Advances in Bioresearch
Adv. Biores., Vol 12 (6) November 2021: 220-225
©2021 Society of Education, India
Print ISSN 0976-4585; Online ISSN 2277-1573
Journal's URL:http://www.soeagra.com/abr.html
CODEN: ABRDC3
DOI: 10.15515/abr.0976-4585.12.6.220225

Advances in Bioresearch

ORIGINAL ARTICLE

Factors Affecting The Utilization Of Dental Services At An Outreach Dental Facility

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ABSTRACT
In the rural outreach areas, the available oral health services are not utilised due to the presence of few barriers.Hence, it is required to identify these barriers affecting utilization of dental services and develop a model for overcoming the identified barriers. A study was conducted among 350 patients across all age groups reporting to dental outreach centre. A structured questionnaire containing 23 questions was used. Proportions were analyzed by using Chi-square test and linear regression, data was analysed using SPSS version 20.0. A total of 85.43 % of people were visiting for the second time. They were predominantly male (85%), younger than 30 years (90.16%) and belonging to middle class(83.25%).The treatment satisfaction was found to be influenced by the age and occupation. Lack of treatment explanations resulted in dissatisfaction regarding the services. Transportation and cost of treatment were found to be the barriers to access referral centre. The main factors influencing the utilization of dental services at Rural Health and Training Centre were fear regarding dental treatment and tools, inaccessibility of the referral centre because of setbacks in transport and cost. There was a perceived apprehension towards dental treatments due to lack of understanding regarding the procedures.
Keywords: *Dental services, Oral Health, Barriers, Outreach services*

Received 26.08.2021 Revised 11.10.2021 Accepted 09.11.2021

How to cite this article:
D Satyarup, S Mohanty, R Nagarajappa, I Mahapatra, S Patnaik, R P Dalai. Factors Affecting The Utilization of Dental Services at an Outreach Dental Facility. Adv. Biores. Vol 12[6] November 2021: 220-225

INTRODUCTION

Health is known to be a fundamental and essential possession by all irrespective of their age, gender, social, economic and ethnic background. There is plenty of literature suggesting that health of oral cavity is a pivotal component and is connected to systemic well-being [1-3]. Poor knowledge and lack of awareness about the oral health highlights a gap in understanding by the general public [4, 5]. Hence making sure of the utilization of these services and identifying the barriers is vital [6]. Previous studies conducted in rural India showed most common barriers were expensive dental treatments, poor accessibility and transport facilities and low dentist to population ratio [7].

Some of the existing concerns in rural India are dental diseases, and a general lack of awareness regarding oral health care and prevention of oral diseases. [8]. So to overcome these obstacles, in 1998 the National oral health care programme was established, with the objectives of primary prevention and strengthening existing oral health care [9].Dental Council of India (DCI)also made it mandatory for all dental collegesto establish rural satellite centres for delivering dental care [10]. Despite of having a specialization in dentistry that is supposed to address oral health in rural areas, it fall short sadly,as it comprises of only 2% of the total dentist population [10].

The Indian rural population faces several social and cultural challenges. India lacks in oral health care systems to cater its vast rural population. Hence there exists a gross inequality in accessibility of dental health care (inverse care law) [11]. Utilization of dental services and itsbarriers are important parameters in oral health care planning in the rural areas. Identifying cases of poor oral health is an obstacle in rural areas; also there are circumstances where there is no availability of follow-up care, or

referral to a treatment centre along with many difficulties in transport and cost [12, 13]. For these reasons, screening alone simply cannot address oral health in India [14]. Centres catering to dental health needs of the rural populations are mandatory.
But the way of availing the existing dental health services at outreach dental setups and the utilisation of these services are questionable. The aim and objectives of the study wasto identify the factors affecting utilization of dental services at an outreach centre and to develop a practical model for overcoming the identified barriers.

MATERIAL AND METHODS

An observational study was done among every individual patient who visited dental outreach centre on Mondays and Wednesdays from July 2019 to September 2019. Data was collected by using a pretested questionnaire that comprised of demographic data, enabling factors like availability and accessibility and their responses were recorded with a combination multiple choice questions and Likert Scale. Patients those who consented were included in the study. Ethical approval was obtained from the ethical committee of Institute of Medical Sciences and Sum Hospital, Siksha and Anusandhan University, and informed consent was obtained from participants.
The questionnaire was pretested on a sample of 35 regular dental OPD patients who were not a part of the study.The internal consistency of the questionnaire was estimated using the Cronbach's alpha (0.8). The sample size was calculated using prevalence with proportions from a previous study conducted by Bommireddy *et al* [5].The final sample size was estimated to be 350.

Statistical analysis

The data was collected and transferred to excel sheet and analysis was done with the SPSS version 20. Descriptive statistics was presented and inferential analysis was done using Chi-square test. Logistic regression was used to know the significant predictors of dental health service utilization in bivariate analysis and Adjusted Odds Ratio were calculated. P-value of < 0.001 was considered as statistically significant. The socio-economic status of the study population was assessed using Modified B.G Prasad's Scale. [15].

RESULTS

Table No.1: Distribution of the study subjects according to their socio-demographic characteristics

Items	Study subjects	
	n=(350)	(%)
Age(years):		
<=10	17	4.86
11-20	26	7.43
21-30	79	22.57
31-40	47	13.43
41-50	74	21.14
51-60	72	20.57
61-70	29	8.29
71-80	6	1.71
Mean ± SD= **40±8.2 years**		
Sex:		
Male	240	68.6%
Female	110	38.4%
Occupation:		
Labourer	65	18.57
Caste Occupation	136	38.86
Business	87	24.86
Self Employed	58	16.57
Cultivator	2	0.57
Salaried	2	0.57
Income:		
<= Rs 5000	83	13.3
Rs 5001-1000	197	31.2
Rs 10001-15000	70	55.5
Rs 15001-2 lacs	_	_

A greater number (22.5%) of study population were aged 21-30 years while minimum were of 71-80 years (1.7%). Males (68.6%) visited the dental setup more frequently than the females (38.4%). (Table No.1).

Income was found to be significantly associated with previous dental visit using Chi square at (p = 0.007). Dental attendance was maximum (55.5%) with per capita income in the range of Rs.10001-15000. Age was found to be significantly associated (p = 0.03) with deficiencies in treatment explanations (30.7%). Table No.2 depicts the availability of dental services and Table No.3 shows the enabling factors regarding accessibility and availability of resources at the outreach centre. The satisfaction regarding treatment provided was found to be statistically significant using Chi square test (p = 0.003). The reason for dissatisfaction regarding treatment provided was found to be due to deficiencies in treatment explanation. Cost (37.6%) of dental care and lack of transportation (37.6%) were the reasons for not visiting the referral centres for specialised care. (p=0.033). (Table No.4). Logistic regression analysis was done to associate previous dental health visits and its independent factors where income was found to be significant (p = 0.13) (Table No.5).

Table No.2 : Distribution of the study subjects according to the availability and affordability of dental services in the outreach centre.

Items	Study Subjects n (350)	%
Information about outreach centre was gainedfrom		
Advertisements	2	0.5
Friends	98	28.1
Family members	98	28.1
Doctors	88	25.1
Camps	60	17.1
Others	4	1.1
Feasibility of Working hours		
Yes	332	94.8
No	18	5.2
Previous Dental visit to the outreach centre		
Yes	299	85.5
No	51	14.5
Awareness about cost free basic dental treatments:		
Yes	304	86.4
No	46	13.2
Rating of accessibility of outreach facility:		
Excellent	32	9.1
Good	260	74.3
Fair	58	16.6
Poor	0	0

Table No.3: Enabling factors[a] in the dental outreach centre

Items	Study Subjects	
	n	**%**
Approach at the reception during visit:		
Excellent	**48**	**13.7**
Good	**236**	**67.4**
Fair	**60**	**17.2**
Poor	**6**	**1.7**
How well were you informed regarding the details of recommended dental treatment:		
Excellent	**23**	**6.6**
Good	**235**	**67.1**
Fair	**92**	**26.3**
Poor	**0**	**0**
Rating of light and ventilation of the setup:		
Excellent	**36**	**10.2**
Good	**239**	**68.4**
Fair	**75**	**21.4**
Poor	**0**	**0**
Rating the cleanliness of room,chair, instrument, surroundings of dental set up:		
Excellent	**36**	**10.4**
Good	**232**	**66.2**
Fair	**82**	**23.4**
Poor	**0**	**0**

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Rating of behaviour of dentists at outreach facility:		
Excellent	**44**	**12.6**
Good	**257**	**73.4**
Fair	**49**	**14**
Poor	**0**	**0**
Rating the treatment procedure undergone:		
Excellent	**18**	**5.8**
Good	**214**	**60.5**
Fair	**118**	**33.7**
Poor	**0**	**0**
Satisfaction with the treatment provided in the outreach facility[b]:		
Yes	**298**	**85.2**
No	**52**	**14.8**

a: Enabling factors are physical factors such as availability and accessibility of resources or services that facilitate achievement of motivation to change behaviour.
b: statistically significant p = 0.024 using Chi square test

Table No.4: Barriers for Utilisation of Dental Services

Barriers	Study Subjects	
	n	%
Services to be provided on Sundays and Public Holidays		
Yes	**274**	**78.3**
No	**76**	**21.7**
Apprehensive of Dentist		
Yes	**312**	**89.2**
No	**38**	**10.8**
Apprehensive of Dental Tools and Procedure		
Yes	**286**	**81.7**
No	**64**	**18.3**
Reason for dissatisfaction of treatment provided[a]		
Dentist not Courteous	**0**	**0**
Language Barrier	**7**	**13.4**
Appointments not maintained	**14**	**26.9**
Painful Procedure	**15**	**28.8**
Deficiencies in treatment explanation	**16**	**30.7**
Others Specify	**0**	**0**
Reason for not visiting referral centre[b]		
Transportation	**32**	**37.6**
Cost	**32**	**37.6**
Working hours	**3**	**3.5**
Working days	**12**	**14.2**
Guardian Scheduling	**4**	**4.7**
Others	**2**	**2.4**

a and b statistically significant p=0.003 and p=0.033 respectively using Chi square test

Table No.5: Logistic regression analysis of previous dental health visits and its associated independent factors:(add mean)

Items	B	P	AOR (95% Confidence Interval)
AGE	-0.007	0.487	0.993(0.974-1.013)
SEX	0.195	0.569	1.216(0.620-2.384)
INCOME[a]	0.684	0.013[a]	1.982 (1.156-3.399)
OCCUPATION	0.053	0.772	0.948(0.662-1.358)

a: statistically significant ; AOR: Adjusted Odds Ratio

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DISCUSSION

Approximately 72% of Indian population belongs to the rural areas but this is in contrast to urban localities where, concentration of the trained dental manpower is 80%. Thus the difference between oral health care service usage among urban and rural population is gross [6].The current priority is to encourage good oral health among the people living in the rural outreach areas, which can be done by improving access to oral health care services. A multitude of factors such as gender, age and access to dental services affects the patterns of utilization and the barriers.

Utilization of dental care was found to be influenced by age, which is accordance with a study undertaken by Bommireddy *et al* [5]. The current study had a mean age of 40±8.2 years which was similar with the findings of Kakatkar *et al*.[16]. The dental outreach centre was mostly visited by patients belonging to the age group of 21-30 years (22.5%) which is comparable with results of Pewa *et al* [7] and Tandon S *et al* [10]. Services were utilized less by the children below 10 years and elder population of over 60years which were similar with findings of other studies. [7, 6].

Among the study subjects, males (68.5%) visited dentist more frequently than females (31.4%) which is similar with the findings of Nagarjuna *et al.[*17]andThomas et al[6]but was contradictory with the finding of Vashishth *et al* (56.8 %).[18] This is probably because of females are restricted by cultural barriers and also found it difficult to prioritise dental care over their domestic responsibilities etc.A total of 85.4% patients had visited outreach centre before, which is higher than that of Bommireddy *et al* [5]where it was only 31.9%. Better oral health awareness among our study population could be a result of the outreach centre being functional since the last 10 years.

High cost of dental services in the referral centres was the frequent barrier reported by the study subjects which is similar with the findings of Nagarjuna *et al* [17], Thomas *et al* [6]but was different from the findings of Hassan et al. [19] In the current study, lack of transportation posed a problem for visiting the referral centre which agrees with the outcomes of Nagarjuna *et al* [17], Mir *et al* [20] and Syrjala et al.[21]Fear of dental tools and procedures was 81.7% which is comparable to findings by Hassan *et al* [19] and Mir *et al* [20]but was in contradictory with the findings of Fotedar *et al* [22]. The current study found significant association between income and previous dental visit.After identifying the barriers, a model was developed and introduced to address these concerns.

1. Low attendance among women: The utilization of dental services among women could be improved by organizing oral health awareness programs through primary health care workers. Dental health programs in schools among teachers and parents and community leaders might also promote favourable dental health behaviours.

2. Accessibility and acceptability: It was found that most them got to know about dental outreach centre through family and friends which is good, (Table No. 2) hence its necessary maintain the goodwill and positive perception by ensuring the quality of dental care delivered.

3. Provision of services on holidays: Posting a dentist and a nurse for roster duties on Sundays and public holidays in order to improve the access to dental care.

4. Addressing apprehension regarding dentist, dental tools and dental procedures: Creating a patient friendly environment, with the dentist demonstrating and explaining each procedure with the aid of informative charts, models and AV aids.

5. Deficiency in treatment explanation: Emphasis on patient counselling by newly recruited personnel or interns. Use of educational aids in explanation of treatment procedures.

6. Issues regarding transportation and cost of dental care: Provision of regular scheduled transport from the outreach centre to the referral setup and providing prompt dental care at subsidized costs for all referrals.

Feedback regarding these will be administered at 6 months and 1 year, to reassess the success of dental health care delivery model.

LIMITATION

The present study was conducted on only those who were visiting outreach centre. But however, including the entire catchment area population would have given a clearer picture of the barriers preventing the utilisation of services especially among those who didn't attend the dental centre. Responses of the participants should be interpreted with caution as; the factor of social desirability cannot be disregarded.

CONCLUSION

The crucial components affecting the utilization of oral health care services were fear regarding dental treatment and tools, inaccessibility to the referral centre because of setbacks in transport and cost. There

was a perceived apprehension towards dental treatments due to lack of understanding regarding the procedures. Hence, a model of oral health care delivery addressing these barriers was proposed.

ACKNOWLEDGEMENTS
The study was supported by the Institute of Dental Sciences, SOA University, Bhubaneswar.

CONFLICT OF INTERESTS
None Declared

FUNDING
No funds were obtained for this study

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