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**ORIGINAL ARTICLE****Effectiveness of cancer literacy activities in motivating rural men of Satara district for screening of oral cancers**

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**Abstract**

*Background:* Oral cancer is one of the most common cancers in India. Prevalence of tobacco use in both urban and rural areas in the form of smoking, chewing Gutakha use is very high. *Aim and Objectives:* To study the effectiveness of cancer literacy activities in motivating rural men of Satara district. *Material and Methods:* For creating awareness among rural population of Satara district of Maharashtra, India Cancer Literacy Satara Initiative was started by Health Department of Zilla Parishad, Satara, in collaboration with Krishna Institute of Medical Sciences “Deemed to be University” (KIMSUDU) Karad, from 2017 to 2019. Experiences about awareness programme for men about oral cancer are presented in this paper. Out of 11 talukas of Satara District, four talukas were taken up for this project, two talukas in the vicinity of KIMSUDU and two far away. A schedule of visits by mobile team of experts from KIMSUDU was planned to cover 33 Primary Health Centers (PHCs) from these talukas in collaboration with medical officers of these PHCs. Knowledge, Attitude and Practice (KAP) study, followed by health education and screening of the males aged above 30 years was carried out. During first round of visits of mobile team KAP survey was carried out along with Information, Education and Communication (IEC) and screening activities. From second round onwards only IEC and screening activities were continued. *Results:* There were 165 males who attended the awareness programme. KAP study revealed that 12% were totally ignorant about causation, risk factors, screening, and prognostic aspects of oral cancers. More than 50% were unaware that females were also at risk, and chewing of tobacco and consumption of gutakha were associated with oral cancer as well as the fact that cancer of the tongue is associated with many complications like the inability to speak and swallow food. Over 64% knew association of smoking and oral cancer. Screening was done after IEC activities in 473 males, 165 of which were subjected to KAP study, 83 were found with non-healing ulcers and leukoplakia and were referred for further management. Limitations of this research study was that some of the men identified for the awareness activity organized by PHCs could not attend it due to problems related to job and loss of daily wages. *Conclusion:* The Health Care Workers (HCW) males could be trained to screen oral cancer with inspection and clinical examination of the oral cavity for precancerous and cancerous lesions. Motivation of all men for undergoing screening after attending Health Education sessions at PHCs is possible. For those who missed these sessions, the trained HCWs could screen them when they next came to the PHCs or during routine home visits of these HCWs.

**Keywords:** Knowledge, Attitude and Practice, Health Education, Oral Cancer

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## Introduction

Cancer of oral cavity is widely prevalent in central and south Asian countries including Indian subcontinent. In India, it is the second most common cancer among men and fifth most common cancer among women. Disability-Adjusted Life Years (DALYs) lost in both sexes combined due to oral cancer is 7.2 %. In the year 2016, it was responsible for 41,200 deaths among males and 17,800 deaths among females [1]. Use of tobacco and consuming alcohol are the most important causative factors. A long precancerous stage precedes the development of cancer. Therefore, an early diagnosis of characteristic leukoplakic precancerous lesions is possible by inspection and clinical examination of oral cavity. If detected early the possibility of treatment and cure is very high. A high mortality is associated with late diagnosis and survival rate is directly related to the stage of cancer at diagnosis [2-5]. The use of tobacco in the form of smoking of cigarettes or bidis or use of Mishri-tobacco containing teeth cleaning powder is common among rural men who are less likely to know the risk factors, early signs and symptoms of oral cancer. Hence 'Cancer Sakshar Satara Abhiyan' that is 'Cancer Literacy Satara Initiative' was started in Satara District of Maharashtra, India by Health Department of Zilla Parishad, Satara, in collaboration with Krishna Institute of Medical Sciences "Deemed to be University" (KIMSUDU), Karad in 2017 and continued till 2019. Three common cancers were selected for IEC and Screening activities among women, namely cancer of breast, cervix, and oral cavity while for men only oral cancer site was selected for IEC and screening activities. Our experience of this programme of IEC activities, motivation, and screening of oral cancer among the

men from selected PHCs of Satara district are described in this paper.

## Material and Methods

Satara is one of the South Western districts of Maharashtra, India with around 85% rural population spread over 11 talukas. Four talukas were taken up for the study, two talukas nearby to KIMSUDU, Karad vicinity of thirteen kilometers (Karad and Patan) and two far away talukas namely Man and Khatav at a distance of about sixty-five kms. Meetings of District Health Officer (DHO), medical officers of these PHCs and research team from KIMSUDU were organized to plan the activities under this project of 'Cancer Literacy Satara Initiative'. A mobile team of doctors from KIMSUDU, consisting of Principal Investigator (PI), Co-Principal Investigator (Co-PI), a surgeon, two senior residents of surgery and two staff nurses visited the PHC on prefixed scheduled day of the activity. Information about the project was to be given by the trained field level HCWs to all men above the age of 30 excluding those men who had been already diagnosed as cases of oral cancer. The hands on training to the HCWs was given by the surgeons/senior residents from the Surgery Department. Consent was taken for Knowledge Attitude Practice (KAP) study.

Those men who were willing to participate in the KAP study and the screening for early cancer or precancerous lesions were invited for the group activity organized by the medical officers of the given PHCs on the given scheduled day. WhatsApp group was formed to facilitate communication of the scheduled day and time of visits and changes in the schedule if required. Medical officer of concerned PHC was to organize all the activities of that PHC. A questionnaire was

prepared by the expert surgeons and pretested on the patients attending surgical OPD after taking consent, in which information about selected sociodemographic factors such as age, education, occupation and colour of ration card as a proxy for economic status was collected. There were 12 questions related to knowledge, attitude and practice about risk factors, etiology, screening, early diagnosis and treatment aspects of oral cancer (Table 1). One mark was allocated to each question. No negative marking was done. The questionnaire was filled by the men participating in the study and if there was any difficulty in understanding of questions or illiteracy of the person, the questionnaire was filled by the nurse midwife of the PHC who was given training in filling up of proforma from the subject without influencing her own opinion.

The men attending the screening programme activity were given health education related to oral cancer with the help of charts and audiovisual aids prepared specifically for the project by the KIMSUDU experts in surgery. The health educational sessions included the information related to the risk factors, causative agents, common pre-

cancerous and cancerous lesions, early diagnosis, common sites, and possible treatment options. Informed written consent was obtained from the participants who were willing for oral cancer screening. It was expected that about 20 to 25 men would attend this health education and screening activity at each PHC. During the first visit of the mobile team from KIMSUDU to each of the thirty three PHCs included in the Cancer Literacy Satara Initiative project, KAP study was undertaken on the subjects attending the activity. From second visit onwards, only cancer literacy and screening activities were undertaken at each PHC.

Data were entered in MS Excel and then after cleaning it was then imported in SPSS PC Version 20. Frequencies and percentages were calculated for univariate data presentation. Bivariate presentation was made by making cross- tables. Total knowledge score was 12. For each correct answer score 1 was given. No negative marking was done. Chi-square test was applied to test the significance level for qualitative data while 't' test and ANOVA were applied for quantitative data percentages. The probability of less than 0.05 was considered significant.

**Table 1: Frequency distribution of correct responses to specific questions**

Question / statement	Correct response	Percentage (%)
<b>Prevalence of Oral cancer is very high in India</b>	114	69.1
<b>Oral cancer occurs only after only after 40 years of age</b>	47	28.5
<b>Oral cancers occur only in males</b>	71	43.0
<b>Oral cancer occurs due to smoking of tobacco</b>	107	64.8
<b>Oral cancer does not occur due to Gutakha consumption</b>	57	34.5
<b>Oral Cancer can occur due to diseases of teeth or gums</b>	103	62.4

*Continued...*

Question / statement	Correct response	Percentage (%)
Oral cancer can be cured if detected in primary stage	102	61.8
Non healing lesions in mouth should be examined immediately for diagnosis of oral cancer	109	66.1
Cancer of Tongue is very troublesome	41	24.8
Diagnosis of Oral cancer needs examination of small piece of lesion	96	58.2
Diagnosis of oral cancer takes a long time	51	30.9
Chewing of tobacco causes oral cancer	98	59.4

### Results

There were 165 men who participated in the KAP study and the health educational session which was focused on the oral cancer, risk factors, screening and early diagnosis and prevention and modalities of treatment. Out of 165, 153 (92.7%) were Hindus, 7 (4.2%) were Muslims and 10 (6.06%) did not reveal their religion. Majority i.e., 161 (97.6%) were married and 4 (2.4%) were unmarried. All men except one had children. Their average family income was not revealed by 102 (61.8%) men, hence as a proxy for income, colour of ration card was used. The families below poverty line had yellow ration card, those with yearly income between fifteen thousand to less than one lakh had orange cards and those with yearly income of one lakh and above had white ration cards. There were 29 (17.6%) men who could not specify the colour of the ration card, 52 (31.5%) had yellow card and 84 (50.9%) had orange cards. The mean age of the study population was 38.80 years with a Standard Deviation (SD) of 10.4 years. Only one person was illiterate. Majority i.e. 56.4% of them were working on their own farm, followed by farm laborers (5.5%) and the rest were having small business, like shepherd, painter,

carpenter, and eight (4.8%) were doing service like teaching, peons etc. (Table 3). About 52.1% read newspapers including articles on cancer, 50.9% listened on the radio or watched television programmes related to cancer (Table 4).

The mean KAP score of 5.2 with a SD of 3.3 was observed among men equal to or below 40 years of age as compared to a mean score of 6.43 with a SD of 2.4 among men above 40 years of age (Table 2). The improved score among men above 40 years was statistically significant (Table 3). It indicated that as the age increased the awareness about causative factors mainly relationship of use of tobacco and the causation of oral cancer significantly improved. Educational status, occupation and economic status as revealed by the colour of the ration card, did not have any impact on the KAP score (Table 3). There was average score of 6.3 with SD of 2.8 among those who had read newspapers, listened to radio, and watched TV or formal or informal interactions with the Health care workers i.e. exposed group as compared to a mean score of 5.9 with a SD of 2.8 among unexposed group however the difference was not statistically significant ( $P=0.158$ ).

It was observed that 23 (13.9%) had very poor knowledge and 11 (6.7%) had very good knowledge.

The need for biopsy of oral lesions for diagnosis was known to 58.2% men. The areas of ignorance were related to sex wise occurrence of oral cancer, 43% males thought that it does not affect females, 34.5% thought that Gutakha is not responsible for causation of oral cancer. There was a misconception among 28.5% males that oral cancer occurs after the age of 40 years. There were 30.9% and 24.8 % men who thought that it takes very long time for diagnosis of oral cancer and cancer of tongue is very troublesome respectively. Smoking was known to 64.8% men as cause for oral cancer

and 59.4% men knew that chewing of tobacco can also lead to oral cancer (Table 1). There were 20 (12.1%) men who could not answer any question correctly. There were 165 men on whom KAP study was done along with IEC activities and screening during first round of visits by mobile team to 33 study PCHS. During subsequent visits over two year period additional 308 men attended only IEC activities and screening. A total of 473 men were screened for oral cancer. Out of them 83 (17.54%) were found to have some lesions in the mouth who were referred for investigation, diagnosis and management at Civil Hospital Satara or Krishna Institute of Medical Sciences, Karad.

**Table 2: Frequency distribution of KAP score**

KAPSCORE	Number of participants (N=165)	Percentage (%)
0	20	12.1
1-3 (<= 25%)	3	1.8
4-6 (<= 50%)	51	30.9
7-9 (<= 75%)	80	48.5
10 (> 75%)	11	6.7
<b>Total</b>	165	100.00

**Table 3: Important socio-demographic variables and KAP score**

Socio-demographic Variables	Number	%	Mean ± SD KAP Score	p
<b>Age Group</b>				
≤ 40 years	35	21.9	5.2 ± 3.3	0.017 <sup>s</sup>
> 40 years	125	78.1	6.43 ± 2.4	
<b>Total</b>	160*	100	6.0 ± 2.8	

Continued...

Socio-demographic Variables	Number	%	Mean $\pm$ SD KAP Score	<i>p</i>
<b>Education</b>				
Up to primary**	62	37.6	6.4 $\pm$ 2.7	0.066 <sup>NS</sup>
Secondary	79	47.9	6.1 $\pm$ 2.3	
More than secondary	24	14.5	4.9 $\pm$ 4.1	
Total	165	100	6.0 $\pm$ 2.8	
<b>Occupation</b>				
Farming	93	56.4	6.4 $\pm$ 2.4	0.208 <sup>NS</sup>
Small business	7	4.2	6.1 $\pm$ 1.9	
Service	8	4.8	6.4 $\pm$ 2.3	
Labourer	9	5.5	4.3 $\pm$ 3.4	
Not employed	48	29.1	5.6 $\pm$ 3.4	
Total	165	100	6.0 $\pm$ 2.8	
<b>Economic Status</b>				
BPL	50	36.2	6.7 $\pm$ 2.3	0.467 <sup>NS</sup>
NON BPL	88	63.8	6.4 $\pm$ 2.5	
Total	138***	100	6.5 $\pm$ 2.4	

NS-Not Significant BPL-Below Poverty Line, \*Age could not be specified by 5 men,

\*\*only one person was illiterate who was included in this group,

\*\*\*27 men could neither specify the colour of their ration card nor could quantify monthly total income of the family.

**Table 4: Exposure to media and KAP score**

Media	Number	Percentage	Mean $\pm$ SD KAP Score
Newspaper	86	52.1	6.3 $\pm$ 2.8
Radio	84	50.9	6.4 $\pm$ 2.8
TV	84	50.9	6.4 $\pm$ 2.8
Interaction with HCW	92	55.7	6.4 $\pm$ 2.7
Total of exposure group *	111	67.3	6.3 $\pm$ 2.8
No exposure group	54	32.7	5.9 $\pm$ 2.8
Total of exposure and Non-exposure group	165	100	

\*Exposure of media among 111 was not mutually exclusive

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**Discussion**

Breast, cervix and oral cancer are widely prevalent in Maharashtra. There is multifactorial etiology of these cancers and varies widely between different community groups depending upon distribution of different risk factors including genetic predispositions. Retrospective hospital based studies of cancer in Maharashtra have indicated a high prevalence of tobacco chewing/ smoking in rural population [6] and genetic predisposition in breast cancer [7]. Considering a high prevalence of tobacco use and other common risk factors associated with breast, cervix and oral cancer, the Cancer Literacy Satara Initiative was started for both men and women above the age of 30 years. For men it was related to one site namely oral cancer and for women it was for three commonest sites breast, cervix and oral cancers. There were 671 women and 165 men who attended this combined activity of Health Education and screening.

Out of 165 men, 12.1 % were totally ignorant while 43% men had misconceptions about sex distribution. It was possible to create awareness and motivate them to get on the spot screening of oral cancer by the mobile team of experts from the medical college.

There are many studies carried out to find out Knowledge, attitude and practice among various groups like Intermediate college students [8], dental college students [9], dentist [10-11] and the community [12]. All studies found a very high level of knowledge relating to use of tobacco with oral cancer in students and Dentists which is not surprising. A study carried out in rural field practice of Karnataka [12] on the other hand revealed a high level of ignorance i.e., 67.8% study population was

unaware of sites of oral cancer, 79.8% did not know clinical features and 37.6% did not know the risk factors. The KAP study was not combined with screening of oral cancer in any of these studies. Only 13.5% of the study population had undergone screening activity before the study. In the present study we observed similar gaps in the knowledge of rural population. It may not be possible to arrange visit of mobile team from medical colleges if men cannot attend PHCs during working hours, but training of HCW is possible in screening of oral cancer. The trained HCW can undertake the screening during their routine field visits or whenever men attend the PHCs and refer the suspected cases to the apex hospital with facilities for taking biopsy of the lesions, confirmation of diagnosis and treatment. The men above 30 years need not be called to the clinic for the purpose of screening of oral cancer as early diagnosis is possible by involving trained Health care workers by extension approach during routine home visits by the trained HCWs, as screening of oral cancer requires inspection and examination of oral cavity using torch which can be carried by the HCW.

**Limitations**

A few men who were invited to attend these sessions could not attend these sessions as the activity was arranged on a working day and they would have lost daily wage in order to attend this activity.

**Conclusion**

The HCWs could be trained in educating and screening for oral cancer by inspection and clinical examination of the oral cavity. Motivation of rural men to accept the screening immediately after HE sessions was the objective of the study which was

successfully achieved as seen from 100% acceptance of screening for oral cancer by all men attending these sessions. Those who missed this opportunity of screening could be covered by the trained HCWs during their home visits or

whenever the men attended their respective PHCs for any reason. Making early diagnosis of oral cancer will enable us to improve prognosis by appropriate referrals for confirmation of diagnosis and the management.

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