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Original Article

Dentistry Section

Dental Service Utilization: Patterns and Barriers among Rural Elderly in Guntur District, Andhra Pradesh

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ABSTRACT

Introduction: The biological process of ageing is outside human control and has its own dynamics. It is a known fact that elderly people have more treatment needs compared to the younger population and at the same time elderly people are facing a multitude of barriers in utilization of health care as well as oral health care.

Aim: To identify the utilization patterns of oral health care and barriers for utilization among rural population.

Materials and Methods: A cross-sectional study was done on 621 rural elderly subjects to identify the utilization of oral health care services and the barriers for utilization. Using stratified cluster sampling study area was stratified into 13 rural clusters, fifty houses were randomly selected from each stratum. All the elderly subjects, as defined by the age criteria were considered for study. The data were analysed using SPSS 20 v and Chi-square tests were used to analyse the data.

Results: Only 31.9% of participants reported visiting a dentist in the past while 36.7% reported experiencing a dental problem at some point in their life. There were no significant differences in utilization of dental services based on gender, socio-economic status, age groups and religion. However, significant differences were found in utilization of dental services based on the response of participants to past experience of dental problems.

Conclusion: The present study results conclude that fear was one of the most commonly reported barriers for utilisation of dental services and there is a need for oral health education and promotion among elderly population.

Keywords: Aged, Dental health services, Oral health, Socio-economic factors

INTRODUCTION

Enjoying health at its highest attainable standards is a basic right of all human beings irrespective of their race, religion, political beliefs, and socio-economic scenarios [1]. Health is considered as an elementary and necessary asset by everyone regardless of their age, gender, social, economic and ethnic background. WHO initiated a program on ageing and health in 1995. This was followed by another program "Ageing and life course" in 2000, which reiterated the importance of health of elderly and focused on the principle of 'active ageing' [2]. The policy framework for active ageing relies on three fundamental concepts: health, social participation, and security. Oral health was considered important and was included in the policy framework of 'active ageing' [3]. There is an abundance of literature suggesting that oral health is an important and integral component of general health [4-7], but the poor oral health status is enough evidence throwing light on how poorly this was deciphered by the general public [8].

An insight into the past and projected life expectancy at birth in India is relevant at this juncture. The life expectancy at birth of Indian population was 63.6 years in 2001-2006 which is projected to be increased to 72.7 years by 2031-2036 [9]. This increase in life expectancy increases the grey proportion of the Indian population. It comes with a range of intricacies with respect to the general and oral health of the elderly population. It is a known fact that elderly people have more treatment needs compared to the younger population. This is due to the accumulation of needs and age related changes in the dentofacial construct [10]. Elderly people face a multitude of barriers to utilization of oral health care. Low income, poor literacy, ill health, and a belief that oral health care is elective or optional are few to name from the list of barriers [11]. The impact of these barriers only increase in the context of Indian population. There are very few studies which were done to discern the oral health care utilization patterns and barriers for utilization, exclusively on elderly [12].

Maintaining a healthy elderly population reduces medical and societal costs to the community [13,14]. Maintenance and promotion of health goes beyond medical or psychological health to encompass oral health and overall health status. In order to promote and maintain good oral health, a clear knowledge on the patterns of utilization of oral health services and the barriers for utilization of these services is very essential.

AIM

With this background, the aim of this study was to identify the utilization patterns of oral health care and barriers for utilization among rural population aged 55 and above in Guntur district of Andhra Pradesh.

MATERIALS AND METHODS

The study was performed in Guntur district of Andhra Pradesh. It was a cross sectional study done on rural elderly subjects to identify the utilization of oral health care services and the barriers for utilization. A pilot study was done on 50 subjects to check for practicality of the study schedule and to identify areas where modifications are required. Based on the results of the pilot study, the sample size was determined as 614.

The study area was stratified into 13 rural clusters of which 50 houses were randomly selected from each stratum. All the elderly subjects, as defined by the age criteria followed in this study, who were available at home on the day of data collection and willing to participate were included in the study. Subjects who were not local to the area, physically and/or mentally challenged subjects were excluded from the study. A total of 621 elderly, including both the genders, were interviewed by a single calibrated examiner over a

period of four months which was from October, 2014 to January, 2015.

Data were collected from 10 to 15 subjects per day. It took 15-20 minutes to collect and record data for an individual on an average. The study involved completion of a structured questionnaire which included demographic information and information on visits to dentist, experience of dental problems, oral hygiene practices, factors influencing utilization of oral health care services, adverse habits. The demographic data included name, age, gender, religion, education, income, occupation, etc. The questionnaire was translated to the local language of the study area for administering to the elderly. The questionnaire was administered by the interviewer as more than half of the study population were illiterates. The questionnaire was piloted on a sample of 50 subjects for validity and reliability. It provided a reliable, valid tool which was easy to administer with a kappa statistic of 0.78.

STATISTICAL ANALYSIS

The data were analysed using SPSS version 20 software (IBM Corp. Released 2011. IBM SPSS Statistics for Windows, Version 20.0. Armonk, NY: IBM Corp.). Descriptive statistics, Chi-square tests were used to analyse the data. p-value ≤ 0.05 was considered significant. The study protocol received ethical approval from the institutional ethical committee of SIBAR Institute of Dental Sciences. The study purpose was explained to all the participants and informed consent was obtained. The socio-economic status of the study population was assessed using Kuppuswamy scale.

RESULTS

Of the 621 participants, 55.5% were males and the mean age of the study population was 64±7.68 years with an age range of 55-86 years. [Table/Fig-1] shows the demographic details and oral hygiene practices of the study participants segregated by age group. A majority of participants (55.5%) belonged to the age group of 55-64 years, followed by 65-74 years (33.2%), and 75 and above (11.3%). A 67.3% of the study participants were Hindus, 6.5% were Muslims, and 26.2% were Christians. Only 31.9% of participants reported visiting a dentist in the past while 36.7% reported experiencing a dental problem at some point in their life. Toothache and decayed teeth were the most commonly remembered dental problems, and extraction was the most commonly undergone treatment. [Table/Fig-2] shows the differences in utilization of dental services and perceived barriers for utilization among the three age groups of the study population. There were no significant differences in utilization of dental services based on gender, socio-economic status, age groups, and religion as shown in [Table/Fig-3]. There were significant differences in utilization of dental services based on the response of participants to past experience of dental problems [Table/Fig-3].

DISCUSSION

Studies on patterns of utilization and barriers for utilization provide a basis for formulation and execution of oral health promotion programs. The patterns of utilization and the barriers depend on a multitude of factors, and age finds a definite place among these influencing factors [15-18]. Elderly people often are considered a burden to the society owing to their high treatment needs. Though there are commonly used connotations of the term “old age”, there is no general agreement on the age at which a person becomes old. Developing countries differ from developed countries in the way they define old age. In developing countries, old age is considered to begin when it is no longer possible for the individual to actively contribute, whereas the definition for old age rests on the foundation of chronological milestones that mark life stages in developed countries [19]. Thane 1978 considered old age to occur between 45 and 55 years for women and between 55 and 75 years for men [20]. However, these classifications are arbitrary and gets complex where international comparisons have to be made. This becomes even complicated in countries like India where the exact age of individuals is not known owing to the lack of an official birth record [21]. It was projected by UNICEF that 41% of births in India are unregistered [22]. So, framing a definition for old age in Indian context is too complex and we have considered 55 years to be the denotation for elderly or old aged in this study which is in accordance with a study done in United States of America [23].

Age Group	55-64 (%)	65-74 (%)	75 and above (%)	Total (%)
Education				
Illiterate	166 (26.7)	123 (19.8)	45 (7.2)	334 (53.8)
Upper primary	135 (21.7)	72 (11.6)	19 (3)	226 (36.4)
Higher secondary	43 (6.9)	11 (1.8)	06 (1)	60 (9.6)
Graduation and above	01 (0.2)	0 (0)	0 (0)	01 (0.2)
Occupation				
Unemployed	102 (16.4)	67 (10.8)	67 (10.8)	193 (31.1)
Unskilled	143 (23)	86 (13.8)	86 (13.8)	258 (41.5)
Semi skilled	30 (4.8)	19 (3)	19 (3)	55 (8.8)
Skilled	10 (1.6)	03 (0.5)	03 (0.5)	15 (2.4)
Clerical, shop owner, farmer	55 (8.8)	31 (5)	31 (5)	95 (15.3)
Semi-professional/ professional	05 (0.8)	0 (0)	0 (0)	05 (0.8)
Income				
Below 5000	333 (53.6)	202 (32.5)	69 (11.1)	604 (97.2)
5001-10000	10 (1.6)	03 (0.5)	01 (0.2)	14 (2.3)
Above 10000	02 (0.3)	01 (0.2)	0 (0)	03 (0.5)
Socio economic status				
Lower	103 (16.6)	84 (13.5)	29 (4.67)	216 (34.8)
Upper lower	222 (35.7)	118 (18.8)	38 (6.1)	378 (60.9)
Lower middle	17 (2.7)	03 (0.5)	03 (0.5)	23 (3.7)
Upper middle	03 (0.5)	01 (0.2)	0 (0)	04 (0.6)
Cleaning aid				
Brush	300 (48.3)	164 (26.4)	42 (6.8)	506 (81.5)
Finger	25 (4)	21 (3.4)	4 (0.6)	50 (8)
Twig	20 (3.2)	21 (3.4)	24 (3.8)	65 (10.5)
Cleaning material				
Toothpaste	292 (47)	170 (27.4)	40 (6.4)	502 (80.8)
Tooth powder	23 (3.7)	14 (2.3)	03 (0.5)	40 (6.4)
Other indigenous material	10 (1.6)	01 (0.2)	03 (0.5)	14 (2.3)
Twig	20 (3.2)	21 (3.4)	24 (3.8)	65 (10.4)
Frequency of brushing				
Once daily	273 (44)	151 (24.3)	41 (6.6)	465 (74.9)
Twice daily	27 (4.3)	13 (2.1)	01 (0.2)	41 (6.6)
More than twice	0 (0)	0 (0)	0 (0)	0 (0)
Frequency of changing tooth brush				
Less than 3 months	228 (36.7)	119 (19.2)	23 (3.7)	370 (59.6)
More than 3 months less than 6 months	29 (4.67)	33 (5.3)	12 (1.9)	74 (11.9)
More than 6 months	43 (6.9)	12 (1.9)	07 (1.1)	62 (10)
Smoking/tobacco habits				
Yes	75 (12.1)	49 (7.9)	14 (2.2)	138 (22.2)
No	270 (43.5)	157 (25.3)	56 (9)	483 (77.8)
Alcohol habit				
Yes	52 (8.4)	34 (5.5)	09 (1.4)	95 (15.3)
No	293 (47.2)	172 (27.7)	61 (9.8)	526 (84.7)

[Table/Fig-1]: Distribution of study subjects based on demographic and oral hygiene practices according to Age groups.

Question		55-64 (345)	65-74 (206)	75&above (70)	Total N=621	p-value
Have you ever visited a dentist	Yes	107(17.2)	75 (12.1)	16 (2.6)	198 (31.9)	0.168
Have you ever experienced dental problem	Yes	128 (20.6)	78 (12.6)	22 (3.5)	228 (36.7)	0.592
If yes, what was the most remembered episode of your dental problem	Tooth pain	57 (9.2)	36 (5.8)	10 (1.6)	103 (16.6)	0.031*
	Decayed tooth	50 (8)	36 (5.8)	10 (1.6)	96 (15.4)	
	Food impaction	01 (0.15)	01 (0.15)	0	02 (0.3)	
	Bleeding gums/calculus	0	03 (0.5)	02 (0.3)	05 (0.8)	
	Mouth ulcers	0	0	01 (0.2)	01 (0.2)	
	Swelling	0	01 (0.2)	0	01 (0.2)	
	Missing tooth	03 (0.5)	0	0	03 (0.5)	
	Discolouration of teeth	01 (0.15)	01 (0.15)	0	02 (0.3)	
	Loose tooth	07 (1.1)	03 (0.5)	0	10 (1.6)	
	Others	05 (1.1)	0	0	05 (0.8)	
Care sought	Extraction	66 (10.6)	41 (6.6)	10 (1.6)	117 (18.8)	0.871
	Restoration	16 (2.6)	12 (1.9)	03 (0.5)	31 (5)	
	Scaling	05 (0.8)	06 (1)	02 (0.3)	13 (2.1)	
	Prosthesis	03 (0.5)	0	0	03 (0.5)	
	Orthodontic treatment	0	0	0	0	
	Surgery	02 (0.3)	01 (0.2)	0	03 (0.5)	
	Medication	06 (1)	03 (0.5)	0	09 (1.4)	
	No care sought	23 (3.7)	13 (2.1)	03 (0.5)	39 (6.3)	
	Home remedy/self medication	03 (0.5)	05 (0.8)	05 (0.8)	13 (2.1)	
Where had you undergone the treatment	Govt. General hospital	02 (0.3)	02 (0.3)	01 (0.2)	05 (0.8)	0.429
	Dental clinic	45 (7.2)	30 (4.8)	04 (0.6)	79 (12.7)	
	Dental institution	52 (8.4)	30 (4.8)	09 (1.4)	91 (14.6)	
	Medical practitioner	01 (0.15)	01 (0.15)	01 (0.15)	03 (0.5)	
Reported barrier for not undergoing dental treatment inspite of experiencing dental problem	Fear	07 (1.1)	01 (0.2)	0	08 (1.3)	0.102
	No time	03 (0.5)	0	0	03 (0.5)	
	No access	0	0	01 (0.2)	01 (0.2)	
	Expensive	01 (0.2)	02 (0.3)	0	03 (0.5)	
	Lack of awareness	04 (0.6)	01 (0.2)	0	05 (0.8)	
	Not much important	08 (1.3)	09 (1.4)	02 (0.3)	19 (3)	
Reasons for preferring a particular centre	Others advice	22 (3.5)	14 (2.3)	02 (0.3)	38 (6.1)	0.824
	Accessibility	47 (7.6)	29 (4.7)	09 (1.4)	85 (13.7)	
	Cheaper	15 (2.4)	08 (1.3)	01 (0.2)	24 (3.9)	
	Quality treatment	14 (2.3)	12 (1.9)	03 (0.5)	29 (4.7)	
Perceived quality of treatment received	Very satisfied	04 (0.6)	11 (1.8)	01 (0.2)	16 (2.6)	0.944
	Satisfied	86 (13.8)	49 (7.9)	13 (2.1)	148 (23.8)	
	Uncertain	02 (0.3)	0	0	02 (0.3)	
	Dissatisfied	06 (1)	03 (0.6)	01 (0.2)	10 (1.8)	
	Very dissatisfied	0	0	0	0	

[Table/Fig-2]: Prevalence pertaining to utilization and barriers to utilization of dental services according to age groups.
Pearson Chi-square test. * ($p \leq 0.05$) statistically significant.

Across the globe, the oral health status of old aged population is poor which is evident from the intensity of edentulism, high dental caries experience, and poor periodontal health etc. According to the world oral health report, 2003 the prevalence of edentulism in India among people aged 65-74 was 19% [24]. In the present study, only 36.7% of the subjects expressed that they had faced dental problems in the past. Only 31.9% reported that they had a dental visit in the past. However, the percentage of Indian population aged 65-74 years with treatment needs relating to oral health was 80.5% as of 2002-2003. This percentage was even higher in Andhra Pradesh with the value being 87.2% [8]. The mismatch between peoples' perceptions, attitude towards oral health care and the estimated treatment needs is quite obvious and must be seriously looked into as a failure of oral health promotion.

In a study conducted by Wu B on Chinese elderly in 2007, it was observed that only 3.4% of the rural elderly had a dental visit in the past one year [25]. Though the present study did not seek information regarding dental visits within the previous year, the low utilization of oral health services allowed comparison between these two studies. As reported by Clemencia M. Vargas et al., dental visits among elderly Americans was high with more than 50 percent of the non-institutionalised elderly aged 65 and above visiting a dentist in the previous year [10]. Similarly, about 46.5% of the Brazilian elderly (aged 65-74) had had a dental appointment in the last two years and 27.8% of the sample had used the services within the preceding year as reported by Cláudia de Oliveira Ferreira in 2013 which is way higher than that observed in the present study, especially in view of the fact that the current study

		Utilization of dental services		p-value
		Yes	No	
Gender	Male	113	232	0.537
	Female	84	192	
Socio-economic status	Lower	65	151	0.788
	Upper lower	122	255	
	Lower middle	9	18	
	Upper middle	1	3	
Age Group	55-64	107	238	0.117
	65-74	74	132	
	75 and above	16	54	
Experienced dental problem in the past	Yes	190	38	0.000*
	No	8	385	
Religion	Hindus	140	278	0.632
	Muslims	19	22	
	Christians	39	123	

[Table/Fig-3]: Distribution of study subjects based on utilization of dental services and gender, socio-economic status, age group, religion, and past experience of dental problems.
Pearson Chi-square test. * (p≤0.05) statistically significant.

sought information on dental visits anytime in the past but not just past year visits [26]. It is also important to identify that the study area has a very close access to oral health services provided by a teaching based dental institution which might have increased the utilization among the study subjects. It is our inference that the overall rate of oral health services utilization among rural elderly could be lower than that reported in the present study.

No significant differences in utilisation of dental services were found between participants from different age groups, gender and different socio-economic statuses. These results are not in accordance with the study done by Cláudia de Oliveira Ferreira in 2013 on Brazilian elderly where significant differences were found in utilisation of dental services based on the socio-economic status of the study population [26]. However, there was no difference in utilisation based on gender in this study. There was no significant association between level of education and utilization of oral health services in this study which is not in accordance with a study conducted by Roberts-Thomson K et al., in 1995 in Australia, where participants who continued their education beyond sixteen years of age were 1.85 times more likely to have visited a dentist in the past year than those who had never attended school or had quit at age 15 [27].

Edentulism affects the quality of life of the individuals in a multitude of ways [28]. As could be anticipated, lack of required dental care leads to the eventuality of edentulism. There could be many reasons for not seeking required care, one of which could be not realizing the requirement of care itself. Petersen and Yamamoto highlighted in their report on approach on global oral health that developing countries have a dearth of epidemiological data regarding tooth loss at old age [3]. They further underscored that there exist numerous barriers for access to oral health services in developing countries and often times pain, discomfort and non availability of dental materials were the reasons for extraction of teeth.

Extraction was the most common treatment undergone in the present study. A 59% of those who sought dental care have undergone extraction. A 51.1% of the participants who reported previous dental visits sought care at a teaching based dental hospital. This could be due to the proximity of the dental institution to the study area, and a vast majority of participants opined that the treatment provided was satisfactory.

Fear was one of the most commonly reported barriers for utilisation of dental services among dentate older people [29]. A 20.5% of the elderly participants in this study reported fear as a reason for not seeking dental care despite perception of dental problems. The perceived importance of dental care has emerged as a significant predictor of utilization in other studies [11]. In the present study, 39 individuals did not seek dental care despite perceived problems, 50% of whom opined that oral health is not very important to be taken care of.

LIMITATION

The present study did not seek information regarding dental visits within the previous year which would be a more reliable estimate of utilization patterns in the study population. Systemic disabilities were not taken into consideration which may hamper the utilization of oral health care services by elderly.

CONCLUSION

Elderly people after making significant contributions to the development of society must not be considered as a burden. Studies probing into the barriers for utilisation of oral health services and oral health status among elderly are very important in order to bring a change in their oral health status towards the better and to ensure them a good oral health related quality of life.

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