

Knowledge Regarding Risk Factors for Oral Cancer among Adult Residents in Thelumpitiya area, Kegalle District, Sri Lanka

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Abstract—

Objective: This study focused on assessing the level of knowledge regarding risk factors for oral cancer among residents in selected rural communities of Thelumpitiya area of Kegalle District, Subaragamuwa province.

Methodology: This was a cross-sectional descriptive design, utilizing a validated questionnaire to collect information from 260 adult residents of the study area about knowledge on risk factors (RFs) for oral cancer and risks associated with betel chewing and alcohol consumption who consented to participate. Data analysis was conducted with the computer software SPSS version 16.0 and Chi square tests were carried out at 0.05 level of significance.

Results: The results showed that 65% percent of the respondents were unable to recognize RFs for oral cancer (OC), while 54% were unable to identify what constitute modifiable risk factors (MRFs) associated with OC (tobacco use, alcohol consumption and betel chewing). A significant proportion (95%) demonstrated poor knowledge of what constituted non-modifiable risk factors (NMRFs) eg. family history, genotype and age. Regarding risk behaviors (RBs) associated with OC, 86% of the subjects had identified betel chewing with tobacco and lime, cigarette smoking (67%), use of smokeless tobacco (79%) as RFs for OC. Only 19% of subjects had identified family history, 39% genotype, 12% age and 4% race as NMRFs related to OC. Majority of male (54%) and female (78%) had poor knowledge on RF for OC ($p < 0.05$). The level of knowledge regarding RFs for OC showed significant association with educational attainment ($p < 0.05$).

Conclusion: Findings indicate that knowledge regarding RFs for OC among rural population was

poor and that there was a positive significant association between knowledge and educational level. Therefore, this study strongly recommends strategically designed health education programmes in order to increase the level of public awareness on RFs for OC.

Keywords— betel-chewing, oral cancer, modifiable risk factors, non-modifiable risk factors

I. INTRODUCTION

Cancers of the oral cavity can occur in any part of the mouth and throat. (Brunner and Suddarath's Textbook of Medical – Surgical Nursing). According to the latest WHO data in April 2011, oral cancer deaths in Sri Lanka reached 2,339 or 1.71% of total deaths (World Life Expectancy, 2011). The age adjusted death rate is 11.75 per 100,000 of population ranks. When ranking the countries according to deaths by oral cancer, Sri Lanka is 6th in the world. This is the commonest form of the cancer among males and accounts for 23% of all cancers, and 6th highest in females (5% from all cancers) in Sri Lanka (World Life Expectancy, 2011).

The most important lifestyle behaviours associated with OC are tobacco use, betel quid chewing, alcohol drinking, low fruit and vegetable consumption (Petti, 2009). Worldwide, 25% of oral cancers are due 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 (Petti, 2009).

Alcoholic beverages such as *arrack* (a commercial distillate from fermented fruit grain, sugarcane, or sap of coconut palms), *kassippu* (an illicit local

product distilled from brown sugar, often with other additives/impurities), beer, *toddy* (extracted from coconut flower), wine, whisky have been implicated in cancers of the gastrointestinal systems including the mouth. Regular alcohol drinking was associated with an increased risk for potentially malignant oral disorders. “Kassippu” is associated with a five times higher risk than “arrack” (Amarasinghe et al, 2010).

Low-income and unprivileged groups are generally more exposed to avoidable RFs such as environmental carcinogens, alcohol, infectious agents, and tobacco use. These groups also have less access to the health services and health education that would enable them to make decisions to protect and improve their own health (Peterson et al, 2009). Demographic and socioeconomic factors such as gender, age, employment, graduation, income, family status and city size affect to the level of knowledge on RFs. Aged 60 years and older, blue-collar workers and retired people, elementary school education, family status ‘divorced’ and ‘widowed’, and an income of less than 1.000 € per month (Germany) are the factors associated with poor knowledge on RFs for OC (Hertrampf et al, 2012).

The 2005 World Health Assembly Resolution also encourages the scientific research necessary to increase knowledge about the burden of and causes of human cancer. Priority should be given to tumors, such as cervical and oral cancer, that have a high incidence in low-resource settings and are amenable to cost-effective interventions (Petersen et al, 2009). Studies examining the level of knowledge on RFs for OC will provide the basis for the development of interventions aimed toward increasing OC risk perception, screening, and risk reduction among tobacco and alcohol users (Hay et al, 2002)

II. RESULTS

A. Demographic data

A total of 260 residents participated to the study. Among them there were more males (57%), the average age was 58 years. Majority (82%) was married and 39% had passed the General Certificate of Education, Advanced Level (GCE A/L) or attained higher education. Less than 13% received education up to grade five and only 5% had had non-formal education. In the majority

(59%) the monthly income was more than Rs. 10,000. The demographic data have shown in Table 1.

B. Knowledge on risk factors

Majority of participants (65%) had poor knowledge regarding RFs for OC. Among all participants 54% of participants had poor knowledge on MRFs while 95% of participants had poor knowledge on NMRFs. (Table 2)

Cigarettes, Cigar, beedi, smokeless tobacco and broken teeth with sharp edge were recognized by 67%, 62%, 59%, 79%, 75% participants as MRFs respectively. But knowledge on other MRFs was less. Among them *toddy*, exposure to sunlight, diet low in vegetable and fruit and immune system deficiencies were recognized as RFs by only 23%, 17%, 18%, 20% of participants respectively.

Previous history, family history, age and race were recognized by 16%, 19% 12% and 4% of participants as NMRF. (Table 3)

Table 1. Frequency distribution of demographic data

Variable	Number	Percentage
Age group,		
18-27	57	21.9
28-37	39	15.0
38-37	56	21.5
48-57	42	16.2
58 or more	66	25.4
Sex,		
Male	148	56.9
female	112	43.1
Marital status,		
Married	212	81.5
unmarried	48	18.5
Education level,		
No schooling	13	5
Up to grade 5	33	12.7
Up to grade 10	39	15.0
Passed GCE O/L	75	28.8
Passed GCE A/L	100	38.5
Monthly income,		
Rs 10,000 or less	106	40.8
More than 10.000	154	59.2

Table 2. frequency distribution of knowledge on risk factors.

variability	Poor knowledge		Good knowledge	
	N	%	N	%
Total knowledge on RFs	168	64.6	92	35.4
Knowledge on MRFs	140	53.8	120	46.2
Knowledge on NMRFs	246	94.6	14	5.6

Largest proportion of participants whose age is 58 years or more (76%) had poor knowledge on OC. There was significant association between total knowledge on RFs for OC and age. ($P < 0.05$) The level of knowledge on RFs for OC was gradually decreasing between the age 18 and 57. 78% female had poor knowledge and 22% female had good knowledge. There was significant association between knowledge level and sex. ($p < 0.05$) Among these two groups most of the participants who had a good knowledge were male. When considering the marital status, majority of married participants (80%) had good knowledge. Largest proportion of participants who educated up to grade 5 or less (90.7%) had poor knowledge. There was significant association between total knowledge on RFs of OC and education level ($p < 0.05$).

Table 3. Types of risk factors

Risk factor	Answer		
	Yes [N(%)]	No [N(%)]	Not sure [N(%)]
Betel chewing	118(45.4)	20(7.7)	122(46.9)
Cigarettes	174(66.9)	16(6.2)	70(26.9)
Cigar	161(61.9)	14(5.4)	85(32.7)
Bidi	152(58.5)	14(5.4)	94(36.2)
Smokeless tobacco	204(78.5)	12(4.6)	44(16.9)
Arrack	90(34.6)	37(14.2)	133(51.2)
Kasippu	113(43.5)	31(11.9)	116(44.6)
Toddy	60(23.1)	39(15.0)	161(61.9)
Exposure to sunlight	44(16.9)	78(30.0)	138(53.1)
Diet low in vegetable and fruit	47(18.1)	73(28.1)	140(53.8)
Radiation	125(48.1)	17(6.5)	118(45.4)
Viral infection	114(3.8)	23(8.8)	123(47.5)
Immune system deficiency	52(20.0%)	35(13.5)	173(66.5)

Chronic hyperplastic candidacies	131(50.4)	13(5.0)	116(44.6)
Previous history	43(16.5)	61(23.5)	156(60.0)
Family history	50(19.2)	68(26.2)	142(54.6)
Geno type	100(35.8)	38(1.6)	122(46.9)
Age	20(11.5)	120(46.9)	119(41.5)
Race	10(3.8)	146(56.2)	104(40.0)

Table 4. Deference between total knowledge with demographic factors

Variability	Poor knowledge N (%)	Good knowledge N (%)
Age group,		
18-27	24 (43.6)	31 (56.4)
28-37	24 (58.5)	17 (41.5)
38-37	40 (71.4)	16 (28.6)
48-57	30 (71.4)	12 (28.6)
58 or more	50 (75.8)	16 (24.2)
Sex,		
Male	80 (54.4)	67 (45.6)
female	88 (77.9)	25 (22.1)
Marital status,		
Married	150 (70.8)	62 (29.2)
unmarried	18 (37.5)	30 (62.5)
Education level,		
Up to grade 5 or less	39 (90.7)	4 (9.3)
Up to grade 10	30 (78.9)	8 (21.1)
Passed GCE O/L	50 (64.9)	27 (35.1)
Passed GCE A/L	49 (48.0)	53 (52)
Monthly income,		
Rs 10,000 or less	76 (73.8)	27 (26.2)
More than 10,000	92 (58.6)	65 (41.4)

Majority of participants (92%) whose monthly income was 10,000 or more had good knowledge. There was a significant association between monthly income and knowledge on RFs for OC ($p < 0.05$). (Table 4)

III. DISCUSSION

A descriptive cross sectional study was conducted to assess knowledge regarding risk factors for oral cancer among adult residents in Thelumpitiya area.

Total sample size was 270 participants. But only 260 (96%) participants were responded to the questionnaire. Among the participants 57% were

male and 43% were female. There was a significant between Knowledge on *OC* sex of participants ($p < 0.05$). Majority of male (54%) and female (80%) participants had poor knowledge on RFs for *OC*. Among these two groups most of the participants who had good knowledge on *OC* were male. Similar study had done for adult patients attending to dental hospital Dharwad, India with 165 participants, 61% were male and 39% were female. Among participants 58% male patients and 72% female patients had poor knowledge on RFs for *OC* (Devediga, 2010). Similar study done by Rogers et al (2010) to determine awareness of *OC* in the Mersey region, had found 70% and 61% of male participants knew smoking and alcohol were RFs for *OC* while 79% and 74% of female knew as it was. (Rogers, 2010).

From all participants, age groups 18-27, 28-37, 38-47, 48-57, >58 had 22%, 15%, 22%, 16%, and 25% of participants respectively. Among them 76% of participants of 58 or more age group had poor knowledge while 56% of participants of 18-27 age group had good knowledge on RFs for *OC*. Most of younger participants had good knowledge while most of elder participants had poor knowledge on RFs for *OC*. There was significant association between total knowledge on RFs of *OC* and age ($P < 0.05$). Similar study done in dental hospital Dharwad show 93% of >50 age group had poor knowledge (Devediga, 2010). The knowledge level was gradually decreasing with age. A similar relation was found in studies conducted by Devediga et al (2010). Another similar study done by Monterio et al (2012) had found that 88% participants whose age <49 and 77% participants whose age >49 knew lifestyle factors influence risk of oral cancer. There was a significant association between knowledge and age ($p < 0.05$).

When considering the categories of education level, 9%, 21%, 35% and 52% of participants of up to grade 5 or less, up to grade 10, passed General Certificate of Examination Ordinary Level (GCE,O/L) and passed GCE, A/L or more categories had good knowledge on RFs for *OC* respectively. Percentage of participants who were having good knowledge had gradually increased with the education level in the current study. There was significant association between total knowledge on RFs for *OC* and education level. ($p < 0.05$) Similar study done by Monterio et al (2012) had found 68%, 81%, 90% and 95% of participants who were

in education categories of without education, primary school secondary and technic-vocation/university knew about lifestyle influence risk of oral cancer respectively.

When considering the RFs separately, most commonly recognized RFs were betel chewing with tobacco and lime, cigarette, smokeless tobacco and by broken teeth which had sharp edge. Eighty six percent, 67%, 79% and 75.4% of participants knew that betel chewing with tobacco and lime, cigarette, smokeless tobacco, by broken teeth which had sharp edge, as RFs respectively. But the proportion of participants who recognized exposure to sun light 16.9%, diet low in fruits and vegetable 18.1%, edge of denture with poor adjustment 44.2% and family history 19.2% were low. Similar study had done in city of Valongo in Portugal, among 602 subjects revealed that the participants knew Tobacco 89.5%, reduced intake of fruit and vegetables 49% and sun exposure 48.8% were RFs for *OC* respectively. And also there was a significant association between education level and the knowledge ($p < 0.05$) among participants (Monterio, 2012). Another study done in Northern Germany with 1000 participants showed, 76%, 43%, 32%, 24% participants knew that tobacco, alcohol, low intake of fruits and vegetables and sun exposure are RFs for *OC* respectively (Hertrampf, 2012).

Another similar study done to determine awareness of *OC* in the Mersey region, found that 74% knew smoking is a RFs while 21% knew alcohol is a RFs for *OC* (Rogers, 2011). Similar study done by Nicotera et al to assess knowledge, attitudes and behaviors among dental hygienists in Italy had found 99% of participants recognized tobacco as a RF for *OC* and 35% of participants recognized alcohol as a RF for *OC* (Nicotera, 2004).

IV. CONCLUSION

Based on the results of this study, level of knowledge regarding risk factors for oral cancer among participants was low. When comparing knowledge on MRFs with NMRFs, knowledge on MRFs were more than NMRFs. When considering the risk factors separately, participants had better knowledge on MRFs such as betel chewing with tobacco and lime, cigarette, smokeless tobacco, by broken teeth and which have sharp edge. But they had very poor knowledge on exposure to sun light, diet in low fruits and vegetable and family history.

Knowledge on RFs was increased with the education level. When comparing with the female participants, male participants had good knowledge on RFs for OC. And also younger population had good knowledge than older population. And also unmarried participants and participants having monthly income more than 10,000 had good knowledge.

V. RECOMMENDATION

Adult residents in rural areas are more vulnerable to getting OC, as they have poor knowledge on RFs and having some risk behaviours like betel chewing. According to this study, it is important for them to give an adequate knowledge regarding RFs for OC and their risk prevention behaviour as they had poor knowledge on them.

It is important to design health education programme on RFs for OC. Conducting education programme in gramaniadari area wise to educate adult residents will minimize their risk habits. Conducting health education programme at schools to educate school age children may helpful to keep them away from risk behaviours completely in future in Thalumpitiya area, because the study reveals that educated young participants had better knowledge.

Communication systems like preparing leaflets and posters on risk factors for oral cancer are recommended to aware the people because visual communication on this area is more effective as most of the people who were in poor knowledge had less level of education.

Further research can be conducted on attitudes on RFs and risk prevention behaviours and it will be helpful in designing more effective health education programme for them.

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