Dental Caries, Periodontal Status and Prosthetic Status Among Institutionalised Elderly Population

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Abstract

Introduction: An individual's prior life experiences as well as their cultural, social, and historical background will affect their self-perceived oral health status. Therefore, individuals with the same oral health status may perceive their oral health-related quality of life (OHQoL) differently. Older adults who perceive poor oral health but at the same time have poor expectations may not view oral health as having an impact on their quality of life.

Aim and Objectives: To assess dental caries, periodontal status and prosthetic status among elderly individuals aged 60 years and above.

Methodology: All elderly individuals in these old age homes formed the study population. WHO Oral health assessment, 1997 and GOHAI was used in the study.

Results: About 29.3% (n=66) said that they were sometimes able to eat without feeling discomfort while 5.3% (n=12) were often able to eat without discomfort. About half of the participants i.e. 50.7%(n=114) said they never did while 2.7% (n=6) said they often or always had limit their contacts with people. About 42.7% (n=96) said they never were, while 4% (n=9) said they seldom were pleased with the looks of their teeth, gums or dentures.

Conclusion: Oral health status showed 10.9 mean number of missing teeth per patient, this highlights on the loss of functional edentulism and poor oral health of the elderly institutionalized patients. There was statistically significant association between age and socioeconomic status.

Keywords: Caries status, Periodontal Status, Prosthetic Status And Oral Health Status.

Introduction

An individual's prior life experiences as well as their cultural, social, and historical background will affect their self-perceived oral health status. Therefore, individuals with the same oral health status may perceive their oral health-related quality of life (OHQoL) differently. Older adults who perceive poor oral health but at the same time have poor expectations may not view oral health as having an impact on their quality of life. Similarly, older adults who have high expectations may have a minor oral health problem and rate their OHQoL as poor. McGrath and Bedi studied the importance of quality of life in relation to perceived oral health in a population of community-dwelling older adults. Since these older adults were not residing in an institution, we need to explore these relations further in the institutionalized. The majority of older adults interviewed (72%) perceived oral health status to be an

important determinant of their quality of life that varied significantly according to social class and sex.[1]Geriatric care management (also known as "Aging Life Care™," "elder care management", "senior health care management" and "professional care management") is the process of planning and coordinating care of the elderly and others with physical and/or mental impairments to meet their long term care needs, improve their quality of life, and maintain their independence for as long as possible. It entails working with persons of old age and their families in managing, rendering and referring various types of health and social care services.[2]Geriatric dentistry or geriodontics is the delivery of dental care to older adults involving the diagnosis, prevention, and treatment of problems associated with normal aging and age-related diseases as part of an interdisciplinary team with other health care professionals. Last century has witnessed a number of remarkable demographic changes related to health, diseases, longevity and mortality of the population all over the world. By now one third of the world's elderly population is living in the developing countries and one out of twelve persons in the developing countries is over sixty five. The twentieth century witnessed remarkable population ageing with regard to human longevity worldwide, and the twenty-first century is set to carry forward the gains in longevity further, both in the developing and the developed world. This rise in life expectancy is attributed primarily to the substantial reduction in mortality at different stages of life, which has been brought about by improved health care facilities, sanitation, environmental and public health reforms coupled with better hygiene and living conditions. As a result of the increasing life expectancy, the proportion of the elderly in the total population is projected to be around 20% in India and 32% in the developed nations by 2050. Keeping this increased life expectancy in mind, the age

of retirement in many sectors in India is increasing and in some it has even gone up to 70 years. In some states, the retirement age has not been raised but this is because of the concerns regarding the resultant job cuts for the younger generation. As per the Government of India's classification, the elderly are those who are 60 years of age and above; these citizens become eligible for varied concessions offered by the government and other agencies. In the developed world, the elderly are those above the age of 65 years. The mouth is referred to as a mirror of overall health, reinforcing that oral health is an integral part of general health. In the elderly population poor oral health has been considered a risk factor for general health problems. On the other hand, older adults are more susceptible to oral conditions or diseases due to an increase in chronic conditions and physical/mental disabilities. Thus, the elderly form a distinct group in terms of provision of care. The dental diseases that the elderly are particularly prone to are root caries, attrition, periodontal disease, missing teeth because of earlier neglect, edentulism, poor quality of alveolar ridges, ill-fitting dentures, mucosal lesions, oral ulceration, dry mouth (xerostomia), oral cancers, and rampant caries. Many of these are the sequelae of neglect in the early years of life, for example, consumption of a cariogenic diet, lack of awareness regarding preventive aspects, and habits like smoking and/or tobacco, pan, and betel nut chewing. All these problems may increase in magnitude because of the declining immunity in old age and because of coexisting medical problems. As a result of poor systemic health, the elderly patient often does not pay sufficient attention to oral health. In addition, medications like antihypertensives, antipsychotics, anxiolytics, etc., lead to xerostomia, and the absence of the protective influences of saliva in the oral cavity increases the predisposition to oral disease. Financial constraints and lack

of family support or of transportation facilities affect access to dental services in later life. The untreated oral cavity has its deleterious effects on comfort, aesthetics, speech, mastication and, consequently, on quality of life in old age.[3]

In India there are no policies that will look into the nutritional and dental health of elderly. Very few Indian studies are conducted to see the effect of complete dentures on chewing ability, oral health related quality of life and nutritional status on edentulous participants[4]and there is need of more data in this regard. Therefore this study was conducted to Assessment of oral health related quality of life and oral health status among institutionalized elderly population.

Material And Methods

A cross sectional study was conducted of 7 old age homes were present in the Jaipur city. All elderly individuals in these old age homes formed the study population. Ethical clearance for the study was obtained by the ethical committee, NIMS Dental College, Jaipur. Voluntary informed written permission was obtained from the subjects after explanation of the nature of the study. Sample size based on inclusion and exclusion criteria, elderly people from all the old age homes present in the Jaipur city were included in the study.

Inclusion Criteria

a) Elderly institutionalized individuals above the age of 60 years
b) Participants who could answer the questions

Exclusion Criteria

a) Subjects who could not read or suffered from depression or other psychiatric problems
b) Subjects who could not speak

Study Tools

WHO Oral health assessment, 1997 and GOHAI was used in the study.

Geriatric Oral Health Assessment Index (GOHAI)is a 12-item questionnaire, a self-reported measure designed to assess the oral health problems of older adults. It was developed to evaluate three dimensions of oral-health related quality of life including physical functions like eating, speech, swallowing; psychosocial functions like worry, concern about oral health, dissatisfaction with appearance, self-consciousness about oral health, avoidance of social contacts because of oral problems; pain or discomfort including the use of medication or discomfort from the mouth

Schedule of the Study

The study was systematically scheduled to spread over a period of 6 months. A daily and weekly schedule was prepared well in advance by informing and obtaining permission and consent from the authorities. On an average 15 subjects were examined per day.

Data Collection

Dental caries and periodontal status was assessed using the dentition status and treatment need, community periodontal index, prosthetic status and prosthetic need was recorded on WHO Oral health assessment form.

Details of Clinical Examination

Personnel and Physical Arrangements

All the examinations were carried out by the investigator himself on the subjects who was assisted by a trained and cooperative recording assistant.

Type of examination

The subjects were examined by type III clinical examination.

Armamentarium

The following instruments were used in this study:

1. Plane mouth mirrors
2. CPI probes
3. Tweezers
4. Sterilized cotton pellets

5. Kidney trays
6. Chip blowers
7. Cotton holders
8. Examination Gloves
9. Disposable Mouth masks

Sufficient sets of autoclaved instruments were taken during the study to avoid the need to interrupt examination.

Statistical Analysis

The data was entered on to a personal computer and the analysis was done using the SPSS (statistical presentation software system) for windows (version 17). Descriptive statistics was carried out. The statistical significance was fixed at 0.05.

Results

Study was conducted to assess dental caries, periodontal status and prosthetic status among elderly individuals aged 60 years and above. Oral health related quality of life using GOHAI index and to provide necessary data for oral health administrators to plan comprehensive programs to improve quality of life in elderly population.

Out of 225 participants, 142 participants were in 60-65 years age group, 29 in 66-70 years age group, 33 in 71-75 years age group, 09 in 76-80 years age group, 09 in 81-85 years age group and 03 in 86 and above years of age. The data showed that majority of participants were from the age group 60-65 years. Mean age was calculated to be 67 years. More than half of the participants were female (55.1%) and rest were males (44.9%). Out of total 225participants, 56.6% (n =125) were Illiterate, and 1.3% (n =3) were Professional. Most of the institutionalized elderly population was Unemployed (48.9%) while 1.3% were semi-professional. Participants belonging to different socio-economic status. Majority of participants i.e. 113 (50.2%) were from upper lower class whereas 95 (42.2%) participants were from lower class and 9 (4%) participants were from lower middle class. Amongst 225 participants, 60

(26.7%) were edentulous. 6.7 % (n=15) had upper edentulous arches while 1.3% had lower edentulous arches. A majority of participants (94.7%) did not have removable partial dentures while 4% (n=9) had removable partial denture in upper arch and 1.3% (n=3) in both the arches. A majority of participants (98.7%) did not have fixed partial denture while 1.3% had it in the upper arch. The Teeth or dentures of 66.7% (n=150) participants never prevented them while those of 1.3% (n=3) often prevented them from speaking the way they wanted. About half of the participants i.e. 50.7%(n=114) said they never did while 2.7% (n=6) said they often or always had limit their contacts with people.

About 42.7% (n=96) said they never were, while 4% (n=9) said they seldom were pleased with the looks of their teeth, gums or dentures. About 35.6% (n=80) said that they never used while 2.7%(n=6) said they always used medication. About 28.0% (n=63) said that they sometimes were, while 4% (n=9) said they were very often worried. About 41.8% (n=94) participants never feel nervous while 1.3% (n=3) said that they very often feel nervous or self-conscious because of problems with their teeth, gums or dentures. More than half i.e. 53.8% (n=121) participants never feel uncomfortable while 1.3% (n=3) often feel uncomfortable eating in front of people because of problems with their teeth or dentures. It shows that 26.7% (n=60) of participants never had teeth or gum sensitive to hot, cold or sweets. About 10.7% (n=24) said they often and very often had sensitive teeth or gums.

About 62.7% (n=141) did not have healthy CPI score even in a single tooth. 17.3% had healthy score for 1 tooth, 9.3% for 2 teeth, 6.7% for 6 teeth, 2.7% for 3 teeth and 1.3% for 4 teeth. About 42.7% (n=96) participants did not have bleeding CPI score for even a single tooth while only 1.3% (n=3) had a bleeding CPI score for 6 teeth. About 60% (n=135) participants did

not have calculus CPI score for even a single tooth while only 1.3% (n=3) had a calculus CPI score for 4, 5 and 6 teeth. About 96% (n=216) participants did not have shallow pocket CPI score for even a single tooth while only 1.3% (n=3) had a shallow pocket CPI score for 1,2 and 3 teeth. About 45.8% (n=103) participants had all teeth recorded while only 1.3% (n=3) had a 5 teeth not recorded by the CPI. The distribution of study participants according to loss of attachment. Loss of

attachment was normal in 6 teeth for 100 participants while in 1 tooth for 3 participants. Loss of attachment score was 1,2 and 3 for no teeth in all the 225 participants. The distribution of study participants according to decayed, missing and filled teeth. A total of 240 teeth were decayed (1.067 mean per patient), 2395 teeth were missing (10.64 mean per patient) and 12 teeth were filled (0.05 mean per patient).

Table 1: Association of socioeconomic status with the responses to the GOHAI items.

GOHAI items	Responses (n)						Chi square	P value
	Never	Seldom	Sometimes	Often	Very often	Always		
1	72	12	45	21	30	45	103.843[a]	0.000
2	78	27	36	18	15	51	51.957[a]	0.000
3	69	3	21	6	12	114	124.363[a]	0.000
4	150	15	30	3	9	18	113.114[a]	0.000
5	50	18	66	12	32	47	50.716[a]	0.000
6	114	27	57	6	15	6	76.459[a]	0.000
7	96	9	78	12	12	18	95.189[a]	0.000
8	80	37	72	21	9	6	35.179[a]	0.019
9	47	58	63	18	9	30	59.799[a]	0.000
10	94	68	39	15	3	6	92.615[a]	0.000
11	121	56	30	3	9	6	64.535[a]	0.000
12	60	30	51	24	24	36	55.201[a]	0.000

The above table shows the association of socioeconomic status with the responses to the GOHAI items. There was statistically significant value for all the questions as the p value was less than 0.05.

Discussion

The study was conducted to assess dental caries, periodontal status and prosthetic status among elderly individuals aged 60 years and above. Oral health related quality of life was assessed using GOHAI index and to provide necessary data for oral health administrators to plan comprehensive programs to improve quality of life in elderly population. A similar study, analysed 27 patients from the age group 60 – 84 where the GOHAI score was seen to

be increased from 27.48 to 30.19 (p=0.002) which was highly significant; whereas the present study examined 225 patients from the age group 60-88, where the GOHAI score was seen to be increased from 28.90 ± 7.28 to 42.19 ± 7.60 (p value< 0.001) which was highly significant. Institutionalized elderly people in Barcelona with a residential profile show high prevalence of poor objective oral health and poor OHRQoL. Subjective oral health conditions, needing upper denture and "functional edentulism" explain the poor OHRQoL. The study results also highlight on the functional edentulism amongst institutionalized elderly patients.[18]our study population shows a

high prevalence of poor objective oral health conditions. The prevalence of edentulism (18.7%) was similar to that reported for 2009 by Zuluagaet al.[5] and we found a lower prevalence of edentulism and DMFT index (22.8) in the institutionalized population 65 and older than other studies.[6]However, several studies using GOHAI show a lower prevalence of poor OHRQoL in institutionalized elderly (4,14-16). The difference between our results and other studies not only correspond to differences in objective oral health conditions but also, as our conceptual model shows,[7] to socio-cultural factors, individual history and treatment of oral diseases and access to dental care. Hence many other life events and socially and culturally derived values, also appear to affect an elderly person's perception of the impact of oral health and oral disease.[8] Therefore, to describe the needs in the institutionalized population, in addition to capturing the damage due to caries, periodontal disease, and edentulism, among other oral diseases; it would be necessary to assess their opinion using validated instruments such as GOHAI or OHIP.[9] Otherwise it seems that aesthetic, psychosocial and cultural issues (changing the stereotype of edentulous elderly and giving greater emphasis to a "toothed mouth"), as well as the attention that some administrations and stakeholders would be giving to oral health as part of healthy aging, may have influenced the self-perception of the elderly tested in our study. The present study also shows high number of missing teeth in the elderly population and thus highlights on the functional edentulism of the patient (i.e having less than 20 functional teeth). Similarly, people 65 years and older institutionalized with residential profile in Barcelona, show high prevalence of poor objective oral health status (CPI and DMFT indexes, "functional edentulism", etc) and unmet needs for dental care that were associated with poor OHRQoL. Therefore, it is necessary to improve health and social importance of oral health and oral health care for elderly, aspects that become relevant in relation to healthy aging and human rights issues in the discussion about economic efficiency and health-care spending.[10] Moreover, in recent years in most of the developed countries a very important trend to keep teeth has appeared, so the impact of diseases such as caries (restorative dentistry) or gum disease (periodontal care) is decisive when making assessments of the preventive and curative care needs of this population. The study was done in the institutionalized elderly population which limits the sample to a particular socioeconomic status, cultural and regional style of life. More such studies involving higher sample representation with diverse background is advised to influence the policy makers of oral health in India. The study establishes the need for oral health care for geriatric patients, to prevent functional edentualism, periodontal disease and dental caries. Inclusion of geriatric oral health related problems and prevention has to find a place in the National oral health program.

Conclusion

Oral health status showed 10.9 mean number of missing teeth per patient, this highlights on the loss of functional edentulism and poor oral health of the elderly institutionalized patients. There was statistically significant association between age and socioeconomic status. The study establishes a strong need for the prevention of edentulism and better geriatric oral health care to all institutionalized elderly population. The study focus on the need to conduct similar studies with more diverse population and influence the policy makers in the country to include geriatric oral health care needs in National oral Health Policy.

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