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A study to assess the oral health status and treatment needs of fishermen population in coastal region of Andhra

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ABSTRACT

The study was conducted in Vodarevu coastal village of Prakasam district of Andhra was selected by multistage sampling method. All the available 158 fishermen were examined with their consent. The oral health status was recorded on the WHO oral health assessment form 1991 (modified) and the examination was carried out under natural light by using mouth mirrors and CPI probe. Significant observation was that (35.6%) of the fishermen had oral mucosal lesions. The prevalence of dental caries high among fishermen (58.2%). The different stage of periodontal disease was higher among the fishermen (90.5%). Oral health status of fishermen was relatively poor with high caries prevalence (58.2%) poor periodontal health (90.5%) and high prevalence of oral mucosal lesions (35.6%). High prevalence of dental caries may be due do their high sweet consumption (80.4%) and poor oral hygiene practice (20.3%). High gutka (27.2%) and pan chewing habits (31%) might be the reason for higher oral mucosal lesions.

Keywords: Fishermen, Dental caries, Oral health status

INTRODUCTION

Health implies to the relative absence of pain and discomfort and a continuous adaptation and adjustment to the environment to ensure optimal function.[1] Health is multi-factorial, the factors which influence health lie both within the individual and externally in the society in which he or she lives. It is a truism to say that what man is and to what disease he may fall victim depends on a combination of two sets of factors his genetic factors and the environmental factors to which he exposed.[1]

Each disease has its unique natural history, which is not necessarily the same in all individuals Disease results from a complex interaction between man, agent and the environment.[1] Disease arises when there is maladjustment of the individual with his environment.[2] The health of workers in a large measure will also be influenced by conditions prevailing in their work place.[1] The occupation of fishing remains as hazardous as before[3] life at sea is one of stress: often difficult physical conditions, dislocation, isolation and less than ideal personal habits.[4] Fisherman have prolonged hours of continuous work, which are found to be correlated with high cigarette and alcohol consumption.[5] Diet is lacking in fruits and vegetables, and meals are eaten at very erratic intervals.[6]

Fishermen are prone to excess ultraviolet radiation due to constant exposure to sun.[7] Statistical studies in the past have shown that fishermen are prone to develop skin and lip cancer.[8] Previous studies have shown that subjective symptoms from the musculo-skeletal system are common among fishermen.[9] Crepitations in the shoulder tend to be more common among the fishermen. This indicates that heavy dynamic work and prolonged static work.[10] Osteoarthritis of the knee, among them may result from working and living in the vertical environment of a moving ship.[11]

The high prevalence of the cardiovascular risk factors was to be found related to ischemic heart disease and cerebrovascular illness. This may be influenced by poor eating habits, poor health awareness and other social and environmental factors which are common to seamen.[12] the high incidence of hypertension may be related to a higher sodium intake, accompanying high consumption of salted fish or to the higher prevalence of tobacco smoking.[13] Oral diseases seem to be the most common health problem of seafarers world-wide. Seafaring as an occupation

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may create a risk for the dental health during long sea voyages, the access of seamen to dental services is very limited and making regular checkups and treatment of caries is difficult.[14] Scurvy was once the number one killer of seafarers on long voyages.[15] Seamen have poor oral health when compared with that of general population.[16] Despite the dangerous nature of the fishing occupation, very little research has been conducted on fishermen's health and safety.[17]

Fishing is one such hazardous occupation, which involves irregular diet, stress, alcoholism, tobacco and pernicious habits. Fishermen have lower socioeconomic status and their illiteracy adds to their poor oral hygiene, which may influence general and oral health. The studies in India, related to oral health status and treatment needs of fishermen population are scanty. Hence an attempt has been made to assess the oral health status and treatment needs of fishermen population in coastal region of Andhra.

OBJECTIVES

- To assess the oral health status and treatment needs of fishermen population in coastal region of Andhra.
- To suggest possible measures to improve their present oral health status.

METHODOLOGY

The present study was carried out to assess the oral health status and treatment needs of fishermen in coastal regions of Andhra. Ethical clearance was obtained prior to the study. The study population was selected by multistage sampling method. The total number of coastal districts of Andhra was obtained from the geography department of Mysore University. Out of 10 coastal districts, Prakasam coastal district was randomly selected, from that district out of 56 Mandals, Chirala coastal Mandal randomly selected, from that Mandal out of 12 Gramma Panchyaths, Vodarevu coastal Gramma Panchyath randomly selected for the present study.
The permission to carry out the study and the information regarding the number of fishermen were obtained from the secretary of fishermen co-operative societies as well as village president. A schedule for the examination was prepared with a help of secretary of fishermen co-operative societies and village presidents and they in turn informed the study population about the study as well as the date, time, and the place of examination. The study involved completion of a predesigned questionnaire that collected information about age, sex, education levels, occupation, monthly income, diet, sweet consumption, the fishing frequency and duration. The questionnaire also included multiple option questions designed to collect the information regarding oral hygiene practices, personal habits, visit to dentist and reason for visit. The examination was conducted by a single examiner who was trained and calibrated in the Department of Community Dentistry, JSS Dental College and Hospital, Mysore. A group of 10 subjects were examined using mouth mirror and CPI probe on successive days in the Community Dentistry Department. The data on the oral health status was entered on a WHO Proforma (1997), then a group of 20 subjects with varying levels of oral diseases were examined on two successive days and the results were compared to know the diagnostic variability. Agreement for assessment was 90%.

The examination was done under natural light, using mouth mirror and CPI probe, with the study subject seated on an ordinary chair. All the instruments were sterilized by cold sterilization. The data on oral health status of the subjects was recorded on modified WHO proforma (1997). After the completion of oral examination, the examiner himself filled the questionnaire by asking the subjects questions in the questionnaire to ensure uniformity in data collection and to avoid misinterpretation of the questions by the study subjects. All the available fishermen of Vodarevu coastal village were examined during the period of the study. Thus the study population comprised of 158 fishermen ranging in age from 21 years to 59 years.

RESULTS

Study population: A total of 158 fishermen (50.6%) were examined. The distribution of study population is presented in Table 1

Study population with their age groups: A total of 158 study population were examined, the results reveal that, between 35 to 44 years there were 53.2% of the fishermen. The age wise distribution is presented in Table 2

Study population and their Mean age: The mean ages of fishermen along with S.D values were 39.35 ± 7.77. These trends are shown in Table 3

Sweet consumption among the study population: A significant association was observed between sweet consumption and fishermen. About 80.4% of the fishermen had the habit of sweet consumption. The differences were statistically significant (Bakery made sweets CC =0.314; P<.000; Homemade sweets CC =0.355; P<.000) (Table 4).

Study population and their Personal habits

a. Smoking: Fishermen were found to have maximum prevalence of smoking 88.6%. The

differences were statistically significant (CC =.0.065; P<.023) (Table 5)

b. Alcohol consumption: Fishermen were found to have maximum prevalence 85.4%. The differences were statistically significant (CC =.0.076; P<.008) (Table 5).

c. Gutka chewing: In gutka chewing fishermen were found to have maximum prevalence of gutka chewing 27.2% the differences were statistically significant (CC =.0.062; P<.031) (Table 5).

d. Pan chewing: Even in pan chewing fishermen were found to have maximum prevalence of pan chewing 31%. The differences were statistically significant (CC =.0.151; P<.000) (Table 5).

e. Tobacco: Fishermen were found to have maximum prevalence of Tobacco habit 7.6%. The differences were statistically significant (CC =.0.079; P<.006). These trends are shown in Table 5

Study population and their oral hygiene practices

A. Study population and their cleaning habits: Fishermen about 79.7% of them use Toothbrush, 6.9%, of them use finger and 10.8%, of them use both Toothbrush and finger. The differences were statistically significant (CC =.0.112; P<.000) (Table 6).

B. Study population and material used for their oral hygiene practices: Fishermen about 59.5%, of them use Toothpaste and 20.9%, of them use tooth powder and 10.8%, of them use both toothbrush and tooth powder and 8.9%, of them use other materials. The differences were statistically significant (CC =.0.187; P<.000) (Table 6).

Study populations and their Dental visit: Fishermen were found to visit a dentist minimum (15.2%). The differences were statistically significant. (CC =.0.112; P<.000) (Table 12).

Study population and their reasons for their visit: Among the Fishermen population, the most particular reason for visit was extraction, which constituted as much as 6.3% which was followed by 5.1% for replacement of the teeth, 2.5% for fillings and lastly 1.3% for other reasons. The differences were statistically significant (CC =.0.118; P<.000)(Table 7).

Oral mucosal lesions among study population: The overall prevalence of oral mucosal lesion among fishermen was 35.6% where in Ulceration 9.5%, Smoker's palate 8.9%, OSMF 5.7%, Leukoplakia 5.1%, Candidiasis 5.1%, and Lichen planus 1.3%. The differences were statistically significant (CC =.0.107; P<.031) (Table 8).

Periodontal status among study population: The prevalence of periodontal disease more among the fishermen (90.5%), healthy sextants 9.5%. Bleeding scores 15.8%, Calculus, segments among fishermen 42.4%, 4-5 mm scores more among fishermen 22.2%, 6 mm scores more among fishermen of 7%, The differences were statistically significant (CC =.0.161; P<.000) (Table 9).

LOA Scores among study population: The prevalence of Loss of attachment more among the fishermen (32.3%), The differences were statistically significant (CC =0.100; P<.031) (Tab20).

Study population and decayed, missing, filled teeth

a) Decayed teeth: The overall prevalence of dental caries among study population revealed that fishermen had high prevalence of dental caries 58.2% The differences were statistically significant (CC =.0.097; P<.001) (Table 11).

b) Missing teeth: In the entire study population, 49.4% of the sample had missing teeth. The association between missing teeth status and study group was found to be Non-significant (CC=. 025; P < .392). (Table 11).

c) Filled teeth: In the entire study population about 3.8% of the sample had filled teeth as against about 96.2% of the sample did not have filled teeth. Which is further confirmed by a significant Contingency coefficient (CC=0.082; P<.004). (Table 11).

Study population and their mean decayed, missing, filled teeth

a) Mean decayed teeth: Overall fishermen had 2.36 mean decayed teeth; when all these values were subjected to one-way ANOVA a significant difference was observed that fishermen found to have maximum decayed teeth (Table12).

b) Mean missing teeth: The mean missing teeth for fishermen were 1.39 respectively. One-way ANOVA revealed a significant difference among the mean values. (Table 12).

c) Mean filled teeth: A significant difference was observed in the mean filled teeth of the study population. The respective mean filled teeth for fishermen were 0.04 which statistically contributing for the significant difference. **(**Table 12).

d) Mean DMFT: A significant difference was observed when the mean DMFT scores were subjected to one-way ANOVA. F value of 3.396 is found to be significant at .017 levels. The respective mean DMFT values of fishermen are 3.79.We find maximum DMFT in fishermen. (Table 12).

Distribution of prosthetic status among the study population

Upper arch: Among total study population only 3.2% of them had prosthesis of upper arch . (Table 13).

Lower arch: Among total study population only 2.1% of them had prosthesis of lower arch (Table 13).

Distribution of the study population and their prosthetic need: The detailed analysis for fishermen revealed that 34.2% respectively of them had prosthetic need of upper arch. In the case of prosthetic need of lower arch 38% of fishermen required prosthetic need of the lower arch (Table 14).

Distribution of the study population and their treatment needs: Among the total study population the fishermen had treatment need for extraction, 40.5%, filling 22.2% and root canal treatment 9.4%. When the treatment needs were subjected to Contingency Coefficient test, a significant association was observed. Only For extraction (CC= 0.187; P<.000)(Table15).

Table – 1: DISTRIBUTION OF STUDY POPULATION

Fishermen	
No	**%**
158	100

Table – 2: DISTRIBUTION OF STUDY POPULATION ACCORDING TO AGE GROUPS

Age in years	Fishermen	
	No	**%**
Below 24	03	1.9
25-34	38	24.1
35-44	84	53.2
45-54	31	19.6
55 & above	02	1.3
Total	158	100

Table – 3: DISTRIBUTION OF STUDY POPULATION ACCORDING TO MEAN AGE

Mean Age	Fishermen
Number	158
Mean Age	39.35
Std. Deviation	7.77
Minimum	22
Maximum	57

TABLE – 4: DISTRIBUTION OF STUDY POPULATION ACCORDING TO SWEET CONSUMPTION

Sweet consumption	Fishermen	
	No	**%**
Bakery made		
No	31	19.6
Once a month	45	28.5
Twice a month	78	49.4
Occasionally	04	2.5
Total	158	100
Home made		
No	31	19.6
Once a month	89	56.3
Twice a month	34	21.5
Occasionally	04	2.5
Total	158	100

TABLE – 5: DISTRIBUTION OF STUDY POPULATION ACCORDING TO PERSONAL HABITS

Personal habits	Fishermen	
	No	%
Smoking	140	88.6
Alcohol	135	85.4
Gutka	43	27.2
Pan	49	31
Tobacco	12	7.6

TABLE – 6: DISTRIBUTION OF STUDY POPULATION ACCORDING TO ORAL HYGIENE PRACTICES

Oral hygiene practices	Fishermen	
	No	%
Cleaning		
Tooth brush	126	79.7
Finger	15	9.5
Both	17	10.8
Total	158	100
Material used		
Tooth paste	94	59.5
Tooth powder	33	20.9
Both	17	10.8
Others	14	8.9
Total	158	100

TABLE – 7: DISTRIBUTION OF STUDY POPULATION ACCORDING TO DENTAL VISIT

Dental visit	Fishermen	
	No	%
Dental visit		
No	134	84.8
Yes	24	15.2
Total	158	100
Reason for visit		
Not applicable	134	84.8
Extraction	10	6.3
RPD	08	5.1
Filling	04	2.5
Others	02	1.3
Total	158	100

TABLE – 8: DISTRIBUTION OF STUDY POPULATION ACCORDING TO ORAL MUCOSAL LESIONS

Oral mucosal lesions	Fishermen	
	No	%
No	102	64.4
Leukoplakia	08	5.1
Lichen planus	02	1.3
Ulceration	15	9.5
Candidiasis	08	5.1
OSMF	09	5.7
Smokers palate	14	8.9
Total	158	100

TABLE-9: DISTRIBUTION OF STUDY POPULATION ACCORDING TO PERIODONTAL STATUS

CPI	Fishermen	
	No	%
Healthy	15	9.5
Bleeding	25	15.8
Calculus	67	42.4
4-5 mm	35	22.2
6mm	11	7
Excluded	05	3.2
Total	158	100

TABLE – 10: DISTRIBUTION OF STUDY POPULATION ACCORDING TO LOA SCORES

LOA	Fishermen	
	No	%
0-3 mm	107	67.7
4-5 mm	35	22.2
6-8 mm	07	4.4
9-11mm	02	1.3
12mm+	02	1.3
Excluded	05	3.2
Total	158	100

TABLE – 11: DISTRIBUTION OF STUDY POPULATION ACCORDING TO DECAYED, MISSING, FILLED TEETH

Dentition Status	Fishermen	
	No	%
Decayed Teeth		
No	66	41.8
Yes	92	58.2
Total	158	100
Missing Teeth		
No	80	50.6
Yes	78	49.4
Total	158	100
Filled Teeth		
No	154	97.5
Yes	04	2.5
Total	158	100

TABLE – 12: DISTRIBUTION OF STUDY POPULATION ACCORDING TO MEAN DECAYED, MISSING, FILLED TEETH

Mean Dentition Status	Fishermen	
	Mean	S.D
Decayed Teeth	2.51	2.86
Missing Teeth	1.34	1.19
Filled Teeth	0.03	0.14
DMFT	3.88	2.76

TABLE – 13: DISTRIBUTION OF STUDY POPULATION ACCORDING TO PROSTHETIC STATUS

Prosthetic status	Fishermen	
	No	%
Upper		
No	153	96.8
Yes	05	3.2
Total	158	100
Lower		
No	155	98.1
Yes	03	2.1
Total	158	100

TABLE – 14: DISTRIBUTION OF STUDY POPULATION ACCORDING TO PROSTHETIC NEED

Prosthetic Need	Fishermen	
	No	%
Upper		
No	104	65.8
Yes	54	34.2
Total	158	100
Lower		
No	98	62
Yes	60	38
Total	158	100

TABLE – 15: DISTRIBUTION OF STUDY POPULATION ACCORDING TO TREATMENT NEEDS

Treatment needs	Fishermen	
	No	%
Extraction		
No	94	59.5
Yes	64	40.5
Total	158	100
Filling		
No	123	77.8
Yes	35	22.2
Total	158	100
Rct		
No	143	90.6
Yes	15	9.4
Total	158	100

DISCUSSION

Each disease has its unique natural history, which is not necessarily the same in all individuals Disease result from a complex interaction between man, an agent and the environment.[1] Disease arises when there is maladjustment of the individual with his environment.[2] Fishing is one such hazardous occupation which involves irregular diet, stress, alcoholism, tobacco and pernicious habits. Fishermen have lower socioeconomic status and their illiteracy adds to their poor oral hygiene, which may influence general and oral health. The present study was to assess the oral health status and treatment needs of fishermen population in coastal regions of Andhra, a modified WHO proforma (1997) and a questionnaire was used. A total of 158 study populations were fishermen group (Table 1). The overall mean age and S.D for fishermen group 39.35 ± 7.77. (Table 3).

Dental caries: In the present study, the caries prevalence of dental caries was (58.2%) high among the fishermen group (Table 11). This could be possibly due to the sweet consumption, poor oral hygiene practices and Dental visits. In the present study in fishermen group had higher sweet consumption (80.4%), poor brushing habits (20.3%) and lower frequency of dental visits (15.2%) (Table 4, 6 and 7). The previous study stated that the poor dietary habits including high consumption of sugar containing products were associated with dental caries.[18] Another study stated that the negative life style was more common in the lower social class with combined lifestyle variable, frequency of tooth brushing and frequency of dental visits were associated with dental caries.[19]

Mean decayed missing filled teeth: The mean decayed component among fishermen group was 2.36, (Table 12). The mean decayed teeth were more in fishermen group. The reason may be due to higher sweet consumption (80.4%) and poor brushing habits (20.3%) among fishermen group (Table 4 and 6). The mean missing component among fishermen group was 1.73. The mean filled teeth component in fishermen group was 0.04, (Table 12 Table 7). The mean DMFT was 3.79 among fishermen group (Table 12). The reason may be due to higher sweet consumption (80.4%) and poor brushing habits (20.3%) among fishermen group (Table 4 and 6).

Periodontal status: In the present study the prevalence of periodontal disease was higher among the fishermen (90.5%) (Table 9). In the present study fishermen group showed bleeding gums (15.8%), calculus (42.4%), pocket 4-5 mm (22.2%) and 6mm (7%) (Table 9). It was observed that higher percentage of calculus in fishermen. This differences may be due to higher prevalence of smoking (88.6%), alcohol (85.4%), pan chewing (31%), gutka chewing (27.2%), tobacco (7.6%) and also poor oral hygiene (20.3%) among fishermen group (Table 5 and 6).

Loss of attachment: The percentage of fishermen with loss of attachment due to periodontal diseases was higher (32.3%) (Table 10). This difference may be due to higher prevalence of smoking (88.6%), alcohol (85.4%), pan chewing (31%), gutka chewing (27.2%), tobacco (7.6%) and also poor oral hygiene (20.3%) among fishermen group (Table 5 and 6). This finding were in conformity with the earlier study which concludes periodontal pocketing increased with diminishing tooth brushing frequency and an unhealthier life style.[20] An another study stated that the habit of smoking is a significant risk factor for probing attachment loss.[21]

Oral mucosal lesions: In the present study higher percentage of oral mucosal lesions observed in fishermen group (35.6%) (Table 8) which may be due to higher prevalence of smoking (88.6%), alcohol (85.4%), pan chewing (31%), gutka chewing (27.2%), tobacco (7.6%) and also poor oral hygiene (20.3%) among fishermen group (Table 5 and 6). This is in agreement with the previous study conducted on the use of tobacco and betal quid and they observed that the use of pan may render people susceptible to oral mucosal changes.[22] The prevalence of leukoplakia among fishermen (5.1%) was more (Table 8). This is in agreement with the previous study which reported that the prevalence of leukoplakic lesions was highest (23.5/1000) among people with mixed habits.[23]

Prosthetic status: The prosthetic status among the fishermen group upper arch (3.2%) and lower arch (2.1%) (Table 13).

Treatment needs: The percentage of fishermen needing extractions was 40.5% could be due to more extensive lesions which are not suitable for restorations among the fishermen group (Table 15).22.2% of the fishermen needed fillings. Root canal therapy for fishermen was 9.4% (Table 15).

Prosthetic need: In the present study a significant difference was found in fishermen group The prosthetic need for upper and lower arches among fishermen was 34.2% and 38% (Table 14). The difference may be due to less percentage of fishermen group who visited the dentist for prosthetic rehabilitation (5.1%) (Table 7). An earlier study concluded that low socio-economic subjects were in greater need of dentures.[18] In the present study almost all the study subjects needed oral prophylaxis.

CONCLUSION

1. Oral health status of fishermen population was relatively poor with high caries prevalence and poor periodontal health.
2. Hazardous occupations, unscheduled working hours, job related stress, pernicious habits like alcoholism, smoking, pan, gutka and tobacco. Irregular diet due to lack of availability of home cooked food, lower awareness levels and socioeconomic status seemed to influence the oral health status of the fishermen population.
3. Extensive unmet dental treatment needs which mainly included extractions, root canal treatments,, fillings, and prosthetic

rehabilitation were required for fishermen population.

4. Almost all the study population required oral prophylaxis.

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