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Cognizance towards common risk factor approach among adult population in Dharwad City, Northern Karnataka - A cross-sectional survey

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ABSTRACT

Introduction: Oral health and general health are always interlinked with each other. The Common risk factor approach is a way that tackles the risk factors common to several chronic diseases including mouth and teeth.

Aim: The present survey was conducted to assess the awareness towards common risk factor approach and identify sources of health information amongst various demographic parameters of the adult population in northern Karnataka.

Materials and Method: A self-administered, questionnaire-based cross-sectional survey was conducted among 900 adult individuals in Dharwad city of Karnataka using convenient sampling technique. The participants were interviewed under three sections which included demographic characteristics, knowledge towards major seven risk factors (sugar, stress, smoking, alcohol, hygiene, education, income) affecting oral and general health, and frequently used sources for health-related information. The responses recorded were subjected to statistical analysis using the Chi-square test. The level of statistical significance was set at $P \leq 0.05$.

Results: Of all the risk factors, the majority of participants (88.4%) responded lack of hygiene as a risk factor to skin problems and oral health whereas only 11.5% identified stress as one of the reasons causing heart and gums disease. Around 30.56% reported television as the most utilized information source followed by doctors (24%), books (18.11%), and internet (5.78%).

Conclusion: Substantial awareness needs to be created among people from all walks of life as they lack information in some of the aspects regarding common risk factors of oral and general health.

Keywords
Awareness, health information, oral health, risk factor

Introduction

Oral health is a vital component of overall health, which contributes to each individual's well-being and quality of life by positively affecting physical, social, and mental health, appearance, and interpersonal relations.[1] Oral diseases affect half of the world's population and were confirmed to be the most common and preventable Non-communicable diseases (NCDs) inflicting a heavy toll in terms of morbidity and mortality.[2] In developing countries like India, there is a usual practice of considering oral health as a separate entity from general health whereas many of the behavioral risk factors negatively impacting oral health have a detrimental effect on overall health.[3-5]Common risk factor approach (CRFA) is an approach where risk factors common to several major chronic diseases, including diseases of the mouth and teeth, are

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tackled. The CRFA focuses on the common underlying determinants of health to improve the overall health of populations. Oral health issues need to be integrated with other sectors and disciplines to promote general health.[6]

Educating the general public is an integral part of prevention - oriented approach to health and disease problems; and, the basis of all education is communication. Health information forms an integral part of health promotion.[7]The definition of health information itself suggests that it increases awareness and favorably influences attitudes and knowledge related to the improvement of health on a personal or community basis.[8] Information about health is widely available from a variety of sources, including media, internet, family members which can be propagated through communication with the mass.[9] Information has to be provided to the public for their good health and wellbeing. Health communication is an approach to convey information with the goal to improve health outcomes by encouraging behavior modification and social change through the continuum of knowledge, beliefs, attitudes, and behaviours.[10] It involves utilizing the widely spread mass media which shows significant association with health beliefs and behaviours.[11]More recently, it has come into notice that social networks (i.e., the web of social relationships, such as friendship, kinship, or vocation/interests) are influential on various aspects of health.[12] This interpersonal networking, made through friends/family or community organizations or those with healthcare professionals may also be sources of health information, and have been associated with health beliefs.[13-14]Individuals search many times online for information about health and potential treatments, but the content and accuracy of many websites are questionable. In the present scenario despite the availability of multiple sources for health information, there is still a lacuna that exists with respect to baseline knowledge of the general population in Dharwad city towards common risk factors affecting oral and general health as well as no classified report available on their frequently used sources of health information. Thus, the present survey was conducted to know where more attention has to be paid to educate the general population in a better way and thus helping in adopting the common risk factor approach for health promotion.

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Materials and Method

Study Design, study setting, and study population

A questionnaire-based descriptive cross-sectional survey was carried out among the adult population of Dharwad city which is the administrative and educational hub of northern Karnataka as well as headquarters for Hubli Dharwad District. The study population consisted of people aged above 18 years and permanent residents of Dharwad city whereas people who could not comprehend the study questionnaire despite the assistance and refused to participate were excluded from the survey. A total of 900 participants were selected based on slovin's sample size formula[15]from all the 20 municipal wards as divided by the Hubli-Dharwad municipal corporation using convenience sampling method.

Validity and reliability of study Questionnaire

The questionnaire was distributed to 10 subject experts and the content validity ratio (CVR) was calculated. Questions having CVR of more than 0.62 were taken for the survey. The questionnaire was first prepared in English language and later translated to Kannada (local language). The Kannada version was again translated back to English to check for language reliability, it was tested on 30 participants who were not included in the final survey. The reliability analysis revealed Cronbach's α value of 0.785 indicating good reliability of the final questionnaire.

Questionnaire Domains

The structured questionnaire was divided into two domains- Section A was "General section" which included socio-demographic details of the participants. Section B comprised of 22 items out of which 21 were close-ended questions on risk factors common to oral and general health and the last question was on identification of health information sources. Data was collected through a face-to-face interview by a single investigator between the months of February to August 2016.

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Ethical considerations

Ethical approval was granted by the Institutional Ethical Committee of SDM College of Dental Sciences & Hospital, Dharwad (IRB No. 2014/P/COM/19). Official permission to conduct the survey was taken from the Hubli-Dharwad municipal corporation. Before the study commenced, informed consent in the local language (Kannada) was obtained from the all participants, and confidentiality was assured.

Statistical Analysis

The collected data was subjected to statistical analysis using the Statistical Package for the Social Sciences version 20 (IBM, Chicago Inc.IL, USA). Descriptive analysis along with Chi-square statistical test was done to assess the significance of the association between awareness towards common risk factors and demographic variables. A P value ≤ 0.05 was considered statistically significant.

Results

A total of 900 study participants were interviewed, out of which the majority of participants (41.4%) belonged to18-30 years age group, and overall males (51.6%) represented a slightly larger proportion of the study population than females [Table 1]. Education-wise most of the study participants were found to be graduates (35%) followed by higher secondary education (33%) [Figure1] whereas occupation wise, majority of the study population were in skilled occupation (26.7%), house hold work (24%) followed by unskilled workers being the least [Figure 2].

The majority of participants (88.2%) believed that smoking may lead to lung disease and 78.67 % responded that it may lead to oral diseases whereas 78.67 % believed it may lead to both simultaneously [Table 2]. When responses were divided based on age group, the majority of the study population in 31-40 years (92.78 %) believed that lack of hygiene may lead to skin and oral diseases and level of education can have an impact on both general and oral health whereas, in 41–50-year age group, majority participants believed that stress may lead to both heart diseases and gum diseases and smoking may lead to both lung diseases and oral diseases. In the 51-60 years age group a large proportion of study participants (41.79%) believed that consumption of alcohol may lead to both liver diseases and oral cancer [Table 3]. The results of knowledge regarding all risk factors affecting oral and general health had a significant association with age

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groups (P<0.05) but on comparison within gender, risk factors found to be statistically significant are alcohol, education, and income [Table 4].

Television as broadcast media (30.56 %) was the most utilized information source followed by medical doctors, (24%), books (18.11 %), newspaper (11.22%), family (10.33 %), and internet (5.78%). Approaching dental professionals as an information source remained unused among all study participants based on age groups and gender [Table 5,6].

Table 1: Distribution of study population based on age group and gender (n=900)

Age Groups (Years)	**No. Of Participants**	**Percentage (%)**
18-30	373	41.44
31-40	208	23.11
41-50	221	24.56
51-60	67	7.44
≥60	31	3.44
Gender		
Males	465	51.67
Females	435	48.33
Total	900	100

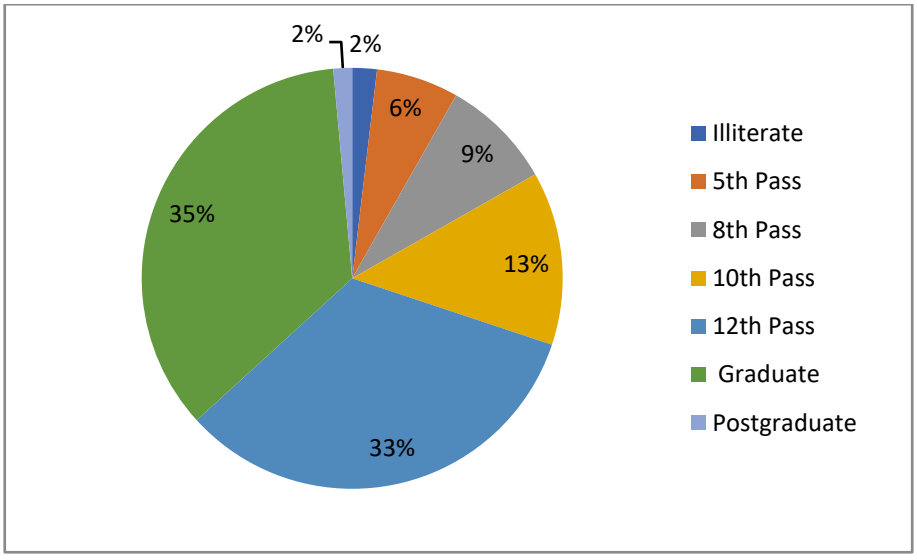

Figure 1: Education wise distribution of study participants (%)

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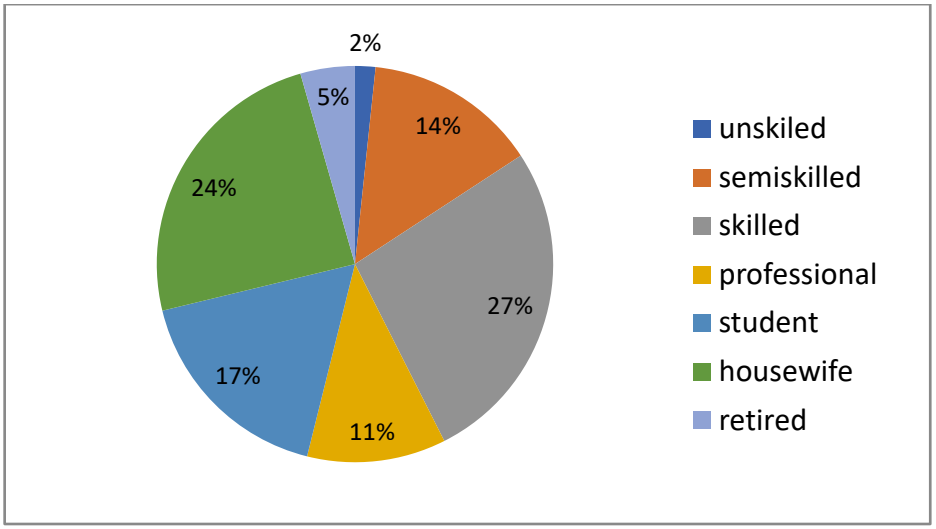

Figure 2: Occupation wise distribution of study participants (%)

Table 2: Distribution of responses towards risk factors common to general health, oral health and simultaneously both among study population (n=900)

S No	Questions	Options (%)		
		Yes	No	Don't know
1.	High sugar containing diet may lead to obesity	46.33	23.88	29.78
2.	High sugar containing diet may lead to dental decay	72.22	0	27.78
3.	High sugar containing diet may lead to both obesity and dental decay simultaneously	21	17.67	61.33
4.	Stress may lead to heart diseases	66.78	6.22	27
5.	Stress may lead to gum diseases	11.56	32	56.44
6.	Stress may lead to both heart diseases and gum diseases simultaneously	11.56	32	56.44
7.	Smoking may lead to lung disease	88.22	11.78	0
8.	Smoking may lead to oral diseases	78.67	11.78	9.56
9.	Smoking may lead to both lung diseases and oral diseases simultaneously	78.67	11.78	9.56

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10.	Consumption of alcohol may lead to liver diseases	84.44	15.56	0
11.	Consumption of alcohol may lead to oral cancer	40.78	27.89	31.33
12.	Consumption of alcohol may lead to both liver diseases and oral cancer simultaneously	29	39.67	31.33
13.	Lack of hygiene (bathing) may lead to skin infections	88.44	0	11.56
14.	Lack of hygiene (brushing) may lead to oral diseases	100	0	00
15.	Lack of hygiene (brushing and bathing) may lead to both skin and oral diseases simultaneously	88.44	0	11.56
16.	Level of education can have impact on your general health	78.89	0	21.11
17.	Level of education can have impact on your oral health	79	0	21
18.	Level of education can have impact together on both general and oral health	73.11	0	26.89
19.	Level of income can have impact on your general health	52.78	0	47.22
20.	Level of income can have impact on your oral health	52.78	0	47.22
21.	Level of income can have impact together on both general and oral health	47.11	0	52.89

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Table 3: Association between knowledge regarding risk factors common to both oral and general health with different age groups among study population (n=900)

S. No	Questions	Age groups (%)					χ^2	*P value*
		18-30	31-40	41-50	51-60	>60		
1	High sugar containing diet may lead to both obesity and dental decay	23.59	11.53	22.17	29.85	25.80	33.08	<0.001*
2	Stress may lead to both heart diseases and gum diseases	12.33	9.61	14.02	5.97	9.67	39.31	<0.001*
3	Smoking may lead to both lung diseases and oral diseases	80.69	71.15	82.35	77.61	80.64	57.42	<0.001*
4	Consumption of alcohol may lead to both liver diseases and oral cancer	26.27	22.59	36.19	41.79	25.80	23.21	0.003*
5	Lack of hygiene (brushing and bathing) may lead to both skin and oral diseases	89	92.78	84.61	79.10	100	16.89	0.002*
6	Level of education can have impact on both general and oral health	69.70	83.17	73.30	64.17	64.51	16.80	0.002*
7	Level of income can have impact on both general and oral health	41.82	39.64	50.67	55.22	19.35	21.01	0.001*

Chi-square test; *P≤0.05 (significant)

Table 4: Association between knowledge regarding risk factors common to both oral and general health with gender among study population (n=900)

		Gender (%)		

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S. No	Questions	Male	Female	χ^2	*P value*
1	High sugar containing diet may lead to both obesity and dental decay	22.08	19.1	2.31	0.31
2	Stress may lead to both heart diseases and gum diseases	12	11.0	1.98	0.37
3	Smoking may lead to both lung and oral diseases	80.6	70.6	2.38	0.30
4	Consumption of alcohol may lead to both liver diseases and oral cancer	34.2	23.4	12.82	0.002*
5	Lack of hygiene (brushing and bathing) may lead to both skin and oral diseases	88.4	88.5	0.003	0.956
6	Level of education can have impact together on both general and oral health	70.1	76.3	4.41	0.036*
7	Level of income can have impact on both general and oral health	50.3	43.7	3.98	0.046*

Chi-square test; *P≤0.05 (significant)

Table 5: Distribution of commonly used sources for health information among study population (n=900)

Sources	Study Population (%)		
	Males	**Females**	**Total**
Medical doctor	21.9	26.2	24
Dentist	0	0	0
Print Media	11	11.7	11.22

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Educational Books	22.4	13.6	18.11
Broadcast media	33.8	27.1	30.56
Internet	1.5	10.3	5.78
Family and Friends	9.5	10.3	10.33

Table 6:Distribution of commonly used sources for health information among study population based on age groups (n=900)

Sources	**Age groups (%)**				
	18-30	**31-40**	**41-50**	**51-60**	**61-70**
Medical doctor	19.83	23.55	28.50	29.85	3.22
Dentist	0	0	0	0	0
Print Media	14.74	13.94	4.5	5.97	22.58
Educational Books	13.94	18.26	26.69	20.89	0
Broadcast Media	25.73	29.32	36.65	34.32	45.16
Internet	12.33	2.88	0	0	0
Family and Friends	13.40	12.01	3.61	8.95	0

Discussion

General health and oral health are integral to each other. Both share common risk factors and are interlinked in such a way that one leads to another. Risk factors for oral diseases include trauma, smoking, stress, unhealthy diet, tobacco use, harmful alcohol use, poor oral hygiene, and social determinants. Recognising the fact that oral and general health are interlinked is essential for determining appropriate oral health care programmes and strategies at both individual and community care levels.[6]

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The adoption of a collaborative common risk factor approach shall address common risk factors and their underlying social determinants which would be more effective than a targeted disease-specific approach. In the present times however knowledge regarding the multiplicity of causation of common diseases covering both oral and general health remains questionable. The prevalence of various health information sources and their utilization has to be observed. Hence the need exists to assess the knowledge and collect data regarding sources of information regarding common risk factors of oral and general health.

The present survey revealed that 46.33 % of subjects believed that a high sugar diet may lead to obesity and 72.22 % believed that high sugar diet may lead to dental decay whereas a similar study conducted by Satija *etal*. in metro cities of India revealed that 83.3% identified high sugar diet as a risk factor for obesity[16] and a study by Sadhan *et al*. in Riyadh identified 59 % of the people were aware of the relationship between sugar intake and caries.[17] In the present study only 21 % believed that a high sugar diet may lead to both simultaneously. This could be because of more awareness regarding the oral health implication of sugar rather than the general health implication. Sugar as a common risk factor was identified more by, subjects from the age group of 51-60 (29.85%, males (22.08%), post graduates (31.6%), and retired subjects (100%). More awareness amongst the age group of 51-60 and retired subjects maybe due to age and experiences of diseases. Also, there is a higher level of literacy amongst the male population and post graduates which may lead them to identify sugar as a risk factor for oral and general health.

Around 88.44 % of study participants believed that lack of hygiene (bathing) may lead to skin diseases and all of them believed that lack of hygiene (brushing) may lead to oral diseases. On the contrary, as mentioned by Ramamuthie*et al*. in their study 69.5% believed that lack of hygiene may lead to skin infections[18], and a study by Serino*et al*. mentioned that only 40.6% believed lack of hygiene (brushing) may lead to oral diseases.[19] This may be due to more awareness created through various community-based programmes running in the country. About 88.4 % of participants believed that lack of hygiene (bathing and brushing) may lead to both oral and skin infections in the present study.

The level of education of an individual might have an impact on the awareness regarding diseases. Level of education as a common risk factor was identified more by, subjects from the age group of 31-40 years (83.17%), females (76.3%), illiterate people (100%), and housewives (83.1%). With the changing times, literacy rate of females and awareness about the importance of

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education is increasing.[20] Also, educated housewives pay attention on the education of their children and thus value the importance of education in all spheres of life. A low level of knowledge and awareness among illiterates must have made them realized the importance of education. This could be a possible assumption of the data obtained from different demographic categories.

In the present study broadcast media (television) was the most utilized information source (30.56%) which was similar to results obtained by Tabriz *et al*. in Iran where television was the most utilized (19.3%).[21]In our study television was utilized more by individuals from the age group of 61-70 years (45.16%), males (33.8%), 5th pass subjects (42.1%), and retired subjects (100%). This may be due to the fact that television has high viewership and entertainment content which is an easy way to approach the masses.[22]

Dentists were not utilized by any of the study participants in the present survey whereas 70% of the subjects reported utilization of dentists as their information sources regarding gum diseases in a study by Serino *et al*. in Sweden.[19] This might be because of a lack of awareness regarding the common link between oral and general health among the participants. Individuals might not have raised queries on the relationship between general and oral health or Dentists also might not have taken interest in explaining the general health aspect of the oral diseases

The results of the study clearly suggest that the level of knowledge regarding common risk factors is less and more awareness has to be created. A common risk factor approach can be successful if the people are aware of the link between general health and oral health. The data also revealed various sources of information being used amongst the local population. However, television and medical doctors as health care professionals remain the more valuable source of health information regularly sought for generating awareness. At the same time, dentists and print media fail to provide health information amongst the residents of Dharwad city. Utilization of already existing sources of information more efficiently and taking initiatives regarding utilization of the unused sources becomes imperative to promote oral and general health amongst the public.

Conclusion

Majority of the study participants had knowledge regarding smoking, lack of hygiene, and level of education as common risk factors of oral and general health, whereas lack of knowledge was observed regarding high sugar diet, stress, alcohol, and level of income as common risk factors

among most of the subjects. However, they identified each of them as a risk factor separately for diseases related to general health and oral health. Medical doctors Dentists have to take more initiatives in creating awareness regarding common risk factors affecting oral and general health among the general population for a healthier future.

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