

DISCUSSION

Anganwadi's can form an ideal setting for enhancing oral health and Anganwadi workers can form the major driving

force in the country for incorporating good oral health behavior among children. Studies have reported that behaviors acquired during early life remain throughout the life (The American academy of Pediatric Dentistry, 2008). In order to instill good behaviors among children Anganwadi Workers are supposed to be well equipped with sound knowledge, attitudes and behavior regarding the oral health. Children have inadequate knowledge of the causes and prevention of the most common oral diseases (Zhu *et al.*, 2003; Al-Tamimi and Petersen, 1998; Wierzbicka *et al.*, 2002; Rajab *et al.*, 2002; Petersen *et al.*, 1995; Petersen *et al.*, 1990). Moreover, while many parents understand the importance of tooth brushing in general, some do not know how to prevent tooth decay and gum diseases. Moreover the role of fluorides in the prevention of dental decay is poorly understood. "In many countries, less than half of mothers have received any oral health advice from dentists" (Petersen *et al.*, 2002). Anganwadi Workers can play an important role in imparting oral health education to children & their parents. In the current study, most of the respondents (82%) said that they know what is dental caries. This was quite similar to study done by Nair *et al.* (2009). And 52% of the anganwadi workers said that they were confident in identifying dental caries. Dental caries among children have a high prevalence. For optimal oral health, oral hygiene habits should be instilled at a very young age itself. Primary health care including dental care is the way of achieving good oral health for the community. The most practical and acceptable method to achieve this is through integration of oral healthcare in the present primary healthcare activities, through training of community level workers like AWW to identify and promote oral healthcare practices (Nair *et al.*, 2009). 76% of the participants were not aware how the early signs of tooth decay appear as. An anganwadi worker is an important link in developing good oral hygiene habits and preventing caries as children visiting AWC are in continuous supervision by the workers. Including oral health education in Anganwadi Workers training programme would enable them to provide oral healthcare instructions to mothers and children visiting Anganwadi centre.

According to the American Academy of pediatric dentistry, in order to prevent dental problems, your child should see a pediatric dentist when the first tooth appears, or no later than his/her first birthday. The present recommendations for first dental visit range from as soon as the first tooth erupt to one year of age. It can be expected that an earlier routine visit to a dentist might prevent early childhood caries because it affords the dentist an opportunity to provide parents with information about healthy feeding habits and oral hygiene. The AAPD recommends that parents should establish a dental home for infants by 12 months of age. Providing anticipatory guidance regarding dental and oral development, fluoride status, non-nutritive sucking habits, teething, injury prevention, oral hygiene instruction, and the effects of diet on the dentition are also important components of the initial visit.⁽²⁹⁾ Here 57% of the anganwadi workers did not know the right age for the child to visit the dentist.

According to the response to this study, 57% agreed that a mother's diet during pregnancy affects the development of the infant's teeth, while 43% disagreed. This indicates a lack of knowledge about the relationship between the mother's health and oral health of the unborn child. Proper nutrition and good oral health of the mother and the caregiver are important factors as far as the oral health status of the infant is

concerned. In response to question number seven, 77% agreed that babies without teeth needed cleaning of the mouth, and 23% thought that a baby's teeth should be cleaned after teeth eruption. The American Academy of Pediatric Dentistry (AAPD) in its latest guidelines recommends implementation of oral hygiene measures no later than the time of eruption of the first primary tooth. Cleaning teeth as soon as they erupt helps in reducing bacterial colonization. Tooth-brushing should be performed for preschool children by a parent twice daily, using an age-appropriate size soft toothbrush. Flossing should be initiated when proximal contacts develop as proximal tooth surfaces cannot be cleaned with a toothbrush.

In a similar study done by Nair *et al.*, 72% respondents agreed in favour of proper care of milk teeth (Quinonez *et al.*, 2001) which is in close agreement with the present study where 95% respondents believed that milk teeth are important. Although they do not last as long as the permanent teeth, a child's teeth play an important role in his/her development. While they are in place they help a child to speak, smile and chew properly. (Nair *et al.*, 2009) 47% of the participants believed that it is ok to put babies to sleep with nursing bottles and sippy cups containing sweetened liquids which enhance the frequency of exposure. These liquids contain caries promoting sugars like sucrose, glucose and fructose which are readily metabolised by *S.mutans* and lactobacilli to organic acids that demineralise enamel and dentin. This type of feeding behaviour during sleep intensifies the risk for caries, as oral clearance and salivary flow rate are decreased during sleep. In addition, caries promoting feeding behaviours result in an increase in the magnitude of dental reservoirs of *S.mutans*. (Robert J Berkowitz, 2003) The AAPD supports the recommendations by the American Academy of Pediatrics regarding breastfeeding the child for at least one year. Breast feeding the infant helps the child maintain positive jaw growth patterns, maintain good oral hygiene and maintain a cavity free environment from the very start. The suckling mechanism used during bottle feeding differs from that of breast feeding. The different suckling mechanism have a potential to predispose a bottle fed infant to the development of poor jaw growth pattern. Here 88% agreed to the importance of breast feeding for the child's teeth. Vertical transmission of *Mutans Streptococci* (MS) from mother to infant is well- documented. The higher the levels of maternal salivary MS, the greater the risk of the infant being colonized. Along with salivary levels of MS, mother's oral hygiene, periodontal disease, snack frequency, and socio-economic status also are associated with infant colonization. (Douglass *et al.*, 2008) Only 37% of the participants agreed that tooth decay is caused by bacteria transmitted by sharing feeding utensils. This percentage was lower (55%) in comparison to the findings of Shivaprakash *et al.* (2009) The findings were also in accordance with a study by Sakai *et al.* (2008) where most interviewed adults reported the habit of blowing and tasting food, sharing utensils, and kissing the children on their mouth. AAPD recommends that infants should not be put to bed with baby bottle and that breastfeeding at night should be avoided after the eruption of the first tooth. (American Academy of Pediatric Dentistry, 2013) 63% of the participants did not know the right age to stop demand breast feeding. This shows their lack of knowledge about the risks associated with prolonged breast feeding. In this study 88% agreed that untreated dental decay could affect the general well being of the child. Dental caries has a number of impacts on the daily activities of the children as it might impair their ability to eat or affect the quality of

their sleep. Many studies found that caries experience affects growths, specifically body weight and height of children, in an adverse manner. (Srinidhi Palagatti *et al.*, 2013) 89% of the anganwadi workers did not know what fluoride was. Fluoride is one of the most effective methods of caries lesion prevention available for ECC. This wide gap of lack of knowledge can be attributed to lack of motivation. To bridge this gap following steps must be taken.

- 1) Anganwadi workers should devote more time to their families after their work in Anganwadi. Due to time constraint, dental educational programme by a dentist in the center is required to improve their knowledge about oral health practices.
- 2) A dentist should be employed in the local health center near Anganwadi so that supervision of the oral health condition of the children and their parents can be easily done.
- 3) An in service training of the Anganwadi workers on oral health education should be done to improve their oral health related attitude and practices.

Conclusion

The overall knowledge and attitude of Anganwadi workers towards early childhood caries was good. Education and years in experience did not play a major role in their knowledge about early childhood caries. An Anganwadi worker can be an important link in developing good oral hygiene habits and preventing caries as the children visiting AWC are in continuous supervision by the workers. Including oral health education in Anganwadi workers training programme would enable them to provide oral healthcare instructions to mothers and children visiting Anganwadi center.

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