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Periodontal status and tooth loss impact on oral health related quality of life among Indian geriatric population

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Abstract---Background: Oral health is believed to be poor as individuals get older since oral problems like as dental caries, diseases of periodontium, and loss of tooth affecting such individuals are chronic and progressive conditions. Understanding whether oral disorders may have an impact on a person's quality of life requires more than merely tracking their prevalence. Therefore, while examining oral health, it is necessary to include quality of life related to the oral health (OHRQoL) metrics. Aim: To evaluate impact of tooth loss and periodontal status on oral health related quality of life among Indian elderly. Methods and materials: This study involved 2191 senior citizens and was cross-sectional in design. The elderly subjects

of the Indian population (59 years of age and older) were chosen as the study population. Before obtaining their informed consent prior to the examination, each subject received a packet of information outlining the goals and methods of the study. Older respondents' oral health-related quality of life was assessed using the Geriatric Oral Health Assessment Index's Hindi translation (GOHAI). Results: When there was statistical analysis to relate the condition of tooth loss and quality of life related to oral health then it was found that missing teeth ≥ 20 , presence of periodontal pocket, bleeding from gums, mobility of teeth and loss of clinical attachment between 0-3mm were significantly related with poor quality of life related with oral health in elderly patients. 45.1% study participants replied that they have reduced face to face contact with other people. 38.6% of study participants replied that they are never happy with the appearance of their teeth. 35% study participants replied that they are sometimes worried about the condition of their teeth, gums and dentures while 23.8% replied that they are worried about the condition of teeth, gums and dentures. Conclusion: Among senior Indians, there is a substantial need for dental care. The poor elderly individuals have a disproportionately high rate of oral disease, and issues with their dental health, such as tooth loss and poor periodontal health, that can have an adverse effect on their quality of life.

Keywords---Tooth loss, periodontal status, quality of life, elderly patients ,India

Introduction

Oral health is believed to be poor as individuals mature and get older since oral problems like as dental caries problems, diseases of periodontium, and loss of tooth affecting such individuals are chronic and progressive conditions. Some general health issues can raise the possibility of diseases of oral cavity, reduced production of saliva, and impaired taste perception, and some general health issue therapies can also result in tooth issues. Older adults may experience feeding problems and aesthetic problems as a result of persistent oral disorders that result in tooth loss. In extreme circumstances, feeding difficulties might compromise nutrition and lead to serious debilitation. An increasing percentage of the world's population is elderly population.^{1,2}

Programs to promote oral health among different populations are typically focused on clinical evaluations of oral diseases, but it's necessary to take into account the unique traits and requirements of the target audience. Understanding whether oral disorders may have an impact on a person's quality of life requires more than merely tracking their prevalence.^{3,4}Therefore, while examining population oral health, it is necessary to include quality of life related to the oral health (OHRQoL) metrics. As an illustration, the World Health Organization views enhancing OHRQoL as a crucial component of its worldwide oral health initiative.^{5,6}

Public health is concerned about the increased frequency of oral ailments, particularly among the populace of low- and middle-income nations like India. This study was designed with the assumption that older persons' quality of life is negatively impacted by their dental health.^{7,8} The primary goal of this research was to evaluate loss of tooth and periodontal status and how it affected older persons in the Indian community who were 60 years of age and above. The information gathered from this study may advance our understanding of older Indians living in urban and rural areas with regard to their oral health, its effects, and care-seeking behaviour.

Methods and Materials

This study involved 2191 senior citizens and was cross-sectional in design. The elderly subjects of the Indian population (60 years of age and older) were chosen as the study population. Before obtaining their informed consent prior to the examination, each subject received a packet of information outlining the goals and methods of the study.

The study only included elderly participants who were willing to provide informed consent. Elderly people who were mentally or physically ill, or who were physically challenged, were not included.

Older respondents' oral health-related quality of life was assessed using the Geriatric Oral Health Assessment Index's Hindi translation (GOHAI). Atchinson and Dolan created the initial GOHAI, a 12-item questionnaire, in 1990. They tested it on senior persons in North America, and it performed admirably in terms of internal consistency and validity.

Three dentists who could speak both English and Hindi translated the GOHAI into Hindi, and another three dentists who could speak both languages well did the reverse, translating the Hindi version back into English. When this translated version was compared to the original, the words used and the meanings of the items were similar. A pilot research was conducted to evaluate the validity and reliability of this GOHAI in Hindi.

Data collection

For the purpose of determining the severity of the periodontal illness and tooth loss, a combination of administration of questionnaires and clinical examination was used to obtain the data. The examiner assisted those responders that were unable to complete the questionnaire on their own. Participants were asked to respond according to a Likert-type scale (1 = never, 2 = seldom, 3 = occasionally, 4 = often, and 5 = always) to rate their experiences over the last three months in relation to each of the 12 questions on the GOHAI-Hi questionnaire. The GOHAI scores were divided into two categories (Hassel AJ et al., 2008). Each participant received a final score between 12 and 60 points. Higher scores indicated better dental health as judged by the individual or less of a negative influence on life quality. Each person's final GOHAI score was assigned one of three classifications: good quality of life (57-60), moderate quality of life (51-56) or poor

quality of life (50), signifying a low, moderate, or high degree of influence on quality of life.

Clinical examination

Immediately following the participant interviews was the clinical evaluation. One qualified, calibrated dentist used sterile tools to do a complete mouth oral examination on each individual. Using 2013 WHO criteria, status of periodontal condition, status of loss of attachment, status of dentition, and status of prosthesis were evaluated.

Results

When there was analysis of distribution of study participants according to age and gender, then it was found that 63.4% of male study participants were in the age group of 59 to 70 years, while 39.9% of female study participants were in the age group of 59 to 70 years. It was observed that 25.3% of male study participants were in the age group of 71 to 80 years while 26.3% female study participants were in the age group of 71 to 80 years. 11.3% of male study participants were in the age group of 81 years and above while 34.8% of female study participants were in the age group of 81 years and above. (table 1).

There was detailed analysis of responses made by the study participants regarding physical functions. 37.7% of study participants always found limitation in taking different kinds of foods while 49.4% of study participants sometimes found limitation in taking different kinds of foods while only 4.2% study participants never found any limitation in the taking different kinds of food. 31.6% of study participants found difficulty in chewing food while 48.4% of study participants sometimes found difficulty in chewing food. It was observed that 89.4% of study participants responded that they never swallowed without discomfort while 0.3% of study participants of study participants responded that they always swallowed without any discomfort. It was observed that 44.7% of study participants sometimes find it difficult in speaking clearly while 38.9% of study participants always find it difficult in speaking clearly.

Analysis was carried in detail regarding the pain and discomfort. 66.2% of study participants responded that they never take food without discomfort and 6.6% study participants replied that they always take food without discomfort. 41.3% study participants replied that they sometimes took medication for relief of pain while 28.9% study participants replied that they always took medication for relief from pain. 52.7% study participants were found to have sensitivity to hot substances, cold substances, and sweet substances sometimes while 19.8% study participants were found to always suffer from sensitivity to hot cold and sweet substances.

There was responses made against the questions related to psychological aspect of life. 45.1% study participants replied that they have reduced face to face contact with other people. 38.6% of study participants replied that they are never happy with the appearance of their teeth. 35% study participants replied that

they are sometimes worried about the condition of their teeth, gums and dentures while 23.8% replied that they are worried about the condition of teeth, gums and dentures. 30.2% study participants were self conscious regarding the status of teeth, gums and dentures. It was found that 69.8% of study participants were always uncomfortable in taking food in front of other people. (table 2).

When there was statistical analysis to relate the condition of tooth loss and quality of life related to oral health then it was found that missing teeth ≥ 20 , presence of periodontal pocket, bleeding from gums, mobility of teeth and loss of clinical attachment between 0-3mm were significantly related with poor quality of life related with oral health in elderly patients. (table 3).

Table 1
Demographics details of study participants

Age group	Males (%)	Females (%)
59 to 70 years	63.4	39.9
71 to 80 years	25.3	26.3
81 years and above	11 .3	34 .8

Table 2
Data showing the percentages of response made by study participants to questions of GOHAI

GOHAI items	Always (%)	Often (%)	Sometimes (%)	Seldom (%)	Never (%)	Mean
Questions related to physical function						
Limitation in having different kinds of food	37.7	3.6	49.4	5.1	4.2	3.84±1.1
Trouble in	31.6	14.9	48.4	2.4	2.7	3.66±1.2

biting or chewing food						
Comfort in swallowing	0.3	0	8.2	2.1	89.4	4.63±1.8
Difficulty in speaking	38.9	9.2	44.7	1.2	6	3.78±1.7
Question related to pain and discomfort						
Capable to take food without any discomfort	6.6	0.8	16.4	10	66.2	2.21±1.2
Took medicines for getting relief from pain	28.9	22.9	41.3	0.9	06	3.12±1.1
Sensitivity to cold substances, hot substances or sweet foods	19.8	21.4	52.7	3	3.1	3.33±1.0
Psychological function						
Declination in having face to face contact with people	45.1	20.2	27.2	7.1	0.4	3.87±1.3
Satisfied with appearance of teeth	8.9	7.7	40.7	4.1	38.6	3.21±1.2
Concerned about condition of teeth, condition of gums and condition of dentures	23.8	23	35	9.2	9	3.54±1.6
Presence of self consciousness about status of teeth, status of	30.2	29.1	25.8	4.8	0.2	3.98±1.2

gums and status of dentures						
Quite uncomfortable in eating in front of others	69.8	14	7.6	7.6	1	3.21±1.1

Table 3
Multivariate logistic regression for association of OHRQoL with different clinical predictors

	Parameters for good oral health related quality of life		Parameters for moderate oral health related quality of life		Parameters for poor oral health related quality of life	
	P value	Odds ratio value	P value	Odds ratio value	P value	Odds ratio value
Missing teeth ≥ 20	0.772	1.251	0.551	2.324	0.002*	1.004
Periodontal Pocket	0.342	3.111	0.032*	3.432	0.001*	2.967
Bleeding from gums	0.121	1.215	0.041*	2.112	0.003*	0.342
Mobility of teeth	0.331	1.477	0.132	0.342	0.004*	0.345
LOA 0-3 mm	0.111	0.511	0.121	1.002	0.001*	1.003

*represent statistically significant

Discussion

As a result of persistent oral conditions that cause tooth loss, older persons may encounter aesthetic and eating issues. In extreme cases, eating issues could jeopardise nutrition and cause severe disability. The proportion of elderly people in the world's population is rising.^{9,10} Programs to promote oral health among various communities are frequently centred on clinical assessments of oral disorders, but it is important to take into account the particular characteristics and needs of the target audience. Monitoring the prevalence of oral problems is not sufficient to determine whether they may affect a person's quality of life.^{11,12}

Therefore, in evaluating elderly population oral health, it is vital to add quality of life related to the oral health (OHRQoL) measures. Public health is concerned

about the rising prevalence of oral disorders, particularly among the populace of low- and middle-income nations like India. This study was created under the presumption that poor dental health has a detrimental effect on elderly people's quality of life.^{13,14} This study's main objective was to examine the relationship between oral health and ageing in the Indian population among those 60 years of age and older. Our knowledge of older Indians living in urban and rural regions, as well as their oral health, impacts, and care-seeking behaviour, may be improved as a result of the data from this study.

In our study when there was statistical analysis to relate the condition of tooth loss and quality of life related to oral health then it was found that missing teeth ≥ 20 , presence of periodontal pocket, bleeding from gums, mobility of teeth and loss of clinical attachment between 0-3mm were significantly related with poor quality of life related with oral health in elderly patients.

Since oral disorders including dental caries, periodontal infections, and tooth loss affecting such persons are chronic and progressive conditions, oral health is thought to deteriorate as people age and develop.^{15,16} It has been postulated that few general health conditions in older age can increase the possibilities of disorders of mouth, decreased production of saliva and some general health diseases treatment adverse effects can also result in tooth issues.^{17,18}

In our study 37.7% of study participants always found limitation in taking different kinds of foods .31.6% of study participants found difficulty in chewing food. Study participants were found to suffer from pain and discomfort. It was also observed in our study that 41.3% study participants replied that they sometimes took medication for relief of pain. 52.7% study participants were found to have sensitivity to hot substances, cold substances, and sweet substances sometimes. There was also psychological stress among the elderly population owing to loss of tooth and poor periodontal status. 45.1% study participants replied that they have reduced face to face contact with other people. 38.6% of study participants replied that they are never happy with the appearance of their teeth. 35% study participants replied that they are sometimes worried about the condition of their teeth, gums and dentures. It was found that 69.8% of study participants were always uncomfortable in taking food in front of other people

In line with other research, our study reveals a connection between tooth loss and poor periodontal health and low OHRQoL. The study participants' age and lack of education were linked to loss of tooth and poor quality of life related to oral health; this conclusion is also consistent with earlier publications. This is a representation of the underutilization or lack of accessibility of oral health care for elderly population in our nation.^{19,20}

Conclusion

Among senior Indians, there is a substantial need for dental care. The poor elderly individuals have a disproportionately high rate of oral disease, and issues with their dental health, such as tooth loss and poor periodontal health, that can have an adverse effect on their quality of life.

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