BEHAVIORAL RISK FACTORS FOR ORAL CANCER AMONG FISHERMEN IN THRISSUR DISTRICT, KERALA, INDIA

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ABSTRACT

Background: Incidence rates of oral cancer in India are among the highest in the world mostly associated with lifestyle and food habits. Oral pre malignancies are also very common in tobacco users and about 10% of these undergo malignant transformation.

Aim: The aim of the study was to assess the socio-demographic factors and magnitude of behavioral risk factors of fishermen population of Trissur district, Kerala, India.

Materials and methods: A descriptive cross-sectional survey was conducted using a pre-designed and pre-tested questionnaire to assess the usage of alcohol, tobacco and its products among the fishermen community of Trissur dist, Kerala, India, from May 2014 to August 2014.

Results: The study showed low socioeconomic (80.3%) and educational status (20.4% illiteracy) among the fishermen folks. The highest prevalence of tobacco smoking (40%), alcohol consumption (42.3%) and chewing tobacco (55%) was found more in age group of above 60 years. However pan masala use is highest among the men of age group of 20-40 years. (p = 0.001).

Conclusions: The study results indicated high proportion of behavioral risk factors among fishermen subjects. Because of this high level of addiction to risk factors they are at increased risk of being oral cancer victims. We recommend health education for health promotion and immediate and effective implementation of national programs for tobacco and alcohol control policies.

Key Words: Alcohol, Fishermen, Oral cancer, Tobacco products

INTRODUCTION

With a coastline over 8000 km, with ranking 7th all over world, and with extensive freshwater resources, fisheries play a vital role in India. Fisheries employs over 14 million people which makes it a major industry in Indian coastal states.

Though, fishing is one of the main occupations in the coastal states of India which occupies a large population, still there has not been enough research on people employed in this occupation on their oral health. Underemployment, low income, harsh weather, mental stress among fishermen with dangerous working conditions all of which are associated with individual inability to maintain economic control of fishing operations.

Ministry of Fisheries Department in India has taken a number of measures on improving safety of fishermen. However there are no occupational health services for fishermen, and there is no mandatory oral health screening for fishermen.

Most of the risk factors for oral cancer have been identified as the lifestyle of fishermen folk in Kerala. Extensive use of tobacco in various forms like smoking, chewing and pan masala together with alcohol consumption, makes the population more vulnerable for oral cancer.[1] Available studies confirm that such lifestyle is alarmingly adapted by the adolescents and young adults, which may lead to deterioration of oral health in particular and systemic health in total.[2,3]

Since 1998, data has shown an increase in sales and the affordability of tobacco despite the implementation of several tobacco control policies.[4,5]

The increase in popularity of both cigarette smoking and drinking required our attention as we found an association between the two.

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Received: 19.01.2015 Revised: 08.02.2015 Accepted: 27.02.2015
Most studies examined tobacco smoking and alcohol drinking behaviors separately among the Indian population. Few studies which examined the concurrent use of tobacco and alcohol found that smokers have a higher likelihood to drink alcohol than nonsmokers and vice versa. Tobacco chewing is practiced in different ways in India. Several studies have shown the significant risk for oral cancer among tobacco chews.

Habit of using tobacco products in various forms are studied extensively in many cohorts of India and implementation of tobacco and alcohol control policies have been started in many parts of India. However oral cancer risk factors among the fishermen population in Kerala, India has received less attention. Extension of tobacco control policies among fishermen in coastal areas of Kerala are not existing. The fact that the use of tobacco other than smoking will not impose any public annoyance and easy availability of these in neighboring shops make its use very popular among the fishermen. Though the risk factors for oral cancer has been studied and reported widely, its use varies from region and cohorts. For the best of our knowledge, limited occupational epidemiologic studies are available which deals with lifestyle risk factors for oral cancer and its prevalence among fishermen in Kerala.

Fishermen population of Kerala is 1 million and in Thrissur district, total number of marine and inland active fishermen is 10,0210 with low socioeconomic status. It has been reported that socioeconomic condition of fishermen folks in Kerala is one of the most backward in India.

The current study was undertaken with the view to study the prevalence of use of tobacco and its products along with alcohol among fishermen folks in two Panchayats of Chavakkad taluk, Kerala, India.

**MATERIALS AND METHODOLOGY**

The present community based descriptive epidemiological study was conducted on fishermen during May 2014 to August 2014, after taking prior approval from higher authorities in Chavakkad taluk of Trissur district, Kerala, India and after getting ethical clearance from the institutional human ethics committee in Noura University. The study was conducted in two coastal villages. 600 fishermen were randomly interviewed for the study. The survey of study area was carried out with the help of a Medical Social Worker and Volunteers of Indian Medical Association.

The anonymous, self-administered questionnaire used for data collection was developed after extensive content-setting interviews with fishermen, oral diagnosis specialist, Medical Social worker and an Occupational Physician. The questionnaire explored a range of health and dietary issues, use of various tobacco products, alcohol consumption. Demographic details such as age, socio-economic status, marital status, education were included. Information on type of job, total years of occupation, number of hours in the sea, frequency of going into the sea were collected. Written informed consent was obtained from participating subjects.

A pilot study was carried out among 40 fishermen to determine the practicability of the study and the time required for examination of each subject. Based on the findings of pilot study, appropriate corrections were made in final interview questionnaires. Out of total 645 fishermen, 45 fishermen were excluded (based on inclusion and exclusion criteria) and 600 fishermen were enrolled for main study. Each worker was interviewed using pretested, preformed interview schedule.

**Statistical method:**

Collected data was entered in Microsoft excel 2007 and analyzed using SPSS 20.0 version. Mean, percentages and Chi-square were analyzed statistically. Confidence limit for significance was fixed at 95% level with p value less than 0.05.

**RESULTS**

The socio-demographic characteristics of the participants are given in Table 1. A total of 600 fishermen from two randomly selected Panchayats of Chavakkad Taluk participated in this cross-sectional study. Of the total, 329 were of age group 20-40 (54.9%), 175 were of age group 41-60 (29.1%) and 96 (15.9%) were above 60 years of age. Among them the number of marine and inland active fishermen were 546 (91.3%). Study showed illiteracy level of 20.4% among the fishermen folk. There were 266 (44.3%) subjects went for primary education, 182 (30.4%) for high school and 30 (4.9%) went for higher secondary education. According to Kuppuswamy Socio-economic status scale, low socioeconomic status was reflected with 482 subjects (80.3%) who had income less than 750 Rs per day.

Table 2 describes the age specific prevalence of using oral cancer risk factors among fishermen folk under our study. Tobacco smoking addiction was seen in 29% fishermen, while 23% fishermen were smokeless tobacco chewers and 33% ate pan with or without tobacco. The prevalence rate for tobacco smoking observed was highest among participants in the age group of above 60
years (40%), followed by 41-60 years (33.3%). In the present study, the least prevalence observed was in the age group of 20-40 years (26.6%).

The probability of consuming Tobacco in any form increased with age of the respondent and being alcoholic at present. But highest prevalence of pan chewing was found in younger age group of 20-40 years (54%).

Of the total subjects with alcohol consumption habit, 42.3% were above 60 years. The least prevalence was for 20-40 year age group with 25.5% though the total alcohol consumption habituées were 47%.

**DISCUSSION**

According to World Health Organization (WHO), cancer rates in India are considerably lower than those in more developed countries. But the incidence rates for oral cancer in India are among the highest in the world, mostly associated with diet and other lifestyle factors.[10]

The majority of oral squamous cell carcinomas are related to tobacco, alcoholism and areca nut / betel quid chewing. In the coastal belt of India, use of tobacco and areca nut, either alone or in combination, accounts for the vast majority of oral cancers and oral potentially malignant disorders.[11]

A community based descriptive epidemiological study on various harmful substance addictions along with variables associated with it among fishermen in Southern-East Costal area of Mumbai observed that rate of smoking and alcohol consumption was very high among fishermen.[12] The authors found that alcohol and tobacco consumption were significantly associated with age, type of job, job stress, job satisfaction and depth of fishing. Misbelief of 'tobacco and alcohol consumption increases work efficiency' was prevalent among them. In this study also the alcohol consumption increased as age advanced. Prevalence of alcohol consumption was steadily increased among the age group of 60 and above (42.3%).

But, in a case control study, Schmidt A et al. found that the experience of occupational stress factors reduced the likelihood of nicotine dependence in currently smoking and employed participants. One possible explanation for this is that a heavy workload may drive employees to smoke in their spare time only. Another reason may be the growing number of workplace smoking bans leading participants to reduce their consumption.[13]

All over the world many studies have shown that tobacco and alcohol consumption is very prevalent among fishermen. In our study, 174 (29%) fishermen were tobacco smokers at the time of interview. Tobacco consumption in the form of pan masala and chewing tobacco was observed among 198 (33%) and 138 (23%) fishermen respectively. Gantayat et al. reported, more than quarter of the fishing community was addicted to alcohol along with more than three fourth of fishermen were addicted to various forms of tobacco in Gopalpur.[14] Among Scottish fishermen, Lawrie et al. found 80.6% alcoholic and 38.4% smokers.[15]

15 Nikita et al studied on Selected Medical and Social factors and alcohol drinking in polish seafarers. They found alcohol dependency among 5% and smoking in 72.9% fishers.[16]

An important finding is the observation that the vast majority of chewers began using betel quid after having already started smoking, thus smoking appears to be a “gateway” for betel quid chewing. However, the present study has shown age specific high prevalence of tobacco smoking habit among age group of above 60 year subjects (40%). Townsend et al.[17] and Kailash A et al.[18] also portrayed a similar pattern and attributed this finding to the fact that youth generally have relatively low incomes with a high proportion of it available for discretionary expenditure, so that changes in income are more likely to affect their tobacco consuming patterns.

Freeze dried betel quid substitutes, such as pan masala, conveniently packaged in portable sachets, have become increasingly popular because of their easy availability and do not require preparation before use. The areca nut concentration in these preparations are more than the conventional betel quid. Areca nut products are easily available even in the small shops in Kerala, India. This makes the product more accessible for the youth to start the habit even from school days. Several studies conducted in schools and colleges in various states of India have reported that 13-50% of students chew pan masala and gutka.[19,20] Adolescents started chewing mostly at age 17-20, immediately after high school, along with tobacco smoking. Thus our finding is highly significant that 54.7% of subjects in 20-40 age group have a habit of pan chewing. This study revealed that pan masala chewing was highly prevalent among the younger age group (54.7% and 33% respectively among 20-40 and 41-60 years.

The strong and intriguing relations between the use of different tobacco products and alcohol use found in this paper could have profound public health implications. This is an occupational epidemiological study which showed a great risk of oral cancer in fishermen using alcohol and tobacco products in various forms. Our findings indicate that tobacco use and alcohol cannot be separated among fishermen folk, either from a behavioral perspective (virtually all alcoholics were smokers) or from a health perspective (the combined effect of alcohol and smoking).
Limitation of this study: Fishermen population of two panchayats were only covered. Future research should include prospective studies with larger population of fishermen folks from other coastal areas of Kerala need to be covered and compare the results of present study.

CONCLUSION

We observed that rate of tobacco and alcohol consumption was very high among fishermen. Many of fishermen were consuming alcohol without having knowledge of safe level of alcohol consumption. Mainly because of the ignorance and negligence about the harmful effects of tobacco products and alcohol, the fishermen folks get addicted to these habits. Even at an early age, they are habitués of risk factors for oral cancer. Fishermen may benefit from periodical oral health promotion and education in the area of smoking and alcohol consumption to raise their awareness about the influence of these risk factors on oral malignancies. They should be made aware of the existing smoking and alcohol control policies.

ACKNOWLEDGEMENT

Authors acknowledge the immense help received from the Panchayat authorities and Indian Medical association, Tricur for conducting this study. The authors are also grateful to great support from deanship of research, Princess Noura University, Riyadh, Kingdom of Saudi Arabia for the publication. Authors acknowledge the immense help received from the scholars whose articles are cited and included in references of this manuscript. The authors are also grateful to authors/editors/publishers of all those articles, journals and books from where the literature for this article has been reviewed and discussed.

REFERENCES

Table 1: Depicts Socio demographic profile of the study population.

<table>
<thead>
<tr>
<th>Socio demographic profile</th>
<th>Number</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age</td>
<td></td>
<td></td>
</tr>
<tr>
<td>20-40</td>
<td>329</td>
<td>54.9%</td>
</tr>
<tr>
<td>41-60</td>
<td>175</td>
<td>29.1%</td>
</tr>
<tr>
<td>Above 60</td>
<td>96</td>
<td>15.9%</td>
</tr>
<tr>
<td>Total</td>
<td>600</td>
<td>100%</td>
</tr>
<tr>
<td>Occupation</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Fishing</td>
<td>546</td>
<td>91.13%</td>
</tr>
<tr>
<td>Other</td>
<td>54</td>
<td>8.9%</td>
</tr>
<tr>
<td>Education</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Illiterate</td>
<td>122</td>
<td>20.4%</td>
</tr>
<tr>
<td>Primary</td>
<td>266</td>
<td>44.3%</td>
</tr>
<tr>
<td>High school</td>
<td>182</td>
<td>30.4%</td>
</tr>
<tr>
<td>10th &amp; above</td>
<td>30</td>
<td>4.9%</td>
</tr>
<tr>
<td>Income</td>
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<tr>
<td>Less than 750 Rs/day</td>
<td>482</td>
<td>80.3%</td>
</tr>
<tr>
<td>More than 750 Rs /day</td>
<td>118</td>
<td>19.7%</td>
</tr>
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</table>

Table 2: shows age specific prevalence of using oral cancer risk factors.

<table>
<thead>
<tr>
<th>Age group</th>
<th>Tobacco smoking</th>
<th>Alcohol</th>
<th>Pan masala</th>
<th>Smokeless/chewing tobacco</th>
</tr>
</thead>
<tbody>
<tr>
<td>20-40</td>
<td>46(26.6%)</td>
<td>72(25.5%)</td>
<td>108(54.7%)</td>
<td>18(12.2%)</td>
</tr>
<tr>
<td>41-60</td>
<td>58(33.3%)</td>
<td>91(32%)</td>
<td>65(33%)</td>
<td>47(33%)</td>
</tr>
<tr>
<td>Above 60</td>
<td>70(40%)</td>
<td>119(42.3%)</td>
<td>25(12.4%)</td>
<td>73(55%)</td>
</tr>
<tr>
<td>Total</td>
<td>174(29%)</td>
<td>282(47%)</td>
<td>198(33%)</td>
<td>138(23%)</td>
</tr>
</tbody>
</table>