Research Article

SOCIAL DETERMINANTS OF DENTAL HEALTH SERVICE UTILISATION OF INDIAN ADULTS

Prabu D[1], Raj Mohan M[2], Bharathwaj V V[3], Sindhu R[3], Dinesh Dhamodhar[2]

[1]Master of Dental Surgery, Professor and Head, Department of Public Health Dentistry, SRM Dental College, Ramapuram, Chennai, India

[2]Master of Dental Surgery, Reader, Department of Public Health Dentistry, SRM Dental College, Ramapuram, Chennai, India

[3]Master of Dental Surgery, Senior lecturer, Department of Public Health Dentistry, SRM Dental College, Ramapuram, Chennai, India

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Corresponding author: Dr. Prabu D
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Abstract

Objective: The aim of this study is to find out the determinants of dental care utilisationamong the Indian adults inrelation to the socio-economic status.

Methods: This study is done through survey on the health and health care services utilisation. In the survey,500 adults between 18-60 years of age was taken and stratified by geographic region, age and gender. Aquestionnaire was made to assess the individual variable on dental utilisation.

Results:31.2% of Indian adults have visited a dentist last year. Statistically significant differences in dental care utilisation were observed in relation to demographic,socio economic status of life style. Logistic regression analysis showed that, gender, age, income, education, place of residence, private insurance coverage and self rated oral health are important determinants of dental service utilisation. Result from poisson regression analysis showed that lower income level correlated to lower number of dental visits, while having visited for treatment correlates to higher number of dental visits.

Conclusion: The survey on Indian adults do not exhibit satisfactory results on dental visit. This care sought is associated with need for treatment and not for prevention purpose. This results confirms the socio – economic inequalities in dental service utilisation among Indian adults.

Keywords: dental service, inequalities, utilization, social

I. Introduction

The present study aim is to identify the determinants of dental care utilisation among Indian adults with particular emphasis on identifying socio – economic status which act as a barrier to access to dental care utilisation. [1]

The system of private finance raises questions about the equality of the distribution of dental services. Such as, to what extent do individual finance resources, including income and dental insurance coverage affect their use of dental services. [2] Is it the case, for instance, that those with limited means with no

insurance pay out of pocket to receive regular dental care. [3] The evidence suggests that the answer is no. Thus the report shows, income and insurance are important determinants of once decision to visit a dentist over the course of a year. [4]

In particular, holding other factors constant, the highest income Indian were almost three times as likely to visit a dentist compared to the lowest income Indians. In this survey we investigate the effect of household financial resources on the number of dental visit made in past year. [5] With variety of other factors such as age, sex, education and oral health. The results suggest that income and insurance affects the probability of visiting dentist and also found that insured individual are more likely to receive dental care than the non insured individuals. [6] We investigate this by estimating a model of the probability of dental insurance coverage as a function of, among their factor, self assessed general oral health status. [7] If those with poorer oral health are no more likely than those with excellent oral health to report dental insurance coverage, then selection effects are probability not driving the positive association between insurance and dental service use. Such finding are valuable in formulating future policies for improving equity in oral health care in India. [8]

II. Materials and Methods

The samples of 500 Indian citizens aged between years represents a proportionate 1 by geographic region, age and gender stratified sample. Data were collected by preparing a questionnaire. A purpose made questionnaire was used, previously controlled for face and contact validity.

Statistical analysis involved chi- square test and Mann- whitney U and kruskal-wallis test for the analysis of number of dental visits, as well as spearman's correlation co- efficient. In this study, 2 stage model involved a stepwise logistic regression model with dependant variable being self reported" Dental visit or no visit with in last year" and poisson regression model with dependent variable being self reported " Number of dental visit with in last 12 month".

Data was obtained from responses to the question " did you use any of the following dental services during last year and how many times and for what reason?" The answers included zero visit, once in a year, once in six months or once in three months and the reason for the visit could be an emergency situation, or need for treatment or for regular check up. Thus the relevant data reported in this study on " number of dental visits" are actually "number of courses of treatment".

Independent variable were demographic socio- economic, being covered by health insurance [public and private], self rated oral and general health, self reported presents of chronic disease and current smoking status, house hold income was defined as self reported monthly family income in any source in rupees. Education is a 4 point scale ordinal measurement, the category being "no or up to elementary", "high school", "basic degree" and "post graduation".

In term of insurance , it is noted that private health insurance refers to general health insurance and does not necessarily include dental coverage. Self rate oral and general health were measured on a 4 point original scale[1: very good, or excellent, 2: good, 3: better, 4: poor].

Employment status is a nominal measurement, the response categories being " self employee", "employee", "employed in

family business", and "other", of this study, 220 i.e. [22%] were included in other category and those were dropped from the analysis as no specific information could be derived from them. In this study age was included as a continuous variable, self rated oral and general health were included as ordinal variables, while for the remainder, dummy variables are constructed. Presence of chronic conditions have been included in this study, because self perceived general and oral health have found to be associated with health services utilisation.

III. Results

Our study report that the total number of people visited a dentist with in last year is 156 [i.e] 31.2% of people. This percentage varied in relation to all the various demographic and socio- economic variable at statistically significant level, except for area of residence[urban or rural] and for being covered by public health insurance or not.

Table 1 shows that woman reported dental visiting [32.9%] at a higher rate than man [29.5%]. Higher rate were also found for single [67.7%] as compared to married [30.9%] and divorced / widowed / separated [1.4%]. Dental visit also varies with age. More than 62% of individual aged 18 – 50 years had visited a dentist compared to 38% of individual aged 52-65 years. Age was found to have negative correlation with having had dental visit with in last year.

Dental visiting rate observed by house hold income reported that only 4% of those with income less that 2000 rupees per month had visited a dentist compared to [26.3%] among those with greater than 5000 rupees per month or higher income.

Education was similarly associated with higher utilisation rates. The percentage of respondents with higher education having visited a dentist during past year[27.1%] is almost triple the percentage of those with no or up to elementary education only [7.8%]. With regards to employment status, dental visiting rate ranges from self employed[8.6%] and employee [20.2%], employed in family business [1.4%] and for unemployed [30.3%]. Private health insurances was found to be associated with lower visiting rate [16.8%] compared to rate of [45.5%] among those without a private insurance scheme.

Table 1: **Dental service utilisation of Indian adults within last year by selected variables**

		Frequency	**% of People with Dental Visit**	**Sig. Value p**
Sex	Male	246	29.5%	0.141
	Female	253	32.9%	
Education	No or up to Elementary	65	7.8%	0.200
	High School	159	18.2%	
	Basic Degree	211	27.1%	
	Post Graduation	64	9.2%	
Employment	Self Employed	61	8.6%	0.005
	Employee	191	20.2%	
	Employed in Family Business	9	1.4%	

	Others	220	30.3%	
HouseholdIncome	<Rs 2000/ Month	32	4.0%	0.000
	Rs 2000 - 5000 / Month	80	7.8%	
	>Rs 5000/ Month	225	26.3%	
AreaofResidence	Rural	45	3.0%	0.000
	Urban	454	59.3%	
PrivateInsurance	Yes	100	16.8%	0.000
	No	399	45.5%	
PublicInsurance	Yes	190	25.9%	0.027
	No	309	36.5%	
ChronicDisease	Yes	11	1.6%	0.352
	No	488	60.7%	
Smoker	Yes	65	8.2%	0.505
	No	434	54.1%	

Table 2: Correlation of sex and self rated oral health with dental service utilisation of Indian adults within last year

Dental visit within last year (Spearman's rho)		Significant Value
Self-rated oral health	-0.50	0.122
Self – rated general health	-0.040	0.172

Taking the absolute value of the correlation coefficient measures the strength of the relationship. A correlation coefficient of r= -0.50 indicates a weaker degree of linear relationship than one of r= -0.040. Likewise a correlation coefficient of r=-0.50 shows a minor degree of relationship than one of r= -0.40. Thus a correlation coefficient of zero (r=0.0) indicates the absence of a linear relationship and correlation coefficients of r=+1.0 and r=-1.0 indicate a perfect linear relationship.

Reports on chronic conditions and smoking behaviour shows self rated oral health and self rated general health were found to have significant but not negative correlation with having had a dental visit with in past year. [Spearman's rho = -0.50 and 0.040 respectively]. (Table.2) And report also shows that chronic health problem for which they needed to take medication on a regular basis were found to utilise dental services [1.6%] when compare to those without any such health problem [43.5%]. Finally current smokers reported less dental visiting rate [8.2%] than the non smokers [54.1%].

Table 3: **Frequencies of numbers of dental visits among those who had visited within the previous year**

No. of Dental Visit		
	n	*%*
Once	240	48.1%
Twice	170	34.1%
Thrice	49	9.8%
More than Thrice	40	8.0%
Total	**499**	

Among those reported dental services utilisation with in last year, the number of dental visit varies as [48.1%] for those visited dentist once in a year for any treatment cause or emergency condition, [34.1%] for those visited dentist twice in a year, [9.8%] those visited dentist thrice in a year and [8.0%] of those visited more than thrice in a year may be for a regular checkup.(Table.3)

Table 4: Logistic regression results on dental utilisation

	Sig. Value
Age	0.236
Sex	0.077
Education	0.487
Employment	0.117
Area of Residence	0
Private Insurance	0
Public Insurance	0.291
Chronic Disease	0.776
Smoker	0.267
Rate of Oral Health	0.004
Marital Status	0.013
Constant	0.373

Logistic regression analysis examining the simultaneous effect of all the above individual variable showed that significant separate effect on the decision to receive any non dental care exert the gender, age, education, employment, area of residence, private and public insurance and rate of oral health.(table.4)

The survey report shows that the mean number of the dental visit is higher among those with higher household income, females, those who are highly educated and those who are single. Mean visit frequency are highest for those at extremes of oral health [excellent and poor] and lower for those with intermediate values [good and better]. Mean visit frequency varies markedly by province with highest rate observed in 18 to 50 years

[i.e] middle aged people. Visit drops ofmarkedly there after and stabilizes around one visit annually after age of 65.

Finally, number dental visit correlated negatively but weakly with the number of dentist per hundred population suggesting that the higher the dentist availability the lower the number of dental visits. No other significant differences were detected. It is noted that unemployed status group exhibited the highest mean number of dental visit [30.3%] but this did not reach statistical significant.

Discussion

Our result point to an important socio-economic gradient in the use of dental services in India. We find that probability of receiving any dental care over the course of a year and to a lesser extent, the amount of care received increases with household income and one's level of education attainment and insurance coverage. [9]

Oral health has opposing effects on the probability of receiving any dental care and amount of care received. We find those with poor oral health are less likely to receive dental care in association with those who have excellent or good oral health.[10] This result indirectly correlates with household income rate and socio-economic status of the individual. And people living in rural area associated with less dental care utilisation when compare to those living in urban. [11]

Further research is required to determine the reason for increased likelihood of dental service utilisation among theurban population self rated oral health has been found as an important determinant of the utilisation of dental services. In the present study, higherlikelihood for dental visits among those with highest income. Similar may be with educational level, comparing those with higher education to those with secondary education.[12] Both exhibit greater likelihood for dental attendance compare to remaining educational group.

Additionally dental visit based on treatment purpose [or] emergency condition is highe [48.1%] when compared to regular checkup [8.0%]. [13]

In conclusion, our study confirms that older adults and elderly are known to have increase oral health problem were as socio-economic factors are strongly related to dental utilisation. Lower dental attendance among people of low income and educational attainments is also reported. [14] Age, gender, education, income, place of residence, private health insurance and self related oral health influence the decision to receive care. However, it seems that once the decision to seek dental care is made, income and treatment determine the amount of care obtained. [15]

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