

Caries status among fishing community in Chennai – A survey

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ABSTRACT

Introduction: The aim of this study was to assess the knowledge, attitude, and practices on oral hygiene status, dietary habits, and caries among fishing community in Kokilamedu, Chennai, Tamil Nadu, India, and also to assess the presence of caries among fishermen. **Materials and Methods:** A dental camp was organized at Kokilamedu village (near Mahabalipuram). A thorough examination of oral cavity was done and the caries status was assessed using decayed, filled, and missing tooth index. Furthermore, a survey was conducted to assess their knowledge on oral care, dietary, and lifestyle habits and to check whether they are in any way associated with their caries status. **Results:** Among the 65 participants examined (40 males and 25 females), 44 participants (67.69%) were diagnosed with caries. The prevalence of dental caries was more among the subjects belonging to age groups 21–40 years and below 20 years. Their main source of diet was found to be seafood and meat. 65% of the study population were found to crave for sweets and consumed more sweets. Not even a single person, in the study population, had the knowledge about fluoride and its role in preventing caries. **Conclusion:** From this study, it has been found that there is a high prevalence of caries among the fishing community and this can be correlated with their diet, which mainly includes seafood and sweets. Awareness has to be created about fluoride and its role in preventing caries.

KEY WORDS: Caries among fishermen, Caries status, Caries, fishermen, Fishing community, KAP on caries, Oral health

INTRODUCTION

Dental caries is considered as one among the most common preventable childhood diseases to which people are susceptible throughout their lifetime.^[1,2] The prevalence of dental caries is a topic of interest for many epidemiological researchers carrying research in our country and abroad.^[3] The term “dental caries” describes the signs and symptoms of a localized disease caused by the metabolic events taking place in the biofilm (dental plaque) leading to the demineralization of the affected tooth structure.^[4] Deep carious lesions often lead to pulpal injury.^[5] The common species of bacteria (present in biofilm)-producing caries are *Streptococcus* and *Lactobacillus* species.^[5] Control of oral biofilm is necessary to prevent caries. However, oral biofilm cannot be controlled easily by mechanical means and is also a difficult target for chemical control.^[6]

Fishing is considered to be a hazardous occupation which involves strenuous physical work.^[7] Studies show that fishermen usually get addicted to alcoholism and also to the use of tobacco products.^[8] Sometimes, there may also occur rapid fluoride poisoning in the coastal areas which leads to a common dental problem “fluorosis.”^[9] Fluoride is associated with the mineralization of teeth^[10] and hence is also connected with caries. Furthermore, the dietary intake of fishermen includes very minimal fruits and vegetables and there is no regular interval between their food intakes.^[11]

Fishing communities come under lower socioeconomic status and are poorly educated. Their illiteracy makes it difficult for them to understand the importance of maintaining good health and proper oral hygiene. They easily get addicted to cigarettes and other tobacco products which are hazardous to oral health. Due to their low socioeconomic status, it makes it difficult for them to have regular dental visits. There is a lack of awareness among the fishing communities about fluoride and its relation with

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caries. Furthermore, there is no information regarding the intake of carbohydrate food among fishermen. Direct carbohydrates like sweets have a direct effect on producing caries.

Thus, the aim of this study was to assess the knowledge, attitude, and practices on oral hygiene status, dietary habits, presence of dental plaque, and caries among fishermen.

MATERIALS AND METHODS

A dental camp was organized at Kokilamedu village (near Mahabalipuram), Chennai, Tamil Nadu, India. A thorough examination of the oral cavity was performed and the caries status was assessed using the decayed, filled, and missing tooth (DMFT) index. A survey was also conducted to assess their knowledge on oral care, fluoride, and its role in preventing caries. The survey included questions on their dietary and lifestyle habits to check whether they are in any way associated with their caries status.

Permission was obtained from the ethical board of Saveetha Dental College, Chennai, India to conduct a camp. A written informed consent was obtained from the participants in this study. A total of 65 subjects (40 males and 25 females) were participated in this study.

Clinical Examination

Clinical examination was carried out according to the guidelines provided by the WHO.^[12,13] Caries status in a population has traditionally been described by the DMFT index. Thus, DMFT index was used to assess the caries status.

Questionnaire Details

The questionnaire contained the following criteria.

Personal information and contact information

This includes details such as name, age, gender, and contact number.

Oral hygiene practices

This included questions which help to understand their oral hygiene practices such as brushing techniques, frequency of brushing, and frequency of rinsing. This helps us to understand their knowledge and awareness about the importance of maintaining good oral health.

Lifestyle

It is believed that people belonging to fishing community are more addicted toward adverse habits. This part of the questionnaire stressed on their adverse habits such as cigarette smoking, alcohol consumption, and use of other tobacco products.

Dietary habits

This included questions which help us understand their dietary habits, carbohydrate intake, and their knowledge about the relation between sugars and caries.

Knowledge about fluoride and its relation with caries

The data were coded and entered into Microsoft Excel spreadsheet. The data were analyzed and charts were made for each question.

RESULTS

Clinical data were collected from 65 participants, among which 45 were males and 25 were females. The data were then analyzed and have been tabulated along with charts for each question. Table 1 shows the the number of participants based on gender, age, and educational status. 69.23% of the participants were males and 38.43% were females. Majority of the participants (36 participants, i.e., 55.38% of the total sample) were uneducated. 36 participants, i.e., 55.38% were below 20 years. 30.77% of the participants were between 21 and 40 years, 10.77% of the participants were between 41 and 60 years of age, and 3.08% were above 60 years.

Graph 1 shows the brushing techniques followed by the people belonging to fishing community. 93.8% of the participants, i.e., 61 members used toothbrush and toothpaste for brushing followed by 4.61%, i.e., three participants used neem sticks for cleansing their teeth and one participant (1.54%) used a hand for brushing.

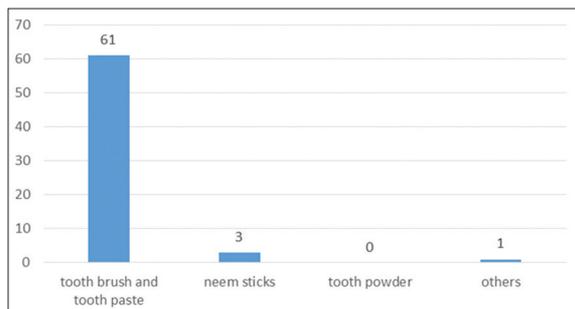
The frequency of their brushing is shown in Graph 2. Majority of the participants 75.38% (30 males and 19 females) brushed only once a day and the remaining 24.62% (10 males and 6 females) brushed more than once per day.

Majority of the population (88%, i.e., 57 members) had the habit of rinsing mouth after every meal. The remaining 12%, i.e., 8 members never had the habit of rinsing their mouth. This is shown in Graph 3.

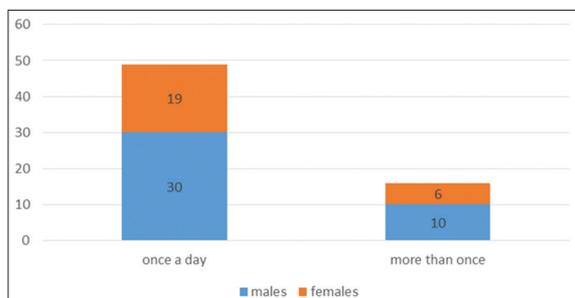
Graph 4 shows the history and frequency of dental visit. 40 participants (61.54%) admitted that they have never visited dental clinic. 23 participants (35.38%)

Table 1: Number of participants based on gender, age, and educational status

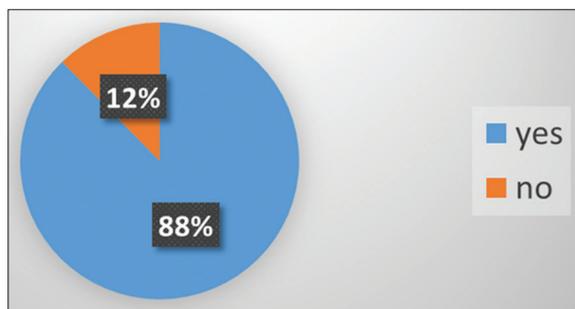
Gender	Age (years)	Educational status
Male	<20	School 27
	21-40	College/ Diploma 2
Female	41-60	Uneducated 36
	>60	



Graph 1: Brushing techniques



Graph 2: Frequency of brushing



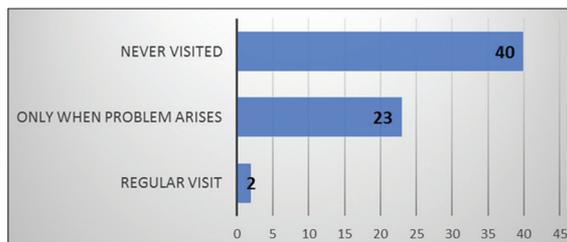
Graph 3: Habit of rinsing mouth after every meal

visited dental clinic only when problem arises, and two participants (3.08%) visit dental clinic regularly.

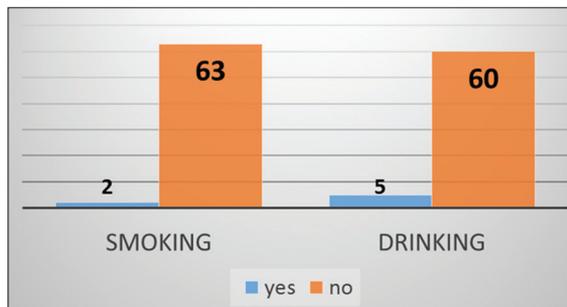
Graph 5 shows their adverse habits. Only two among the 65 (3.08%) admitted that they are habitual smokers and only 5 among 65 participants (7.69%) consumed alcohol. None of the participants used any other tobacco products apart from cigarettes.

When enquired about their major form of diet, the responses obtained were combinations of different forms of food. Hence, the multiple responses were shown in percentage and are shown in Graph 6. Their major form of diet was seafood and meat (69%), followed by vegetables and fruits (20%), rice and chapattis (6%), and others (5%). Others included fried food, fast food, and other unhealthy foods.

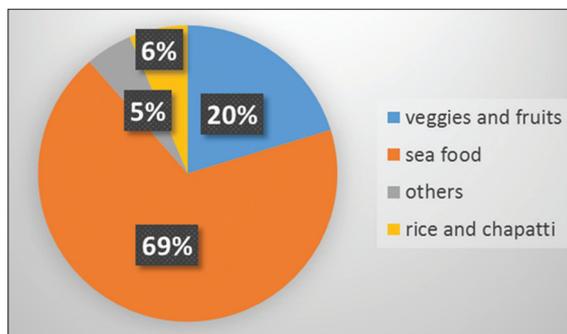
About 64.61% of the participants (23 members) admitted that they craved more for sweets. Their intake of sugary foods was also high. The remaining 35.38% of the population (23 members) did not crave



Graph 4: History of visiting dental clinic



Graph 5: Adverse habits

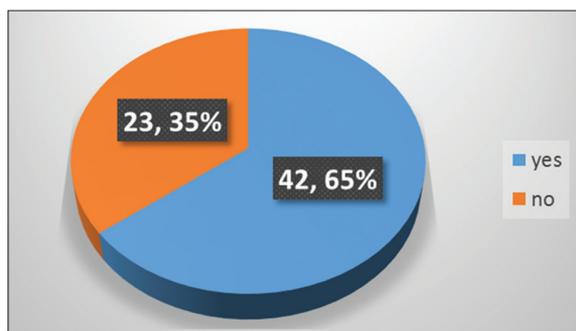


Graph 6: Major diet source

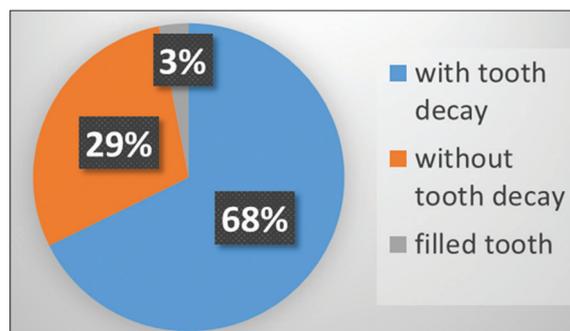
for sweets and consumed less amount of sweets. This is shown in Graph 7.

Graph 8 shows their knowledge and perception on the relation between increased sweet consumption and development of caries. When asked about the relationship between caries and sweets, 93.84% of the participants, i.e., 61 members out of 65, said that increased sweet consumption is associated with caries and the remaining four participants (6.15%) believed that increased sweet consumption is in no way associated with caries development.

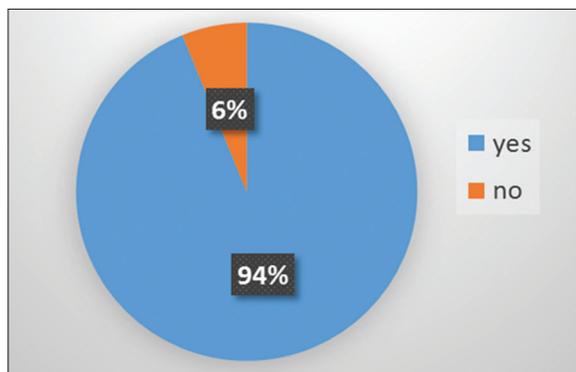
After clinical examination and evaluation of the DMFT index, it has been found that 67.69% of the study population, i.e., 44 participants were diagnosed with caries. 3.08% of the study population, i.e., two participants had one or more than one tooth filled and 19 participants (29.23%) had no carious teeth. This is shown in Graph 9. Graph 10 shows the caries status among different age groups. Among the 36 participants below 20 years, 17 participants (47.22%) had caries involving <5 teeth. 13 participants (16.67%) had caries



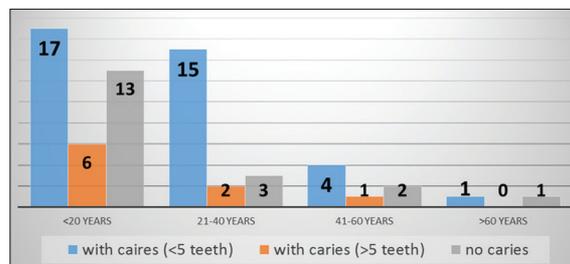
Graph 7: Sweet consumption



Graph 9: Caries status



Graph 8: Knowledge about the relationship between sweets and caries



Graph 10: Caries status with respect to age

involving more than five teeth and 13 participants (36.11%) had no caries. Similarly, among the 20 participants belonging to the age group 21–40 years, 15 participants (75%) had caries involving <2 teeth, 2 participants (10%) had caries involving >5 teeth, and 3 participants (15%) had no caries. Among the 7 participants belonging to the age group 41–60 years, four had caries involving <5 teeth, 1 participant had caries involving >5 teeth, and 2 participants had no caries. In the final group with two participants above 60 years of age, one participant had caries involving <5 teeth and the other participant was devoid of caries.

Two questions were asked to assess their knowledge and awareness about fluoride. Not even a single participant, among the study population, had the knowledge about fluoride and its role in preventing caries. There was a complete lack of knowledge and awareness about fluoride.

DISCUSSION

The results of this study show that there is a high prevalence of caries among the fishing community. After clinical examination, 44 participants of 65 (67.69%) were diagnosed with caries. Their low socioeconomic status and educational status add to their negligence toward oral health. The frequency of brushing their teeth was poor. The rich carbohydrate diet correlates with the high prevalence of caries

among the fishing community. Furthermore, there is a lack of awareness among the fishing community about fluoride and its relation with caries.

The unevenly distributed subjects among different age groups in the present study and also in the previously reported studies are considered as a limitation for a valid comparison between different age groups in epidemiological researches. In this study, majority were below 20 years of age (36 participants) and the least number of participants (2 participants) belonged to the age group above >60 years.

Majority of the study participants (93.8%) used toothbrush and toothpaste for cleaning their teeth, which is in contrast with the study done by Asawa *et al.*,^[14] in fishermen and non-fishermen community in Kutch district, India, where majority of the fishermen community (43.1%) used chew sticks for cleaning their teeth. Furthermore, in a study done by Kumar *et al.*,^[15] nearly one-third of the population used materials other than toothpaste with toothbrush for cleaning their teeth. The results were in concordance with a study done by Sakthi *et al.*,^[16] where the usage of toothpaste and toothbrush was high. 75.38% of the study participants brushed only once a day. This is in accordance with the study done by Sakthi *et al.*^[16] but in contrast to the study results of Kumar *et al.*,^[15] where the study population cleaned their teeth sometimes or never.

Almost 88% of the study participants had the habit of rinsing their mouth after every meal. This is an age-old technique followed in India to keep their oral cavity clean. As said, this habit of rinsing the mouth after

every meal was followed by all the adults in the study population. The remaining 12% of the participants who did not practice this habit were children.

The study results show that majority of the population (61.54%) had never made a visit to the dentist. 33.38% of the study population visit dental clinic only when problem arises. This clearly depicts their low socioeconomic status to have frequent dental visits. The study population showed less prevalence of cigarette smoking and alcohol consumption (3.08% and 7.69%) which is in contrast with the studies done by Asawa *et al.*^[14] and Townsend *et al.*,^[17] where tobacco usage was high and subsequently increased with age.

Almost 67.69% of the population were diagnosed with caries and 3.08% were found with filled teeth. Prevalence of caries was more among the subjects belonging to age groups 21–40 years and below 20 years. The study results were different compared to study results by Asawa *et al.*,^[14] where the prevalence of dental caries was high among fishing community (82.6%). Furthermore, in a study done by Meghashyam *et al.*,^[18] there was a high prevalence of dental caries. The major diet source of the population was found to be seafood and meat. This was enquired to find any correlation between their diet habits and prevalence of dental caries. The high prevalence of caries can be correlated with their major diet source, i.e., seafood and meat. The poor educational status may also be a factor for negligence toward oral health. The study population was enquired about their sweet cravings. 64.61% admitted that they crave for sweets and consumed more sweets. Thus, high intake of sugary food can also be a factor for their high caries prevalence as discussed in the studies done by Anaise^[19] and Sundin and Granath.^[20]

When asked about the relationship between caries and sweet consumption, majority of the study population (93.84%) believed in the fact that increased sweet consumption leads to dental caries. Two questions were asked to assess their knowledge about fluoride and its relation with caries. Surprisingly, none of the participants knew about fluoride. This clearly shows big lacunae in the society regarding the basic oral health education. More awareness has to be created by conducting frequent dental camps in such economically low areas.

CONCLUSION

From this study, it has been found that there is a high prevalence of caries among the fishing community and this can be correlated with their diet, which mainly includes seafood and sweets. Furthermore,

there is a complete lack of awareness about fluoride. More awareness has to be created among the low socioeconomic communities.

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