

The Prevalence of risk factors for Oropharyngeal Cancers in the migrants of Ahmedabad city- a comparison with the native population.

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Abstract

To assess the prevalence of risk factors for Oropharyngeal cancer among migrants of Ahmedabad city and comparing to its native population. To recommend the preventive strategies based on the study findings. A cross-sectional study was conducted consisting of 384 migrants and 384 native populations of Ahmedabad City involving all six zones between periods May 2009 to April 2010. 384 migrants and equal number of native population of Ahmedabad city were analyzed. 36.46% of migrants & 34.11% of native population were in age group of 28- 37 years. Out of 384 migrants, 132 (34.38%) were having habit of smoking where as 94 (24.48%) of native population were smokers (statistically significant $P < 0.05$). The prevalence of smokeless tobacco among migrants and native population were 89 (23.17%) and 107 (27.86%) respectively (statistically not significant $p > 0.05$). The prevalence of alcohol intake was more among migrants (4.16%) as compared to native population (2.08%) (Statistically not significant $p < 0.05$). Smoking, a major risk factor for Oropharyngeal cancer is significantly more in migrant population as compared to native population.

Key Words: Oropharyngeal cancer, smoking, Tobacco Smokeless, Tobacco, alcohol, migrant

INTRODUCTION

Among cancers, Oropharyngeal cancer is the eight most common cancer in the world [1,2,3]. Oral cancer accounts for 50-70% of all cancers diagnosed in India clearly indicating a serious health problem as compared to 2 to 3% in United Kingdom and United States of America [4]. With estimated incidence of 12.48 cases per 100000 population for males and 5.52 per 100000 populations in females, oral cancer is a major problem in India. The estimated mortality is about 3.48 per 100000 in males and 1.34 per 100000 in females [5]. In many diseases like Cancer, CHD etc; disease agent is not identified and aetiology is discussed in terms of "risk factors". Risk does not occur singly but occurs in-group, having complex relationship for long time. Combination of risk factors in the same individual may be purely additive or synergistic (multiplicative). Risk factor may be modifiable (smoking, hypertension, physical inactivity) or non-modifiable (age, sex, family history). If risk factors are prevented in early life before the exposure as in primordial prevention, most of non-communicable disease can be prevented to a major extent. Well-known, common, and widespread risk factors should be selected so that effective and acceptable risk reduction strategies can be applied [4]. The risk factors associated to oral cancer with convincing evidence are tobacco use, betel quid chewing, alcohol drinking, low fruit and vegetable consumption. Worldwide, 25% of oral cancers are attributable to tobacco usage (smoking and/or chewing), 7-19% to alcohol drinking, 10-15% to micronutrient deficiency, more than 50% to betel quid chewing in areas of high chewing prevalence. Carcinogenicity is dose dependent and magnified by multiple exposures [4]. In India, tobacco related cancers account for about half of total cancers among men and 20% among women. About one million tobacco related deaths occur each year; making tobacco related health issues a major public health concern [6].

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Alcohol is the second largest risk factors for development of oral cancer. A recent study classified 40% of head and neck cancer patient as alcoholics [7].

Many international studies have found that oral cancer were more prevalent in migrants living in developed countries coming from or having origin in developing countries like India due to widely prevalent of tobacco use especially in chewing form. It is a well-known fact that migrants are more prone for behavioural risk factors. No studies have been carried out in Gujarat on migrants regarding risk factors for Oral and Oropharyngeal cancers. With this aim, topic was chosen to know the prevalence of risk factors for Oropharyngeal cancers in migrants versus native population of Ahmedabad city.

MATERIALS AND METHODS

384 individuals belonging to migrant population of Ahmedabad City and equal number of individuals belonging to native population (of Ahmedabad City) in the age group of 18-65 years formed the subjects for the current study. The study was conducted from May, 2009 to April, 2010. The study design was of cross-sectional type.

A pre-designed and pre-tested proforma was used to collect data by house-to-house visit in each zone of Ahmedabad City. Informed consent was taken before the initiation of survey and information was collected regarding Risk factors for Oropharyngeal cancers such as - Tobacco smoking, Smokeless tobacco use, Alcohol and diet history. Also general information regarding age, sex, religion, spoken language, marital status, education, occupation, socio economic condition, based on modified Prasad classification were collected.

Statistical analysis: Z test, Chi square test and percentage were used to test statistical significance using software Epi Info version 3.5.1 and Microsoft excel sheet.

384 migrants and equal number of native population of Ahmedabad city were analyzed. 36.46% of migrants & 34.11% of native population were in age group of 28- 37 years. There was no significant difference ($Z = 0.47$, $P > 0.05$) in the mean age of

migrants (35.98 ± 10.89) and of the native population (36.35 ± 11.04).

Table 1: Age wise distribution of migrants and native population

Age group (In years)	Migrant (N=384)		Native (N=384)	
	Number	Percentage	Number	Percentage
18-27	94	24.48	99	25.79
28-37	140	36.46	131	34.11
38-47	86	22.39	93	24.22
48-57	45	11.72	38	9.89
58-67	19	04.95	23	05.99
Total	384	100%	384	100%
Mean \pm SD	35.98 \pm 10.89		36.35 \pm 11.04	

Table 2: Distribution of migrants and native according to predominant habits

Risk factors	No of migrants(n=384)	No of native (n=384)	P value
Smoking	132(34.38%)	94(24.48%)	Z =3.09, p<0.05 *
Smokeless tobacco	Single form=89(23.17%)	Single form 107(27.86%)	Z=1.49, P>0.05
Various form of smokeless tobacco in single form.			
Tobacco chewing	14(15.73%)	16(14.95%)	Z =0.15, p>0.05
Gutkha chewing	52(58.43%)	54(50.46%)	Z =1.12, p>0.05
Mawa chewing	7(7.87%)	29(27.10%)	Z=3.73, p<0.05*
Paan chewing	13(14.60%)	15(14.01%)	Z =0.11, p>0.05
Areca-nut chewing	3(3.37%)	3(2.80%)	Z =0.22, p>0.05

* shows significance level

Multi-form of smokeless tobacco in migrants were 17 and 6 in native population.

The prevalence of smoking among migrants were more (34.38%) as compared to native population were (24.48%) which was found to be statistically significant (Z=3.09, p<0.05). The prevalence of smokeless tobacco was found to be 27.86% & 23.17% among native population and migrants respectively. However the difference was statistically insignificant (Z=1.49, p>0.05).

The mean age of initiation of smoking in migrants was 24.95 ± 6.6 years and 27.28 ± 7.74 years in native and difference is

Table 3: Distribution of Smoking among migrants and native population

Variables for smoking	Migrant (N=132)	Native (N=94)	P value
Mean age of initiation of smoking (in years)	24.95 \pm 6.6	27.28 \pm 7.74	Z=2.38, p<0.05?
Duration (mean \pmSD) in years	8.9 \pm 6.68	8.3 \pm 6.5	Z=0.67, p>0.05
Frequency (mean \pmSD) /day	3.33 \pm 2.2	3.16 \pm 1.69	Z =0.65, p>0.05
Form of smoking			
Bidi	45 (34.09%)	47 (50%)	
Cigarette	87 (65.91%)	47(50%)	
Ever tried to stop			
Yes	94 (71.21%)	58 (61.70%)	$\chi^2 = 2.25$, P>0.05
No	38 (28.79%)	36 (38.30%)	
Whether they Know it can cause cancer			
Yes	95 (71.97%)	75 (79.79%)	$\chi^2 = 0.94$, P>0.05
No	37(28.03%)	19 (20.21%)	

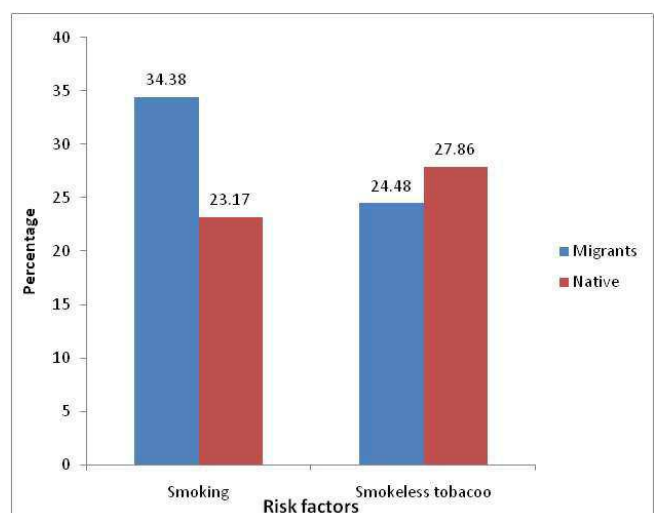


Figure 1: Distribution of migrants and native according to predominant habits

Table 4: Distribution of migrants and native population based on Alcohol intake

Variables	Migrant (N=16)	Native (N=8)
Mean age of initiation (mean \pm SD) in years	30.06 \pm 7.33	28.12 \pm 9.58
Duration (mean \pm SD) in years	10.75 \pm 7.51	7.5 \pm 5.07
Frequency (mean \pm SD) / day	1.25 \pm 0.44	1 \pm 0.0
Ever tried to stop		
Yes	8 (50%)	7 (87.5%)
No	8 (50%)	1 (12.5%)
Whether they know it can cause cancer		
Yes	7 (43.75%)	6 (75%)
No	9 (56.25%)	2 (25%)

statistically significant ($P < 0.05$). Among those who smoke, cigarette was the main form smoking in migrant (65.91%) and native population (50%).

The alcohol intake was found to be more among migrants (4.16%) than in native (2.08%), however difference is not significant ($Z = 1.66$, $p > 0.05$).

DISCUSSION

23% and 27% of the migrants and native population were using smokeless tobacco in one or the other form such as tobacco chewing, gutkha, mawa, pan etc. (Table 2 & figure 1) No significant difference ($P > 0.05$) was found in the use of smokeless tobacco between the two groups except mawa chewing which was significantly higher ($P < 0.05$) among native population. Among migrants, prevalence of smoking was 34.38% and smokeless tobacco was 23.17% where as among native population, use of smokeless tobacco was more (27.06%) than smoking (24.48%).

The major risk factors mainly responsible for oropharyngeal cancer are tobacco consumption in the form of smoking as well as smokeless tobacco. The high alcohol consumption is one of the major risk factor but along with smoking, it has synergistic action in development of oropharyngeal cancer. In this study, smoking was found to be more prevalent among migrants (34.38%) than native population (24.48%). Similar findings had been found by Raniet al[8] in his study for National Family Health Survey-2(1998-99) had found 30% of population 15 years older either smoked or chewed tobacco. The prevalence of smoking and chewing varied widely between different states and had a strong association with individual socio-cultural characteristics. As per NFHS 2, state wise prevalence of tobacco smoking were in Uttar Pradesh (male

33.8%, female 3.0%), Rajasthan (male 37.8%, female 4.1%), Bihar (male 26.3%, female 6.2%), Madhya Pradesh (male 29.4%, female 0.9%), Maharashtra (male 13.3%, female 0.2%) and that of Gujarat was 25.3% in male and 1.4% in females.

A study conducted by Vivek Gupta et al[9] found 25% had daily habit of smoking in male. The mean age for initiation of smoking among migrants was lower (24.95 years) as compared to native population (27.28 years). Joshi et al[10] reported the mean age of initiation of smoking to be 26.5 years, which was almost similar to the present study (Table 3). No national level data were available for the same but several studies by Kapoor et al [11], Sen et al [12] accord with the findings of early age of the habit. The mean duration of smoking in migrants was slightly higher (8.9 years) than the native population (8.3 years). The frequency of smoking per day was slightly more in migrants (3.33) than native population (3.16). Among those who smoke, cigarette was the major form of smoking among migrants as compared to native.

The prevalence of smoking was found to be more in younger adults in migrants as compared to native population. In case of tobacco chewing, the mean age of initiation was almost similar in both migrants and native (26.22 & 26.59 years respectively). The mean duration of tobacco chewing was slightly more in native population than migrants. The mean frequency of tobacco chewing especially khaini per day was 5.51 in migrants where as 5.13 in native population. Vivek Gupta et al[9] observed similar finding.

Among those who consume smokeless tobacco, gutkha chewing was the major form whose prevalence in-migrant (58.43%) was more than native population (50.46%). Joshi U[10] found tobacco chewing in form of Gutkha to be 57.6%, which is almost similar to our study. The mean number of times gutkha consumed in a day by current daily smokeless tobacco users to be 4.04 in migrants and 4.52 in native population. Similar observation was found by Gupta et al[9], in which mean number of gutkha use per day was 4.3. Oral cancer is amenable to primary prevention. If the tobacco habits are eliminated from the community, a great deal of reduction in the incidence of oral cancer can be achieved. Oral cancers are easily accessible for inspection allowing early detection. If detected early, possibly at precancerous stage, they can be treated or cured.

CONCLUSION

Migration in Gujarat especially in Ahmedabad from neighboring states and less developed states is common for better employments and labour work due to rapid industrializations and development in all sectors. In present study, the prevalence of tobacco either in smoking or smokeless forms were found to be approximately 30-35% in both migrants and native population. Prevalence of smoking was significantly higher among migrants. Though there was no significant difference in the use of smokeless tobacco between two groups, prevalence of mawa chewing was significantly more in native population compared to migrants. The other risk factors were insignificants as they were found in very few persons.

Due to wide prevalence of major risk factors especially tobacco in its various forms in both migrant and native populations, there is a need for appropriate prevention and cessation strategies for smoking and smokeless tobacco products along with a social war against by intense education programme to revert the present trend of preventable Oropharyngeal cancer.

Based on the findings of this study, the following

recommendations are made:

1. Since the mean age of initiation of smoking and smokeless tobacco was found to be in early age in the present study, strategies for the prevention and control of tobacco need to be focused on school going children mainly secondary and higher secondary students-

A. Taking steps for "Tobacco free schools"- by banning the sale of tobacco products in and around the schools and rehabilitation of the students who are addicted to tobacco.

B. Coordination with the education department for the inclusion of topics on the hazards of tobacco and its control measures in the curriculum.

C. Development of training materials on tobacco control for training the teachers.

2. Strategies for community awareness to reduce the prevalence of risk factors for oral oropharyngeal cancers

a. Awareness programme among people in the community regarding various risk factors for oral and oropharyngeal cancer and its health hazards through print media, television, local folk, radio etc.

b. Strict implementation of the legislation prohibiting smoking in the public places and banning the advertisement promoting the smoking.

REFERENCES

1. Stewart BW, Kleihues P, editors. World cancer report. Lyon: WHO International Agency for Research on Cancer; 2003.
2. Petersen PE. The world oral health report 2003: continuous improvement of oral health in the 21st century – the approach of the WHO global oral health programme. Community Dent Oral Epidemiol 2003; 31(Supp. 1): 3-24.
3. Petersen PE, Bourgeois D, Bratthall D, Ogawa H. Oral health information systems – towards measuring progress in oral health promotion and disease prevention. Bull World Health Organ 2005;83:686-93.
4. Park K. Textbook of Preventive and Social Medicine, 20th edition, Jabalpur, Banarsidas Bhanot Publishers, 2009: 12-48
5. Assessment of burden of Non-communicable diseases. ICMR;2004
6. Sharma DC. India's welcome to foreign tobacco giants prompts criticism. Lancet. 1998; 352: 1204
7. Deleyiannis Levi, F; C.Pasche, La Vecchia, F. Lucchini, S. Francheschi and P. Monnier, Food Groups and risk of oral cancer. Oral Oncology, 1998; 33: 302-12.
8. Rani M, Bonu S, Jha P, Nguyen SN, Jamjoum L. Tobacco use in India: Prevalence and predictors of smoking and chewing in a national cross-sectional household survey. Tobacco control, 2003; 12(4):e4-4.
9. Vivek Gupta, Kapil Yadav, Anand K. Pattern of Tobacco Use Across Rural, Urban, and Urban-slum Populations in a North Indian Community; Indian Journal of Community Medicine, 2010;35(2):245-51.
10. Joshi Urvish, Bhavesh Modi, Sudha Yadav. A study on Prevalence of Chewing Tobacco and Existing Quitting Patterns in Urban Population of Jamnagar, Gujarat; Indian Journal of Community Medicine. 2010; 35(1):105-8.
11. Kapoor SK, Anand K, Kumar G. Prevalence of tobacco use among school and college going adolescent of Haryana. Indian J Paediatr 1995; 62:461-66
12. Sen U. Tobacco Use in Kolkata. Lifeline. New Delhi, India: WHO SEARO; 2002.8:7-9.