

Factors Influencing the Utilization of Oral Primary Preventive Services Among the Patients Attending A Dental Hospital in Dharwad City, India

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ABSTRACT

Aim: To assess the factors influencing utilization of oral primary preventive services among the patients attending a private dental hospital in Dharwad city, India.

Material and Methods: Present study was conducted among 200 adult patients attending out-patient department of a private dental hospital in Dharwad city, India. Convenience sampling method and questionnaire design was employed for assessment of utilization of oral primary preventive services for common oral diseases with information on socio-demographic factors.

Results: The proportion of subjects who utilized primary preventive services for dental caries was 24.6%, malocclusion 57.5%, gum diseases 65% and oral cancer 70% respectively. Multiple linear regression analysis showed that gender and educational level were significant factors affecting the utilization of oral preventive services, with females using preventive services significantly more than men and those having higher education compared to those having low education.

Conclusion: Utilization of oral primary preventive services is low among the study subjects. Female gender and education were found to be positive factors influencing utilization of oral primary preventive services. Other factors like age, income, family size and marital status had no influence on utilization of primary preventive services.

Keywords: Primary Prevention, Oral diseases, Utilization of services, Out-patients.

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INTRODUCTION

India, a developing country in which there is a considerable rise in the magnitude of non-communicable oral problems like dental caries, periodontal diseases, malocclusion and oral cancer. These oral problems are significantly associated with pain, agony, functional and esthetic problems; grave economic impact on the treatment of these diseases; also loss of working man-hours. Hence, in the long run, these will have a negative impact on quality of life leading to substantial morbidity and mortality. Thus oral diseases have emerged as public health problems in India (1).

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To overcome such deteriorating effects, it is always recommended to exercise the benefits of primary prevention, where the action is taken prior to the onset of the disease, which removes the possibility that the disease will ever occur. This is deemed to be the most cost effective measure in the prevention and control of oral diseases as compared to curative and rehabilitative services. Moreover it is perceived that, utilization of preventive services is an important indicator of oral health related behavior which is characterized by the actual attendance by the members of the public at health care facilities to receive care. Thus, utilization of oral primary preventive measures acts as a basic tool in enhancing the oral and general health of an individual (2-5).

In western countries more emphasis is given to oral primary preventive measures like sealant and topical fluoride applications, oral prophylaxis, increased frequency of regular dental visits, seeking oral health education (3). In contrast to those countries, India shows a negative trend in utilization of oral primary preventive measures as more importance is given to curative and rehabilitative services (6). This negative trend is largely reflected by the increasing burden of oral problems in form or the other (5).

There have been numerous studies reported on utilization of dental services in general, but few have focused on primary prevention. This is an important distinction, there may be influence of different factors for symptoms as opposed to use for prevention. It is also well recognized that, oral diseases are one of the few categories of diseases for which effective preventive measures exist (7). But, studies have shown that, utilization of these preventive services depends on array of factors which varies from one geographic area to the other area (8).

Thus, obtaining information on utilization of oral primary preventive measures not only gives valuable information for organization of dental services, but also helps to analyze the role of various factors related to the individual's attitude in seek-

ing the oral preventive care. Apart from this, such information can also help the care providers and policy makers to take necessary steps in improving the utilization of oral primary preventive services and to enhance the individuals to lead a socially and economically productive life (3, 9).

Likewise, common oral problems are wide prevalent among the population of Dharwad city. But, there is a definite lack of valid and reliable information about the influence of various factors on utilization of oral primary preventive services among the population of Dharwad city. Thus, the present study was conducted to obtain the base line data on utilization of oral primary preventive services and to analyze the influence of various demographic factors on use of the same among the adults attending a private dental hospital in Dharwad city.

MATERIALS AND METHODS

The present cross-sectional survey was conducted among the adults attending the out-patient department of a private dental hospital in Dharwad city, India. Prior to the start of study, ethical clearance was obtained from the Institutional Ethical Board of the concerned private dental hospital, Dharwad, India.

The estimated out-patients per day for this dental hospital is 250, based on this, study included a total of 200 subjects who were chosen using convenient sampling technique. Young and middle-aged patients were preferred in order to obtain a homogenous population and minimize the number of patients with full dentures. Further, measures are taken to select only those subjects who were the residents of Dharwad city.

The data were collected by means of a questionnaire usually filled in the presence of the investigator, who gave the additional information where needed.

Questionnaire

The questionnaire was constructed from an analysis of the literature on variables describing the utilization of preventive

dental services. The questionnaire was self administered, structured and closed ended which was prepared in the local language, Kannada. The questionnaire includes two sections:

First section

Socio-demographic and economic characters, included, age, gender, marital status, occupation, education, income and family size.

Second section:

It included 8 items which were specific to utilization of primary preventive services for dental caries, gum diseases, malocclusion, oral cancer and on dental visits.

Pilot study

A pilot study was conducted to check the validity and reliability of questionnaire on 50 subjects attending the out-patient department. Results of pilot study demonstrated a validity of 0.8469/85% and Split half reliability of 0.799/79%, based on this, the same questionnaire was chosen for the final study. The final study was scheduled during the period of April to May 2007 from 10 am to 3 pm.

This pre-tested questionnaire was distributed to only those subjects whose consent for participation was obtained. The filled questionnaire was collected by the investigator and had a 100% response rate, which was then subjected to statistical analysis.

Data analysis

Once the questionnaire had been returned the responses were scored and placed into a data file (computer) using STATA 9.2 (2006). Then, the data was subjected to statistical analysis using unpaired student t- test, one way ANOVA followed by multiple linear regression analysis. For all the tests a *P* value of $d^* 0.05$ was considered statistically significant, < 0.01 highly significant and < 0.001 very highly significant.

RESULTS

A total of 200 adult subjects were included in this cross-sectional survey, out of which, 55% were males and 45% were females

Table 1: Distribution of study subjects according to different characteristics

Variables	n (%)
AGE (IN YRS)	
18-27	109 (54.5)
28-37	39 (19.5)
38-48	26(13)
48 and above	26(13)
GENDER	
Males	110 (55)
Females	90 (45)
MARITAL STATUS	
Married	88 (44)
Unmarried	112 (56)
EDUCATION QUALIFICATION	
No school education	1 (0.5)
1-4th standard	2 (1)
5-7th standard	5 (2.5)
8th -10th standard	41 (20.5)
11th-degree	128 (64)
Professional	23 (11.5)
PER CAPITAL INCOME (IN RS.)	
d ⁿ 10, 000	141 (70.5)
10, 001-20, 000	35 (17.5)
e ⁿ 20, 001	24 (12)

(Table 1). The results showed that, overall utilization of preventive services for dental caries was 24.5%; malocclusion, 57.5%; gum diseases, 50% and 70% for oral cancer (Fig 1).

Further, item wise response of utilization of oral primary preventive services elucidated that, only 13.5% of the study subjects reported as having availed topical fluoride application by the dentist and 11% got pit and fissure sealants on their teeth. But maximum of 70% study subjects reported to receive the health education for the prevention of oral cancer; this was followed by the receipt of oral prophylaxis by the dentist (50%) as compared with the utilization of primary preventive services for malocclusion like use of space maintainers (13%), habit breaking appliances (20%) and other wire therapy (24.5%) for early correction and prevention of malocclusion. However, only 15% of subjects reported to visit the dentist regularly (Table 2).

Gender wise comparison has shown that, female subjects have significantly utilized

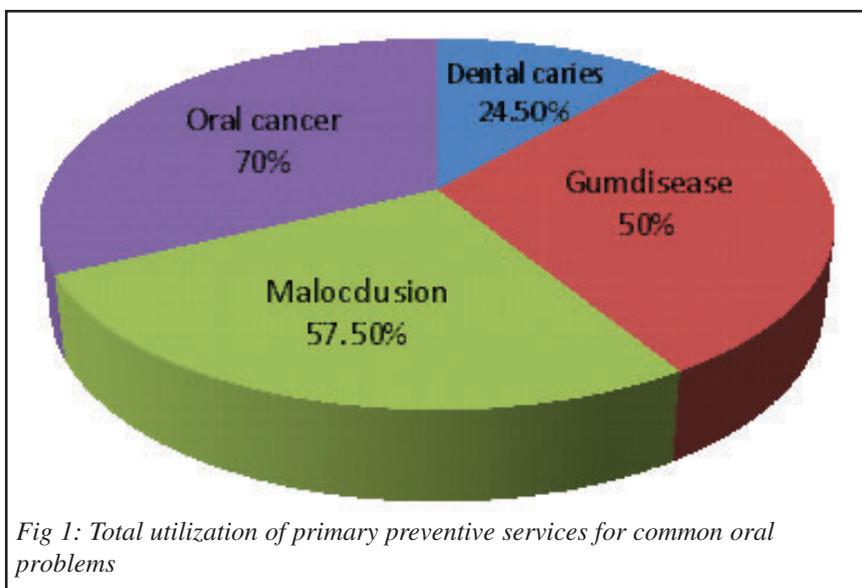


Fig 1: Total utilization of primary preventive services for common oral problems

more preventive services as compared to male subjects ($p < 0.001$). Further, their utilization was more for oral cancers ($p < 0.001$) in contrast to other oral problems (Table 3).

As well, results of comparison of education levels of the study subjects with respect to utilization scores of primary prevention of various oral diseases showed that, a significant difference was estimated

Table 2: Distribution of subjects according to oral diseases and utilization of oral primary preventive services

Variables	Utilization	n (%)
Dental caries	Fluoride application by dentist	27 (13.5)
	Pit and fissure sealants	22 (11)
Gum diseases	Oral prophylaxis	100 (50)
Malocclusion	Space maintainer therapy/ Restoration of decayed teeth to preserve the natural space	26 (13)
	Habit breaking therapy	40(20)
	Wire therapy	49 (24.5)
Oral cancer	Health education	140 (70)
Visit to dentist	Periodic/ regular dental visits	30 (15)

Table 3: Gender wise comparison of utilization of oral primary preventive services

Variables	Gender	N	Mean	SD	t-value	p-value
Dental Caries	Male	110	1.3545	1.0368	-1.8117	0.0715
	Female	90	1.6333	1.1362		
Gum diseases	Male	110	1.9091	0.6432	-0.9535	0.3415
	Female	90	2.0000	0.7031		
Malocclusion	Male	110	1.7636	0.7890	0.7775	0.4378
	Female	90	1.6778	0.7618		
Oral Cancer	Male	110	1.1545	0.8693	-4.9445	0.0000
	Female	90	1.7000	0.6439		
Total utilization	Male	110	6.1818	2.0685	-2.8823	0.0044
	Female	90	7.0111	1.9688		

among education levels with utilization of gum disease ($F=3.5648, p<0.01$), utilization of malocclusion ($F=3.0409, p<0.05$), and utilization of primary prevention of all oral diseases ($F=3.2052, p<0.01$) (Table 4).

The results of multiple linear regression analysis are presented in Table 5. It was found that, gender and education qualifications were positive and significantly associated with utilization of primary preventive measures of oral diseases ($p<0.01$). It means that, females are utilizing more of primary preventive oral services as compared to males; also as educational level increases there was significant increase in the utilization of primary preventive oral services. The R of the linear regression equation is 0.3003 and it was found to be significant with F-ratio (3.1892).

DISCUSSION

This is the first study conducted on utilization of primary preventive measures for common oral problems among the adults

of Dharwad city. The study was aimed to assess the overall utilization rates of primary preventive services and also to identify the factors influencing the utilization of oral preventive services. This can provide valuable information in understating the preventive behavior of the study population and also to recommend the necessary measures to be taken in future for improving the provision of preventive oral care.

Results of the present study have shown that, overall utilization of primary preventive services for various oral problems was low. Further, only 15% of the current study subjects reported to visit the dentist periodically. This connotes the fact that, despite of improved oral health care delivery in this area; still the individual's attitude towards seeking preventive care remains at the base. Further, such low levels of utilization of primary preventive services can additionally contribute to the increasing burden of oral problems in this area.

Present study findings have shown that, greater number of subjects (70%) availed health education for prevention oral cancer. This ensures that, in a hospital based setting most of the care receivers are provided with the necessary health education in general and also for oral cancer in specific. These findings are assumed to benefit the population in performing self-mouth examinations for early detection of precancerous lesions or conditions of the oral cavity, encourage tobacco users to quit the habit, and also enhance the individual's periodic visits to dentist.

However, there was a lower rate of utilization of preventive services for dental caries (24.6%) as compared to other oral problems. This was indicated by reporting only 13.5% of subjects had topical fluoride and 11% pit fissure sealant applications. This suggests that, there is a need to improve the provision of preventive services for dental caries especially topical fluorides and sealant applications. Further, more emphasis should be given to educate the public and increase the knowledge and acceptance of oral health care professionals about the caries-preventive technology. This can enhance the individual's attitude towards seeking preventive care for dental caries (10). In the present study, education level was significantly associated with utilization of oral primary preventive measures. This implies that, study subjects with higher education levels had relatively utilized more preventive services as compared to other education groups. This could be due to their better knowledge on importance of oral health, awareness on available preventive services and also demonstrates their positive approach in receiving oral primary

Table 4: Comparison of education qualification with utilization of oral primary preventive services by One way ANOVA

Education Qualification	Dental Caries	Gum disease	Malocclusion	Oral cancer	Total Utilization
No school education	1.50	0.50	0.00	0.00	2.00
1-4 th std	3.00	1.50	1.00	1.50	7.00
5-7 th std	0.60	1.40	1.80	0.80	4.60
8-10 th std	1.44	1.98	1.71	1.34	6.46
11 th - degree	1.51	2.02	1.72	1.45	6.70
Professional	1.45	1.77	2.00	1.45	6.68
F-value	1.4813	3.5648	3.0409	1.9165	3.2052
p-value	0.1976	0.0042	0.0115	0.0933	0.0084
Significance	NS	S	S	NS	S

Table 5: Regression analyses of socio-demographic and economic factors on utilization scores

Variables	BETA	Standard Error of BETA	Regression Coefficient	Standard Error of Regression Coefficient	t-value	p-level
Age	0.1563	0.0895	0.0232	0.0133	1.7451	0.0826
Total members in family	-0.0483	0.0710	-0.0561	0.0825	-0.6797	0.4975
Monthly income	-0.0146	0.0720	0.0000	0.0000	-0.2034	0.8390
Education	0.1513	0.0735	0.3955	0.1922	2.0575	0.0410
Gender	0.2035	0.0724	0.8408	0.2994	2.8086	0.0055
Marital status	0.1512	0.0866	0.5168	0.2958	1.7469	0.0822

preventive care. Analogues to the findings of the present study, Yu SM et al reported that, low parental education was one of the factors contributing for lower rates of utilization of preventive dental health among the US adolescents (11). Similarly Edward CM et al explained the influence of education level on utilization of preventive services (12).

Also evident from this study, females have utilized more of dental services when compared with males. The possible explanation for this could be the increased esthetic concern among female study subjects to prevent dental caries, gum diseases, malocclusion. Female study subjects might perceive fatality of the oral cancer to be more threatening than male study subjects and hence tend to be more cautious to prevent the same. Similar findings were demonstrated by Syrjala et al where female gender tends to utilize more preventive service as compared to males (13).

However, in contrast to the results of the present study, Okunseri C et al explained the influence of gender in utilization of preventive services among adult patients attending a dental school at Wisconsin (14). According to the author, males have significantly utilized more preventive services as compared to females. This shows that, these factors are not universally uniform and this requires understanding the regional differences in the preventive health behavior.

A non-significant difference in response to other socio-demographic and economic factors in the present study suggests income, marital status were not leading fac-

tors in the utilization of oral primary preventive services among the study subjects. Thus, it can be concluded that, there was lower rates of utilization of primary preventive services among the study subjects. Further, two variables emerged as central: education qualification and gender, which positively influenced the utilization of oral primary preventive services. The predictability of these data indicates the higher most significance of these factors on utilization of oral primary preventive services among these study subjects.

Thus, from the findings of the present study, it is recommended to target the individual's of Dharwad city by creating awareness on available oral primary preventive services and also to provide a vision on cost effectiveness and others benefits of utilizing preventive services in maintenance of oral health. Further, it is advised to reinforce the significance of preventive oral care on a periodic basis through various community out-reach programs. These measures could probably improve their utilization of preventive services for maintaining optimal oral health.

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