

Dental Treatment Services Utilization Among Indian Expatriates In The City Of North Carolina, U.S.A-A Cross-Sectional Study

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ABSTRACT:

Background: Oral health diseases are a burden among vast population of the world, and hadalso beenassociated with significant health conditions like cardiovascular diseases, renal diseases, and other systemic diseases. In general, the cost of living in America is relatively high when compared to India. So the cost of dental treatments had increased, and people seldom visit their dentists for general check-ups. They also neglect oral health care, which needs equal importance as that of public health care.Aim: This study aims to determine the utilization of dental services among Indian expatriates living in North Carolina, U.S.A.Materials and method:The cross-sectional study was conducted among the people of North Carolina.Convenience sampling technique was used to select the study subjects. The pre-tested questionnaire was administered to 50 Indian expatriates.Questions were based on the objective of analyzing people's knowledge about dental utility services.The demographic details of the participants were collected. Descriptive analysis was done, and the chi-square test was applied to check the association between males and females.Results:Among the total study group of 50 subjects; 20 males and 30 females, it was observed that only 33.3% had been visiting a dentist for the past one year.Only 66.5% of females utilizedprivate dental services in the U.S.A., whereas62.1% of the male population preferredto undergo dental treatment in India. The association between males and females who spent more money on each dental visit was statistically significant($p < 0.04$).Conclusion: About 38.8% of people choose to undergo procedures in the U.S. because of comfort and their advanced technology. The cost of dental treatments in the U.S. was too expensive. Owing to thewell equippedinfer among the American dentist, and the latest advancement on sterilization of instruments were used.

Keywords:Indian expatriates, dental utilization, oral health, American dentists, sterilization method.

INTRODUCTION:

The objective of this study is to assess the dental service utilization among Indian expats in the U.S.A. The Neglect of oral health care may lead to pain, tooth decay, tooth loss, periodontal infection, tooth mobility, and oral cancer. Above all, untreated or delayed treatment of oral diseases affects nutritional status, causes discomfort, and ultimately affects individuals' quality of life^{1,2}. Over several decades, dental care utilization has risen considerably.

Most of the Indians believed that the U.S.A. to be a land of opportunity, and it was indeed the land of immigrants. Earlier it was the doctors and businessmen who moved to the U.S.A. in huge numbers. In 1995, Indians from pure science background who were interested in research moved to the USA³. Over the past few decades, it had been engineering and management professionals from India who started moving to make money and better quality of life.

Oral health knowledge was better in the Indians who lived in developed countries like the U.S.A. In general, the cost of dental treatments were known to be higher in migrant countries. South Asian populations represent the proportion of migrants in high-income countries. For example, in the U.S.A., there are over 4.3 million South Asians⁴. Rates of dental utilization also varied across racial/ethnic groups. Whites reported consistently higher rates than Blacks. Based on data from three extensive national surveys, the proportions of Whites seeking dental care increased from 46.89 to 47.84%, while the proportion of Blacks raised from 23.44 to 26.73%⁵.

There are reports that dental patients only visit the dentist when in pain and also fail to return for follow up in most cases. To improve oral health outcomes, adequate knowledge of the utilization of dental services is essential. Issues like dental anxiety, cost of the treatment, income, the travelling distance of the patient to reach the dental clinic, and preference for preservation of teeth were considered as the barriers in regular dental care utilization among Indian expatriates in the U.S.A.

Oral health diseases remain an issue in many developed countries like the U.S.A.,⁶ and it is an undiscovered issue in many developing countries, particularly South Asian countries, including Bhutan, Bangladesh, India, Pakistan, the Maldives, Myanmar, Nepal, and Sri Lanka⁷. The present aim of this study is to determine the utilization of dental services among Indian expatriates living in the U.S.A.

MATERIALS AND METHOD:

A cross-sectional study was conducted in the city of North Carolina, U.S.A. The convenience sampling technique was used to select a sample of 50 individuals among the Indian expatriates in the U.S. to perceive their attitude towards dental treatment. The study population consisted of people aged 21 to 60 years. Ethical clearance approval was obtained from the institutional review board of Public Health Dentistry Department-SRM Dental College and Hospital, Ramapuram. Questions were based on the objective of analyzing people's knowledge about dental utility services in the U.S.A. Independent variables in this study included inquiries related to expatriates' oral status, personal and

previous job knowledge concerning the insurance in the U.S.A. A pilot study was conducted, and the questionnaire was pre-tested for validity and reliability for intraexaminer among the sample size of 10 selected subjects, those questionnaires were not included in the final analysis. Before administrating the questionnaire to the individuals, the validity and reliability of the questionnaire were tested. The data collection was carried out for three months through google forms. Total 14 close-ended questionnaires were received. The questionnaire was validated, and the Cronbach's alpha test showed a reliability coefficient of 0.85, which was found to be satisfactory for conducting the study. People who were not willing to provide the required information asked in the form due to security reasons were excluded. People who were living in the U.S.A. for the past 15 years were included. Demographic details of individuals who answered the questionnaire were collected. The data were collected, identified, Descriptive analysis was done, and Chi-square test was applied.

The data were compiled and analyzed using Statistical Package for Social Sciences (SPSS), version 26.0 (SPSS Inc., Chicago IL, U.S.A.). The descriptive statistics were obtained regarding the percentage of gender and utilization of dental services. Chi-square test was applied to evaluate the association between the utilization of dental services by male and female. $P < 0.05$ was set for statistical significance.

RESULT:

TABLE 1: AGE AND GENDER CHARACTERISTICS OF STUDY POPULATION

Age in Years	MALE		FEMALE	
	Number	Percentage	Number	Percentage
21-30	6	20.7	9	31.0
31-40	7	24.1	15	51.7
41-50	6	20.7	3	10.3
51-60	1	3.4	3	10.3

Table 1 shows the age and gender details of the participants included in this study. The age group of 21-60 participated more in the survey, which showed 65.5% among males whereas in females the age group between 20-40 actively attended, which showed 82.7%.

TABLE-2**THE DESCRIPTIVE VARIABLE OF THE QUESTIONNAIRE RECORDED**

QUESTIONS	ANSWERS	MALE		FEMALE		P-value
1. Which type of service provider do you use in the U.S.A.		Frequency	Percentage	Frequency	Percentage	0.12
	Private	15	51.7	19	66.5	
	DHMO(dental health maintenance organization)	6	20.7	8	27.5	
	Others	0	0	2	6.9	
2.What is your perception of dental services in the USA						0.38
	very good	13	44.8	16	55.2	
	Good/fair	8	27.6	12	41.4	
	poor	0	0	1	3.4	

3.How often did you visit the dentist						0.33
	two or more times in a year	3	10.3	10	14.3	
	once in a year	7	24.1	13	33.3	
	once in two year	5	17.2	3	23.8	
	only symptoms are present	6	20.7	3	10.3	
4.When was your last dental visit						0.7
	less than six months	6	20.7	17	58.6	
	less than 2years	11	37.9	9	31	
	More than two years	4	13.8	3	10.3	
5. Have you ever done scaling and polishing?						0.4
	yes	8	27.6	17	58.6	
	no	13	44.8	12	41.4	

6. How many times do you clean your teeth?						0.1
	Once a day	13	44.8	17	58.6	
	Twice a day	8	27.6	12	41.4	
7. Do you use any other dental hygiene products?						0.7
	Yes	6	20.7	9	31	
	No	15	51.7	20	69	
8. How long have you been living in the U.S.?						0.6
	Less than a year	6	20.7	0	0	
	1 to 3 years	1	3.4	5	17.2	
	3 to 5 years	4	13.8	6	20.7	
	More than five years	10	34.5	18	62.1	

9. Where would you prefer dental treatment?						0.5
	India	18	62.1	16	55.2	
	United States	3	10.3	13	44.8	
10. Reasons to undergo treatment in India or the U.S.?						0.4
	comfort	1	3.4	6	20.7	
	economics	18	62.1	15	51.7	
	professionalism	2	6.9	8	27.6	
11. Where do you find dental services expensive?						0.4
	India	0	0	1	3.4	
	United States	21	72.4	28	96.6	

12. Do you have dental insurance coverage?						0.9
	Yes	10	34.5	24	82.8	
	No	11	37.5	5	17.2	
13. Which type of dental services are covered in your insurance?						0.2
	Scaling, polishing	12	41.4	20	69	
	restorations	5	17.2	6	20.7	
	Root canal treatment	3	10.3	1	3.4	
	extractions	1	3.4	2	6.9	
14. Money spent out of your pocket on each dental visit?						0.04*
	More than \$50	6	20.7	4	13.8	
	\$30-\$50	2	6.9	7	24.1	
	\$10-\$30	13	44.8	18	62.1	

Table-2 shows that 66.5% of females use a private dental service provider. 62.1% of the male population prefer to undergo dental treatment in India, and 55.2% of the female population chose to undergo dental treatment in the U.S.A. 34.5% of males have dental insurance coverage, and 82.8% of females had dental insurance coverage. The money spent on each dental visit was statistically significant.

DISCUSSION:

The utilization of dental services among the Indian expatriates living in the U.S. had found to be less. About 71.1% of people opt for private service providers—individuals living in the U.S. A for more than five years prefer to undergo treatment in India. In the U.S.A., the total number of dentists were low, whereas the total number of Indian dental graduates were relatively high. Due to increased competition among the dentist in India, the treatment cost is comparatively cheapest. However, Dentists in the U.S.A. earn more than Indian Dentists.

About 98% of people found that dental services were too expensive in the U.S.A. Some people preferred to undergo dental treatments and procedures in the U.S.A. because of their advanced technology and professionalism. 64% of Indian expats had dental insurance coverage. Most dental insurances were covered only simple procedures like scaling and polishing. People had to spend more money on dental treatments the dentists during each visit. Most of the people visit dentists if symptoms were present and not for aesthetic purposes. The insurances did not cover other complicated procedures like restorations, root canal treatment, extractions. So 50% of people had to spend

more than \$50(INR 3700) for each dental visit.

66.5% of females used a private dental service provider. 62.1% of the male population prefers to undergo dental treatment in India, and 55.2% of the female population prefer to undergo dental treatment in the U.S.A. 34.5% of males had dental insurance coverage, and 82.8% of females have dental insurance coverage. The money spent on each dental visit was statistically significant ($P < 0.05$).

Root canal treatment charges were too costly in the U.S.A. of about 1200 USD, in contrary it was cheapest in India. Dental clinic construction and interior work in the U.S.A. were luxurious and more expensive than India. The dentist had to pay more staff wages, including receptionists, nurses, and sweepers in the U.S.A. than India. In the U.S.A., wages were implemented by the government, and it could not be violated the rules.

Most of the dentists offered cosmetic or aesthetic dentistry because there was a societal demand in America. Cosmetic work was time consuming and detailed; hence it was more expensive in America than India. The average income of an American was higher than Indians. In the U.S.A., the dentist spends more amount on two main factors: government costs and Dental materials. Government costs which belong to Sterilization procedures testing and upgrades, universal precautions, licensing and permits, D.E.A. (Drug Enforcement Administration) requirements, Therapeutic Goods Administration, insurance processing government and private, local state and federal taxes and charges, etc. and finally, dental supplies which were implausible expensive. Some of the dental materials were measured in USD \$ per drop.

Indian expatriates had minimal knowledge of using dental insurance in the U.S.A. Although many current Indian expatriates had supplemental retiree health insurance coverage (and possibly dental coverage through such a plan), the offers of such content had declined precipitously in recent years, meaning that future retirees will be more dependent on Medicare. Current estimates show that nearly one-quarter of Medicare beneficiaries are enrolled in Medicare Advantage plans, with about 40% of these plans offering preventive dental care and close to 20% offering comprehensive dental care^{8,9}. Currently, Medicare does not provide a dental benefit but covers the vast majority of dentist¹⁰. Although the full implementation status of health reform was unclear, it does not seem likely that a dental service will be added to Medicare shortly and may even be eliminated if Medicare advantage plans phases out¹¹.

In India, insurances do not cover dental treatment, and the average income of the people was less compared with the U.S.A. Dental materials cost too less than the USA^{12,13}. To reach the dental treatment procedures of the U.S.A. with India, the same ratio of comparison is evident. Dental procedures like smile designing, metal-free bridge, dental implants and root canal treatment are not only done at half the price as in America, but they are done in India by top dentists. Services like doctors expenses and emergency clinic charges are too less, and this has offered to ascend to dental visits in India, which is a blend of dental treatment and holiday^{14,15}. In the United state of America, there is a proper governing body that also keeps regulation on the cost of dental treatment. This system ensures that patients are not exploited and that dentists also receive their due. Dentists there lead a

very stress-free life compared to Indian dentists and earn a lot^{16,17,18}. People thought that the standardization of dental treatment was best in the U.S.A. because of using highly equipped dental instruments and machines. Most of the Indians immigrants preferred dental treatment was best in India due to low cost, and care taken to explain the procedures clearly to the patients. Indians living in the U.S. should acknowledge that dental insurances are also available in the general health insurance policy.

LIMITATIONS:

The sample size was less as only a few people gave consent to the required information. Few people were not comfortable in sharing their details like address, email id, and salary due to security reasons. Hence demographic information was not answered by some participants.

CONCLUSION:

In summary, dental utilization among Indian expatriates in the U.S. A was low. This study shows that Indians living in America prefer to undergo dental treatment in India because of the low cost. Most of people conscript to undergo procedures in the U.S. They found it more comfortable due to advanced technology. Further in-depth studies are required to understand the pattern of dental utilization among Indians.

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