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Relationship Between Sociodemographic Factors and Oral Cancer Awareness Among Outpatients in Chennai- A Hospital Based Study

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ABSTRACT

Oral cancer is a preventable disease and cessation of cancer causing habits like smoking, alcohol consumption and smokeless tobacco significantly reduces the risk of development within 5-10 years. Early detection of small cancers of certain sites such as tip of tongue and lip results in better prognosis. To assess the relationship between sociodemographic factors and oral cancer awareness - a hospital based study. The survey consisted of 300 patients who accompanied to Saveetha Dental College, Chennai. The questionnaire included 3 sets of questions along with sociodemographic factors such as age, gender, education, marital status and occupation. The first set consists of 5 questions (general awareness). The second set consists of 6 questions (knowledge of symptoms). The third set consists of 4 questions (knowledge of risk factors). A total of 300 participants participated in the study comprising 65% males and 35% females. A significant difference was noted in general awareness level, knowledge of symptoms and knowledge of risk factors with respect to age, gender, occupation, education, and marital status (P <0.05). Within the limitations of this study, among the different age groups, 18-30 age group; across gender, male participants; participants with single marital status; among the different education level, graduates and employed people among different occupational status were found to have high level of general awareness, knowledge of symptoms and knowledge of risk factors of oral cancer. Therefore it is evident that the sociodemographic factors do play a vital role in oral cancer awareness and was significantly related to the awareness level and knowledge of symptoms and risk factors.

KEY WORDS: ORAL CANCER, AWARENESS, SOCIODEMOGRAPHIC FACTORS, SYMPTOMS, RISK FACTORS.

INTRODUCTION

In India, carcinoma of oral cavity accounts for 200,000 deaths annually worldwide approximately and particularly in India it is 46,000 (Agrawal et al., 2012). There is evidence that oral cancer is less common in the developed ones when compared to the developing countries in which it is more common. Cancer is the most common cause of mortality and morbidity in the developing and the developed countries and is a menace to public health (Formosa et al., 2015). Due to cultural, ethnic, and geographic factors and the popularity of addictive habits, oral cancer frequency is high in India. In terms of incidence among men and third among women, it ranks number one. A smokeless tobacco product called gutka is extremely popular in India (Ariyawardana et al., 2007). It renders the population and the youth especially to a higher risk of developing oral submucous fibrosis which is a premalignant disease. It results in an increased

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incidence of oral cancer in younger patients (Elango, Iyer and Kuriakose, 2009).

Smoking, alcohol use, human papillomavirus infections, smokeless tobacco products, with alcohol and smoking having synergistic effects are the risk factors to develop oral cancer. The risk factors to develop oral cancer burden differs across various regions. In India, betel quid with or without tobacco and smokeless tobacco products are the greater risk factors for oral cavity cancer. Betel leaves (leaves of betel vine), areca nut, lime and tobacco are the main ingredients of betel quids (Mudur, 2005). When compared to non-tobacco users, the tobacco users have the risk of developing oral cancer 10-20 times higher than the non-tobacco users (Horowitz, Canto and Child, 2002). The risk of oral cancer increases with the increase of duration of betel chewing and the frequency. It is a disease which can be prevented with cessation of cancer causing habits and significantly reduces the risk of disease development within 5-10 years (Scott, McGurk and Grunfeld, 2008).

Additional risk factors include poor nutrition, especially iron, vitamin A and C deficiency and excessive consumption of alcohol. The prognosis of the affected people have not improved over the years, in spite of the numerous advances which have taken place related to cancer therapy and rehabilitation (Pancharethinam et al., 2016). However, the history of risk factors, signs and symptoms of oral cancer and pre-cancer provides some encouragement that early detection and management of small cancers results in better prognosis (Rogers, Hunter and Lowe, 2011). Patients with oral cancer report to the health professionals at advanced stages, this is mainly due to the lack of awareness of signs, symptoms and risk factors of oral cancer and to associate the sociodemographic factors with the awareness level in the high risk population of south India (Lawal et al., 2012). The aim of this study is to assess the relationship between sociodemographic factors and oral cancer awareness in chennai- a hospital based study.

We have successfully completed numerous epidemiological studies for the betterment of our community (Prabakar, John, Arumugham, Kumar and Sakthi, 2018a, 2018b; Prabakar, John, Arumugham, Kumar and Srisakthi, 2018; Vishnu Prasad et al., 2018; Khatri et al., 2019; Manchery et al., 2019; Shenoy, Salam and Varghese, 2019, Sriram and Leelavathi, 2019, Murthy, Sindhu Priya Kuppusamy and Leelavathi, 2019, Shankar and Leelavathi, 2019, Patturaja, Leelavathi and Jayalakshmi, 2018). In this research we are analyzing the relationship between sociodemographic factors and oral cancer awareness in chennai.

MATERIAL AND METHODS

Study design: The survey was conducted among a random sample of 300 patients who reported to a private dental college and hospital in Chennai for routine dental examination and treatment. The study population included individuals from in and around Chennai who visited the institute. Participants of 18 years of age and above were included in the study and individuals who were diagnosed with oral cancer at any point of their lifetime were excluded from the study. An interviewer-administered questionnaire was provided to the participants.

Data collection: A structured questionnaire was prepared and the questionnaire consisted of 15 close-ended questions assessing the participant's general awareness about oral cancer, knowledge of its early signs and symptoms, and also the risk factors associated with oral cancer. It also included sociodemographic information such as age, sex, occupation, education level and marital status.

Questions and variables: First section of the questionnaire comprised five questions and it assessed the general awareness of oral cancer. The second section consisted of six questions assessing the participant's knowledge of signs and symptoms of oral cancer. The third section was to assess the knowledge of risk factors associated with oral cancer, and it consisted of four questions. Response categories for each of the questions were yes, do not know, and no and were scored as 3, 2, and 1, respectively. The participants were instructed to give only the most appropriate answer.

Data analysis: The statistical data of sociodemographic factors were given in percentage. The data was collected and analysis was done using SPSS software by IBM. Statistics analysis of this study is described in terms of mean and association of knowledge and practice with sociodemographic variables was done using one-way ANOVA test.

RESULTS AND DISCUSSION

In this study out of 300 patients(n=300), (195)65% were males and (105)35% were females. The age distribution of this study was as follows; 41% belong to 18-30 years of age, 23% belong to 31-40 years of age, 21% belong to 41-50 years of age and 15% belong to >50 years of age. In this study, 37% were illiterate, 28% were students and 35% were graduates. 33% of them were single and 67% of them were married. Occupational status of the study was as follows; 49% of them were employed, 23% of them were unemployed and 28% of them were students (Table 1).

Among the different groups of age, general awareness, knowledge of symptoms and knowledge of risk factors were more in case of people with 18-30 years of age(Figure 1). The mean value of scores of the questionnaire was significantly found higher in the youngest age group(18-30 years) and least in people greater than 50 years of age (Table 2). Males were found to have higher mean value in general awareness, knowledge of symptoms and knowledge of risk factors than the females (Figure 2).

It was significant that males had higher awareness levels than the females(Table 3). Awareness was significantly

higher among the participants who were single with a mean score of 13.2 for general awareness, 16.5 for knowledge of symptoms and 11.3 for knowledge of risk factors (Table 4) whereas it was least among the participants who were married with a mean score of 11.1 for general awareness, 15.4 for knowledge of symptoms and 10.2 for knowledge of risk factors (Figure 3). The educational level of the participants were categorised as graduates, students and illiterates (Table 5). Graduates were found to have significant increase in mean score for general awareness, knowledge of symptoms and risk factors followed by students and then illiterates (Figure 4). On account of the occupational level of the participants, employed people were found to have increased levels of awareness than students and unemployed people (Figure 5, Table 6).

Table 1. This table shows the sociodemographic data of the participants of this study.

Sociodemographic data of the participants	
Sociodemographic profile	**Percentage(No. of participants)**
Age	
18-30	41%(123)
31-40	23%(69)
41-50	21%(63)
>50	15%(45)
Gender	
Male	65%(195)
Female	35%(105)
Education	
Illiterate	37%(111)
Student	28%(84)
Graduate	35%(105)
Marital status	
Single	33%(99)
Married	67%(201)
Occupation	
Employed	49%(147)
Unemployed	23%(69)
Student	28%(84)

Table 2. This table shows the mean scores for general awareness, knowledge of symptoms, and knowledge of risk factors for different age groups (One way ANOVA test- p value< 0.05, significant).

Age groups	General awareness(out of 15)	Knowledge of symptoms(out of 18)	Knowledge of risk factors(out of 12)
18-30 years	13.5	15.9	11.1
31-40 years	12.8	15.1	10.8
41-50 years	12.2	14.4	10.2
>50 years	11.8	13.8	9.8
F value	402.2	85.40	146.5

Oral cancer is the 11th most common cancer in the world, accounting for an estimated 300,000 new cases and 145,000 deaths in 2012 and 702,000 prevalent cases over a period of five years (Bray et al., 2013). Oral cancer is one among the preventable diseases and is associated with several risk factors. But oral cancer is reported to cause high mortality rates which inturn contributes to the global cancer burden. The buccal mucosa is the most common site for oral cancer in South and Southeast Asia; in all other regions, the tongue is the most common site (Bray et al., 2015).

Figure 1: Bar graph represents the association of age and oral cancer awareness. The x-axis represents the age and y-axis represents the mean value. The blue colour represents the general awareness, green colour represents the knowledge of symptoms and ted colour represents the knowledge of risk factors. The mean value of the awareness decreases as the age of the participants increases. Analysis was done and there is a significant association of age and the oral cancer awareness (One way ANOVA test- p value< 0.05, significant).

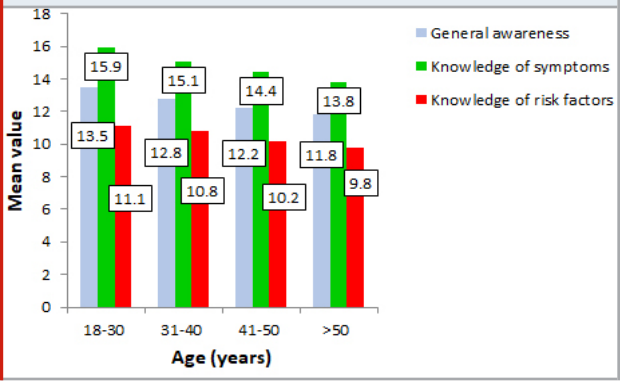

Table 3. This table shows the mean scores for general awareness, knowledge of symptoms, and knowledge of risk factors across gender (One way ANOVA test- p value< 0.05, significant).

Gender	General awareness(out of 15)	Knowledge of symptoms(out of 18)	Knowledge of risk factors(out of 12)
Male	13.2	15.1	10.2
Female	12.9	14.4	9.8
F value	411.382	55.748	199.060

Oral cancer remains the most common cancer among the male population and is the third most common cancer among women after cervical and breast cancer in India (Kavarodi, Thomas and Kannampilly, 2014). High incidence rates are seen among the subpopulations of women in Southern India because of tobacco chewing (Gupta, Ariyawardana and Johnson, 2013). Awareness and knowledge of oral cancer in a given population was related to the prognosis of the cases identified. Because the enhanced awareness on oral cancer specifically in relation to its risk factors and symptoms and in general can possibly lead to early clinical presentation of symptoms of oral cancer. The lack of knowledge of people in recognising early symptoms of oral cancer

may lead to ignoring early precancerous lesions (Villa et al., 2011).

Figure 2: Bar graph represents the association of gender and oral cancer awareness. The x-axis represents the gender and y-axis represents the mean value of awareness scores. The blue colour represents the general awareness, green colour represents the knowledge of symptoms and red colour represents the knowledge of risk factors. The mean value was found to be higher in males compared to females inferring that males were more aware about the symptoms and risk factors of oral cancer. Analysis was done and there is a significant association of gender and the oral cancer awareness (One way ANOVA test- p value< 0.05, significant).

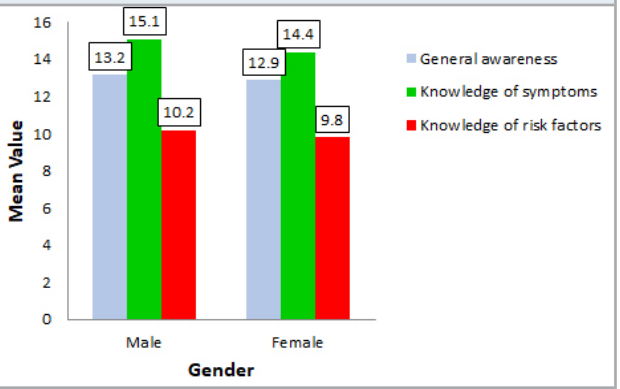

Figure 3: Bar graph represents the association of marital status of the participants and oral cancer awareness. The x-axis represents the marital status and y-axis represents the mean value. The blue colour represents the general awareness, green colour represents the knowledge of symptoms and ted colour represents the knowledge of risk factors. Awareness level was found to be high in single participants and comparatively low in married participants. Analysis was done and there is a significant association of marital status and the oral cancer awareness (One way ANOVA test- p value< 0.05, significant).

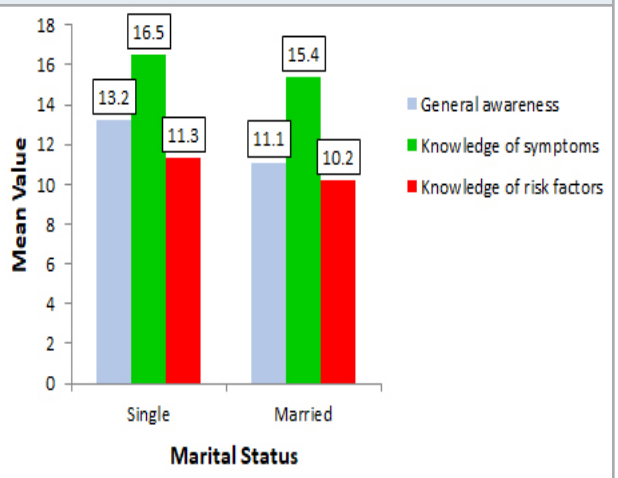

Table 4. This table shows the mean scores for general awareness, knowledge of symptoms, and knowledge of risk factors for marital status (One way ANOVA test- p value< 0.05, significant).

Marital status	General awareness(out of 15)	Knowledge of symptoms(out of 18)	Knowledge of risk factors(out of 12)
Single	13.2	16.5	11.3
Married	11.1	15.4	10.2
F value	421.56	66.89	175.45

Table 5. This table shows the mean scores for general awareness, knowledge of symptoms, and knowledge of risk factors for different education groups (One way ANOVA test- p value< 0.05, significant).

Education	General awareness(out of 15)	Knowledge of symptoms(out of 18)	Knowledge of risk factors(out of 12)
Graduate	13.6	16.9	11.5
Student	13.1	16.3	11.2
Illiterate	10.4	13.8	9.9
F value	435.45	71.727	185.581

Sociodemographic factors like age, gender, marital status, occupation and education level were found to be significantly associated with awareness of oral cancer in this study. The results indicated that the educational level of participants were directly related to the general awareness, knowledge of symptoms and knowledge of risk factors. This finding is in accordance with previous study, which stated that awareness level was directly proportional to the education level of the participants (Nigam et al., 2019). Whereas the age of

the participants were inversely proportional to the awareness of the oral cancer. The significant increase in awareness level was attributed to the youngest age group(18-30 years). The awareness level in this younger population may be attributed to mass media exposure, health awareness programs, and anti tobacco campaigns. This is contradictory with the study by Misirlioglu et al., which documented that older participants were more aware of the signs of oral cancer compared with younger participants (Yardimci et al., 2013).

Figure 4: Bar graph represents the association of education level of participants and oral cancer awareness. The x-axis represents the education level and y-axis represents the mean value. The blue colour represents the general awareness, green colour represents the knowledge of symptoms and ted colour represents the knowledge of risk factors. The mean score is greater in case of graduates, followed by students and least in illiterates. Analysis was done and there is a significant association of education level and the oral cancer awareness (One way ANOVA test- p value< 0.05, significant).

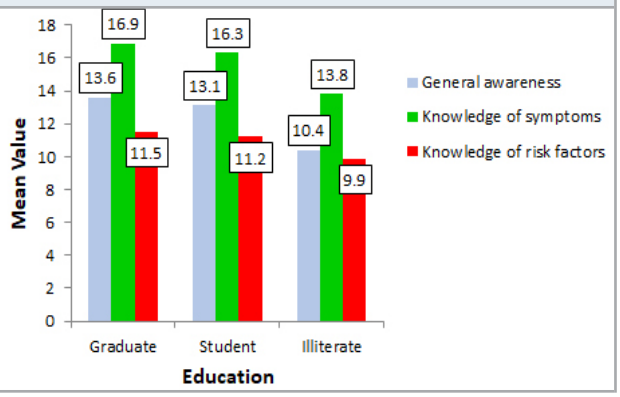

Figure 5: Bar graph represents the association of occupation and oral cancer awareness. The x-axis represents the occupation and y-axis represents the mean value. The blue colour represents the general awareness, green colour represents the knowledge of symptoms and ted colour represents the knowledge of risk factors. Awareness level was found to be highest in employed and least in unemployed. Analysis was done and there is a significant association of occupation and the oral cancer awareness (One way ANOVA test- p value< 0.05, significant).

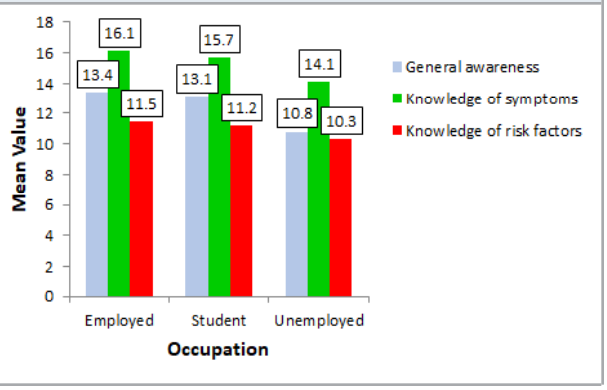

Table 6. This table shows the mean scores for general awareness, knowledge of symptoms, and knowledge of risk factors for occupation groups (One way ANOVA test- p value< 0.05, significant).

Occupation	General awareness(out of 15)	Knowledge of symptoms(out of 18)	Knowledge of risk factors(out of 12)
Employed	13.4	16.1	11.5
Student	13.1	15.7	11.2
Unemployed	10.8	14.1	10.3
F value	418.030	47.125	177.909

In this study, employed participants showed significant higher awareness levels in all the three domains of occupation. Unemployed had the least awareness level. In gender wise knowledge, males were found to have significant awareness levels with higher mean scores compared to females. This is contradictory with the study that stated that women were found to be more aware than men (Ghani et al., 2013). Patients in this study had a good knowledge about the risk factors of oral cancer. The participants had a poor knowledge about the synergistic effect of smoking and alcohol on oral cancer which can be a factor for the increased occurrence of oral cancer among this population. Exposure to both alcohol and tobacco increases the risk of oral and pharyngeal cancer when compared with risk associated with exposure to either habit (Pelucchi et al., 2008). The respondents who were single have significant mean scores for the general awareness, knowledge of symptoms and risk factors compared to the married respondents which again indicate the significance of education of the youngest age group on oral health and awareness.

A multifaceted approach that integrates health education, alcohol and tobacco control, early detection of oral cancer, and early treatment is needed to decrease the burden of this eminently preventable cancer (Shimpi et al., 2018). Improving awareness among the primary care practitioners and general public, investing in health services to provide screening and early diagnosis services for alcohol and tobacco users, and providing adequate

treatment for those who are diagnosed with invasive cancer are critically important control measures of oral cancer. Limitation of this study was that it included the people who accompanied the patients to the hospital.

CONCLUSION

Within the limitations of this study, among the different age groups, 18-30 age group; across gender, male participants; participants with single marital status; among the different education level, graduates and employed people among different occupational status were found to have high level of general awareness, knowledge of symptoms and knowledge of risk factors of oral cancer. Therefore it is evident that the sociodemographic factors do play a vital role in oral cancer awareness and was significantly related to the awareness level and knowledge of symptoms and risk factors. Intensive level of awareness is highly recommended in the older age group, females, married people, illiterates and unemployed people. India has an increased incidence of oral cancer patients, therefore it is very much necessary to conduct screening programs and to create awareness of general knowledge and knowledge of symptoms and risk factors of oral cancer.

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Authors Contribution: Bharathi R carried out the study by conducting the survey, collecting data and drafted the manuscript after performing the necessary statistical analysis. Leelavathi L aided in conception of the topic, participated in the study design, statistical analysis and supervised in preparation of the manuscript. All the authors had equally contributed in developing the manuscript.

Conflict of Interest: There were no conflicts on interest as declared by the authors

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