

Prevalence of Tobacco and Areca-nut Use and Awareness of Its Harmful Effects among Non-academic Staff at Faculty of Dental Sciences, University of Peradeniya

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Background: Tobacco and areca nut (AN) are well known risk factors for oral cancer and awareness of these harmful risk habits will reduce the incidence of oral cancer in Sri Lanka. Faculty of Dental Sciences, University of Peradeniya plays a major role in this fight against oral cancer. Hence this study is aimed to evaluate the prevalence of these risk habits among its non-academic staff and their awareness of its harmful effects as they are also responsible stakeholders of the faculty.

Method: An institutional based cross sectional study was conducted among 108 non-academic staff members of the faculty using a self-administered questionnaire on risk habit details and their awareness on its harmful effects.

Results: Analyzed results revealed that only 4.6% of the sample had tobacco and AN use; betel quid chewing (2.7%) and tobacco smoking (1.8%). However, the awareness on the harmful effects of these products were not very satisfactory as only 48% were overall aware while the unhealthy effects of AN use were known only by 27% of the sample. Contradictorily, 70% of them informed that they have received information regarding the harmful risk habits.

Conclusion: It is important to increase awareness among the non-academic staff of the faculty as they become important stakeholders of one of the leading centres in the fight against oral cancer.

Introduction

Prevalence of oral cancer and oral potentially malignant disorders (OPMDs) is a major problem in Sri Lanka. According to the National Cancer Registry 2008, oral-pharyngeal cancers were 12.8% of all reported cancers in Sri Lanka and carried the highest mortality rate among all cancers; 3 deaths per day [1]. Currently, the incidence has risen to 15.8%. The well-known risk factors for this are usage and inadequate awareness on the harmful effects of tobacco and areca nut (AN) among the public. Apart from oral cancers and OPMDs, tobacco and AN are also major risk factors for cardiovascular diseases, chronic obstructive pulmonary disease, certain non-oral cancers and reproductive disabilities.

Tobacco is the single most preventable cause of death in the world today. Every year, tobacco accounts for more than 15% of deaths among men and 7% among women since it contains around 28 types of carcinogens [2]. It has been reported that tobacco kills one person for every 4 seconds [3] and more than 8 million people around the world are estimated to die annually due to tobacco related illnesses from direct use of the product which includes smoking and smokeless tobacco



(SLT) [4]. Even though these deaths are preventable, it is hard to eradicate due to its addictive nature which is due to a substance called nicotine. Among all tobacco products, cigarette is the commonest form of smoking tobacco, but beedi is the most popular among rural areas in comparison to cigarette in urban areas. There are other types such as cigar, pipe smoking etc. The pattern varies with geographic area, gender, socio-economic status and age.

Prevalence of SLT use in Sri Lanka is rising each year. One of the main reasons is the misconception that using SLT is less harmful or safe compared to smoking types [5]. According to 2015 STEPS survey in Sri Lanka, more than one fourth of the males (26.0%) and nearly 5% of the females are reported to be currently using SLT. This is more prevalent among older age groups. Nearly 12% of the current users are daily users. SLT is predominantly consumed as part of the betel quid (betel leaf filled with scraped AN, lime and tobacco) but it may be consumed in other methods such as, dried tobacco in the form of snuff and snus.

The usage of AN is indigenous to South Asian countries like Sri Lanka and the Pacific region. AN, also known as betel nut is the fourth most common psychoactive substance in the world after caffeine, alcohol and nicotine [6]. It contains 4 types of carcinogens, which cause OPMDs and oral cancer. At present, the usage of commercially prepared flavored AN products such as gutka, panmasala, mawa etc are also increasing.

A gazette notification has been issued by the Minister of Health of Sri Lanka under the provisions of National Authority of Tobacco and Alcohol (NATA) act banning the manufacturing and selling of smokeless tobacco products [7]. Additionally, Ministry of Public Administration has also issued an internal circular which bans the use of smokeless tobacco products within the government institutions. University Grants Commission has adopted this circular and issued an internal circular to all state universities in Sri Lanka coming under the purview of UGC banning the use of SLT in state universities by its employees and others [8].

Hence, this study was conducted to determine the prevalence of tobacco and AN use among the non-academic staff of the Faculty of Dental Sciences, University of Peradeniya which plays a major role in the fight against oral cancer through prevention, cessation of tobacco and AN use and awareness of its harmful effects.

Materials and Methods

Following the ethical approval from the Ethics Review Committee of the Faculty of Dental Sciences, University of Peradeniya, an institutional based cross sectional study was conducted among 108 participants of the non-academic staff at the Faculty of Dental Sciences.

A self-administered questionnaire was developed in English, forward and backward translations were done to Sinhala and Tamil languages. Content validation for this questionnaire was carried out with the help of experts in Community Dentistry. Pre-testing of questionnaires was conducted among ten supporting staff members of the Dental Hospital, Peradeniya. The questionnaire included sections to collect socio-demographics, reasons for initiation, form of tobacco/AN used, frequency and duration of consumption of tobacco/AN use and their awareness on harmful effects of tobacco/AN consumption. Additionally, questions regarding the awareness of tobacco/AN use were also included (appendix 01) and each correct answer was given a score of 1 point. The total score was considered to evaluate the awareness (0-2: unaware, 3-6: aware).

A name list of non-academic staff of the faculty was collected from administration and the questionnaire was sent to all the non-academic staff members through internal mail together with a courier's letter stating the objectives & instructions, information sheet and a return envelope. A reminder was sent to all after 2 weeks and the questionnaires were collected. Data were analyzed using Statistical Package of Social Sciences (SPSS) version 21.0.

Results

The analyzed sample consisted of a nearly equal male: female distribution. Age-wise distribution showed that 19%, 61% and 20% were 18-30, 31-50 and 51-70 years respectively. Majority (53%) of them had completed their education up to G.C.E Advanced level while another 30% had also done higher studies (Figure 1).

Figure 1. Distribution of Socio-demographics of the Sample.

The results revealed that only 5 (4.6%) out of the 108 participants had any form of tobacco or AN use; tobacco smoking-2, betel quid with tobacco and AN-3. When considering their socio-demographics, all were males ($p=0.023$) and 3 of them were between 31-50 years while remaining 2 were from the 51-70 year age group. Another significant finding was that 1 had no education while another 2 had completed up to G.C.E Ordinary level only ($p=0.017$). However, 2 of the betel quid chewers had completed up to G.C.E. Advanced level and followed diplomas despite having these harmful risk habits.

Awareness among the non-academic staff revealed that only 48% of the sample had a satisfactory level of awareness regarding the harmful effects of risk habits like betel quid chewing and tobacco smoking. When comparing the awareness with the education level, both participants without any education were unaware while only 38% and 47% of those who had studied up to G.C.E. Ordinary and Advanced levels were aware of the harmful effects. However, majority (61%) who had completed tertiary education had a satisfactory awareness. Table 1 shows the association of age, gender and education level on the awareness of harmful risk habits like betel quid chewing and tobacco smoking.

Socio-demographics		unaware (%)	aware (%)	p value
Gender	Male	27 (52)	25 (48)	1
	Female	29 (52)	27 (48)	
Age	18-30	10 (50)	10 (50)	0.79
	31-50	33 (50)	33 (50)	
	51-70	13 (60)	9 (40)	
Education level	no education	2 (100)	0	0.19
	upto OL	10 (62.5)	6 (37.5)	
	completed AL	31 (54)	26 (46)	
	tertiary level	13 (40)	20 (60)	

Table 1. Association of Socio-demographics on the Awareness on Harmful Effects of Tobacco and AN Use.

When separate statements on awareness were analyzed the results revealed that less than 30% were aware about the unhealthy effects of AN use and how quitting tobacco and AN improves the health (Table 2).

Statement	Correctly answered (%)
Using tobacco or AN is bad for me	48 (44)
Chewing AN alone is unhealthy	29 (27)
I have a positive opinion about using tobacco or AN	59 (55)
Using tobacco or AN is unhealthy	46 (43)
Using tobacco or AN increased risk of getting mouth cancer	48 (44)
If I quit using tobacco or AN, my health would improve	30 (28)

Table 2. Awareness on Individual Statements on Harmful Effects of Tobacco/AN.

Finally, whether they had received information on the harmful effects of tobacco/AN was questioned and the results revealed that 75% of them had received information whereas only 5% had not. Unfortunately, about 20% had not responded to this question. Many of them had received information through multiple means which included lectures, posters and leaflets mainly.

Discussion

Sri Lanka is one of the countries in the South East Asian region which has a high prevalence of betel quid chewing which includes both tobacco and AN in the quid. These are well known risk factors for oral cancer and other OPMDs. Oral cancer is ranked first among all cancers in Sri Lankan males with a prevalence of 18.4% [1]. However, it is a preventable disease through risk habit intervention and awareness among the public. The Faculty of Dental Sciences, University of Peradeniya is a main centre which plays an active role in this fight against oral cancer and currently has established a Centre for Research in Oral Cancer which includes both community level awareness and prevention programs for oral cancer as well as laboratory based research. The non-academic staff at the faculty play a crucial role in these awareness programs and hence it is useful to evaluate the prevalence of these risk habits among them and understand their awareness on the harmful effects of these tobacco/AN products.

Accordingly, the current study findings revealed that the prevalence of tobacco/AN use among them was minimum (4.6%). According to the National Oral Health Survey of 1994/1995 [9], the prevalence of betel quid use was 33.78% among 35-44 year olds and 47.7% among 45-74 year olds with an overall prevalence of 40.5% among 35-75 year olds which is considerably high compared to the current study [10]. The Asian betel quid consortium of South and East Asia carried out a prevalence study on betel quid chewing across six Asian countries in which Sri Lanka showed a prevalence of betel quid with tobacco as 6.4% among men and 3.2% among women. The study in Sri Lanka was conducted among 1,072 subjects from three provinces of Gangawata Korale, Udunuwara, and Yatinuwara with a response rate of 99% [11]. This shows a similar percentage prevalence to our current study.

The awareness of the harmful effects of these risk habits was also evaluated and the results revealed that only 48% of the sample has a satisfactory awareness on this subject. This finding contradicts the low prevalence of these habits. However, since betel quid chewing is an ancient traditional practice in Sri Lanka, it could be assumed that the change in culture has gradually reduced the habit of betel quid chewing. Unfortunately, recent research conducted among the younger generation reveal that the use of various new commercialized tobacco and AN products are increasing in addition to the traditional betel quid. At the Youth Tobacco Survey (GYTS) conducted in 2011 by Sri Lanka, the prevalence of current users of SLT among students was shown as 8.6% [12]. The prevalence was higher among males (13%) than females (4.1%). Similarly, the overall prevalence of betel quid with tobacco was 7.1% and higher among boys (11.3%) than girls (2.9%). However, other than betel quid with tobacco, both boys and girls used equally other commercial products of tobacco and AN; gutka, mawa, thul etc (2.5%).

The available literature reveals that the overall understanding and the level of awareness about health risks attributable to tobacco and AN is low among Sri Lankans. A cross-sectional community-based survey carried out in Sabaragamuwa province by interviewing 1029 subjects revealed that 32% were unaware that betel quid chewing was a risk factor for OPMDs and oral cancer, as were 65% for tobacco smoking. Unfortunately, an overall majority (76%) were not aware of any of the dangers inherent in the frequent use of AN according to that study [10]. Similarly, the current study also revealed that only 27% among the non-academic staff were aware about the unhealthy effects of AN use. However, the International Agency for Research on Cancer (IARC) has classified AN itself, even in the absence of added tobacco in betel quid, as carcinogenic to humans [13].

However, when questioned about whether they have received information on these harmful risk

habits majority (70%) had responded positively despite their poor awareness. Hence attention should be given to the method of delivery of information in order for the ordinary public to understand the harmful risk habits in a simplistic manner and for them to share that knowledge with others as well.

These findings are useful in future awareness programs to adapt the content according to the various groups that are participating. Also, it is the responsibility of the faculty to conduct more awareness programs on tobacco and AN use and its harmful effects even among the non-academic staff, as they are an important stakeholder in this aspect. In conclusion, even though, the prevalence of tobacco and AN use among the non-academic staff of the faculty is comparatively less, the awareness regarding its harmful effects like development of oral cancer and OPMDs is less satisfactory. Hence, it is important to conduct awareness programs on these harmful risk habits in a simple and innovative manner in order to increase the awareness of the harmful effects and enrich the non-academic staff of one of the leading centres, which is fighting against oral cancer to also become responsible stakeholders in it.

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Conflicts of Interest

The authors declare no conflict of interest.

References

References

1. National Cancer Control Programme Sri Lanka. Cancer Incidence Data: Sri Lanka Year 2010. Colombo: NCCP. 12th Publication, 2016, p 8.
2. World Health Organization. *WHO report on the global tobacco epidemic, the MPOWER package. 2008.*
3. Global Burden of Disease 2017 Risk Factor Collaborators. Global, regional, and national comparative risk assessment of 84 behavioural, environmental and occupational, and metabolic risks or clusters of risks for 195 countries and territories, 1990- 2017: a systematic analysis for the Global Burden of Disease Study 2017. *Seattle, WA: Institute for Health Metrics and Evaluation; 2018.*
4. World Health Organization. WHO Report on the Global Tobacco Epidemic 2019. Available at: <https://www.who.int/tobacco/global_report/en/> [Accessed 21 July 2020].
5. Hatsukami D.K, Zeller M. Tobacco harm reduction: the need for research to inform policy. *Washington, DC, American Psychological Association, 2004.*
6. Bhawana G. Burden of smoked and smokeless tobacco consumption in India, Results from the Global adult tobacco survey, (GATS-India) - 2009-2010. *Asian pac J Cancer Prev.* 2013; 14(5):3323-3329.
7. Ministry of Public Administration. Prohibition of using and selling of Betel, Tobacco and Areca nut related Products in the Premises of State Institutions. 2019. Available at, http://www.pubad.gov.lk/web/index.php?option=com_circular&view=circular&cid=1782&Itemid=176&lang=en.



8. University Grants Commission. 2019. Available at, https://www.ugc.ac.lk/attachments/2156_Estb.%20Circular%20Letter%2008-2019.pdf.
9. Ministry of Health. National Oral Health Survey 1994/1995. Colombo: Ministry of Health; 1998.
10. Amarasinghe Hemantha K., Usgodaarachchi Udaya S., Johnson Newell W., Lalloo Ratilal, Warnakulasuriya Saman. Public awareness of oral cancer, of oral potentially malignant disorders and of their risk factors in some rural populations in Sri Lanka. *Community Dentistry and Oral Epidemiology*. 2010; 38(6)[DOI](#)
11. Lee C.H, Ko A.M, Warnakulasuriya S, Yin B.L, Sunarjo., Zain R.B, Ibrahim S.O, Liu Z.W, et al. Inter-country prevalences and practices of betel quid use in south, southeast and eastern asia regions and associated oral preneoplastic disorders: an international collaborative study by Asian betel-quid consortium of south and east Asia. *Int J Cancer*. 2011; 129:1741-1751.
12. Ministry of Health and Nutrition, Sri Lanka. Global Youth Tobacco Survey factsheet; 2011.
13. International Agency on Research on Cancer. Monographs on the evaluation of carcinogenic risk to human. Betel-quid and areca-nut chewing and some areca-nut related nitrosamines. Lyon: IARC. 2004;85.