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Original Research Article

Oral health related quality of life among elderly population in a rural field practice area of a government medical college in western Maharashtra

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ABSTRACT

Background: Oral health is a vital component of general well-being, particularly among the elderly. This study aimed to assess oral health-related quality of life (OHRQOL) and its socio-demographic determinants in a rural elderly population.
Methods: A cross-sectional study was conducted among 230 elderly residents aged 60 years and above in a rural field practice area of western Maharashtra. Data were collected using the geriatric oral health assessment index (GOHAI) and analyzed using SPSS version 20.
Results: The mean GOHAI score was 50.04±8.34. Poor OHRQOL (score <57) was observed in 75.2% of participants. Tobacco use emerged as a significant determinant of poor OHRQOL in the present study, with 82.9% of tobacco users reporting poor quality of life compared to 64.6% of non-users. Gender, age, education, occupation and co-morbidities showed no statistically significant associations. Although the relationship between income levels and OHRQOL in this study was not statistically significant, international literature has reported strong associations between socioeconomic status and oral health among older adults.
Conclusions: The study revealed a high prevalence of poor oral health-related quality of life (OHRQOL) among the elderly, with tobacco consumption being a key contributing factor. Community-based oral health interventions targeting modifiable risk factors are essential.

Keywords: Elderly, GOHAI, OHRQOL, Tobacco use

INTRODUCTION

Health-related quality of life (HRQOL) is a complex, multidimensional concept encompassing physical, cognitive, emotional, and social well-being. Since its first mention in the mid-1980s, its definition and measurement have evolved.[1] HRQOL reflects the impact of health conditions such as diseases, disorders, or injuries on an individual's overall quality of life and can be assessed through general or specific approaches, including oral health.[2,3]

Oral health extends beyond healthy teeth; it involves freedom from pain, infections, cancers, periodontal diseases, and other conditions that affect chewing, speaking, smiling, and psychosocial well-being.[4] Good oral health is crucial for quality of life, yet many populations, especially in developing countries, still face high prevalence of dental issues.[5] Globally, 60-90% of

school children and nearly all adults suffer from dental caries. Despite advances in oral health, awareness and preventive practices remain insufficient, leading to persistent rates of dental diseases like caries and periodontal conditions.[6] India, in particular, has a significant burden of oral health problems, underscoring its importance as a public health issue. Rural elderly face amplified challenges due to financial limitations, low awareness levels, and geographic isolation, all of which restrict their ability to seek and receive timely oral healthcare. In Western Maharashtra, these issues are further complicated by deep-rooted socio-cultural barriers, reliance on traditional health beliefs, and inadequate public transportation, limiting accessibility to formal dental care.[7]

Oral health-related quality of life (OHRQoL) has emerged as a crucial indicator that evaluates not only the physical impact of oral conditions but also the emotional and social consequences they impose. It captures how oral health problems can affect one's self-esteem, social participation, and emotional state. Tools such as the oral health impact profile (OHIP) and the geriatric oral health assessment index (GOHAI) have enabled clinicians and researchers to assess these impacts in structured and meaningful ways.[8,9]

Aging is a natural and inevitable biological process, with increased life expectancy due to advances in medicine and public health. As more people live longer, especially those over 65, this demographic shift will significantly impact healthcare services, including oral health care.[10] Not all older adults have health conditions requiring special dental care, but many faces oral diseases linked to age.[11] Globally, the elderly population is growing at a faster rate than the general population, with those over 80 projected to comprise nearly 20% of the world's population by 2050.[12] Factors such as improved healthcare and reduced fertility have contributed to this trend. In India, most households lack elderly members, though the elderly population has increased notably over recent decades. The high prevalence of oral diseases among seniors presents a public health challenge, especially with comorbidities. Promoting active aging and focusing on modifiable risk factors- like diet, tobacco, and alcohol use- are key to improving quality of life and maintaining independence among the elderly.[13,14]

Aim

To study oral health status and its relation to quality of life among elderly population in a rural field practice area of a medical college in western Maharashtra.

Objectives

To measure the oral health related quality of life (OHRQOL) and its socio-demographic determinants among the elderly population of rural western Maharashtra.

METHODS

This cross-sectional descriptive study was conducted in the rural field practice area of a government medical college located in western Maharashtra. The study site, a rural health centre situated in Kasurdi village approximately 40 kilometers from the teaching hospital, provides a base for both routine health services and community-based health interventions, including screening and preventive programs. The local population predominantly belongs to lower and lower-middle socio-economic strata.

The study targeted elderly individuals aged 60 years and above who were permanent residents of the rural area. To estimate the proportion of geriatric population having poor (<57) geriatric oral health assessment index (GOHAI), prevalence was assumed to be 50% for maximum sample size, with 95% confidence and 5% absolute error of margin. The elderly population (N) was 550. Thus, after applying finite correction, the required sample size was calculated to be 228. A complete list of eligible participants was obtained with the assistance of the local gram panchayat. Using simple random sampling and computer-generated random numbers, 230 elderly participants were selected. All individuals meeting the inclusion criteria and providing informed consent were included, while those suffering from acute systemic diseases at the time of data collection were excluded.

Data collection was carried out through house-to-house visits by trained personnel. The primary tool for assessment was the geriatric oral health assessment index (GOHAI), which had been translated into Marathi through a standard forward-backward translation process. The final bilingual version (English and Marathi) was tested for clarity and content validity on a small pilot group before being implemented in the study. The questionnaire also included items on socio-demographic variables such as age, education, occupation, marital status, family type, income, history of chronic illness, and tobacco use.

Each interview lasted approximately 30 minutes. In cases where the participant was not available during the first visit, two additional visits were made. If the individual remained unavailable, the next eligible participant from the list was approached. This process continued until the desired sample size was achieved.

Oral examinations were also performed for each participant to assess clinical oral health status, and individuals found to require further dental care were referred to the dental clinic at Kasurdi operated by the same medical college. The study was conducted over a period of 6 months from 01 January 2021 to 30 June 2021.

Data were initially entered into Microsoft Excel and later exported to SPSS version 20 for analysis. Descriptive

statistics, including means, standard deviations, and ranges, were used for continuous variables, while frequencies and proportions were calculated for categorical data. The Chi-square test was applied to evaluate associations between qualitative variables. Odds ratios with 95% confidence intervals were computed to estimate risk, and a p value of less than 0.05 was considered statistically significant.

RESULTS

A total of 230 elderly individuals were included, with a nearly equal distribution of males (49.6%) and females (50.4%). The majority (83.9%) belonged to the 60-70 years age group, while 9.6% were in the 70-80 years group and 6.5% were aged above 80 years. The mean age of the participants was 66.5 years with a standard deviation of 7.68 years. Table 1 shows the age and gender-wise distribution of the study population.

Table 1: Age and gender wise distribution.

Age group (years)	Female (%)	Male (%)	Total (%)
60-70	102 (52.8)	91 (47.2)	193 (100)
70-80	5 (22.7)	17 (77.3)	22 (100)
>80	9 (60.0)	6 (40.0)	15 (100)
Total	116 (50.4)	114 (49.6)	230 (100)

Mean =66.50 years, Range =60-100 years, Standard Deviation =7.68 years

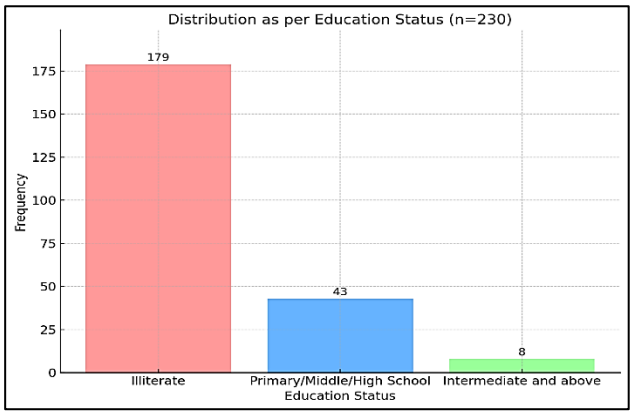

Figure 1: Distribution as per education status.

Figure 1 presents the educational status of the study participants. A significant majority, 179 individuals (77.8%), were illiterate. Among those who received some form of education, 43 (18.7%) had completed primary, middle, or high school, and only 8 (3.5%) had education up to the intermediate level or higher.

Table 2 illustrates the occupation and current working status of the elderly population. The most common occupational group was skilled workers (89 individuals), all of whom were currently working. Homemakers comprised 84 participants, with 35.7% of them still working. Overall, 68.3% of the elderly were working, 13.0% were retired, and 18.7% had never worked.

Table 2: Occupation and working status.

Occupation	Never worked (%)	Retired (%)	Working (%)	Total (%)
Homemaker	41 (48.8)	13 (15.5)	30 (35.7)	84 (100)
Professional	0 (0.0)	4 (50.0)	4 (50.0)	8 (100)
Semi-Skilled	0 (0.0)	3 (16.7)	15 (83.3)	18 (100)
Skilled	0 (0.0)	0 (0.0)	89 (100)	89 (100)
Unemployed	2 (16.7)	4 (33.3)	6 (50.0)	12 (100)
Unskilled	0 (0.0)	6 (31.6)	13 (68.4)	19 (100)
Total	43 (18.7)	30 (13.0)	157 (68.3)	230 (100)

P value- 0.642, df- 5

Table 3: OHRQOL status as per income in study population.

Income		OHRQOL status		Total
		Good	Poor	
1000-5000	No.	34	100	134
	%	25.4	74.6	100
5001-10000	No.	13	46	59
	%	22.0	78.0	100
>10000	No.	10	27	37
	%	27.0	73.0	100
Total	No.	57	173	230
	%	24.8	75.2	100

df-2, p value- 0.834

Table 3 shows that elderly (25.4%) who earned 1000-5000 per month had a good OHRQOL. 78% of elderly who earned 5001-10000 and 73% who earned >10000 had a poor OHRQOL. There was no significant association (p value 0.834 with 2 degrees of freedom) between the groups.

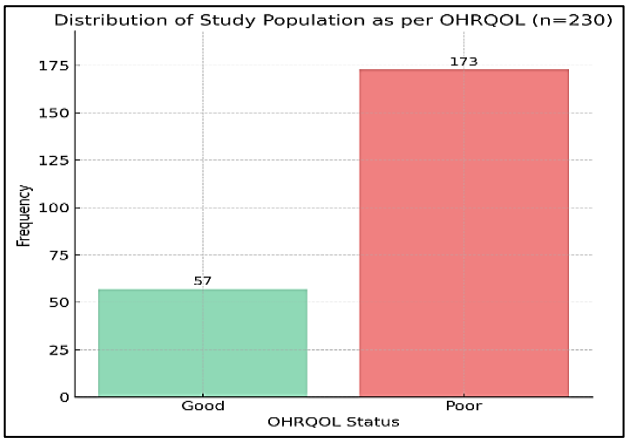

Figure 2: Distribution of study population as per OHRQOL.

df: 2, p value: 0.0047

Figure 2 highlights the oral health-related quality of life (OHRQOL) status among the study participants based on GOHAI scores. Out of 230 individuals, 173 (75.2%) had poor OHRQOL (GOHAI score <57), while only 57 (24.8%) reported good OHRQOL (GOHAI score ≥57). The mean GOHAI score was 50.04 with a standard deviation of 8.34.

Table 4: OHRQOL status as per tobacco consumption.

Tobacco consumption	Good (%)	Poor (%)	Total (%)
Consume	22 (17.1)	107 (82.9)	129 (100)
Never consumed	35 (35.4)	64 (64.6)	99 (100)
Quit	0 (0.0)	2 (100)	2 (100)
Total	57 (24.8)	173 (75.2)	230 (100)

df: 2, p value: 0.0047

Table 4 displays the relationship between tobacco consumption and OHRQOL status. Among those who consumed tobacco (56.1%), a higher proportion (82.9%) had poor OHRQOL. In contrast, 35.4% of non-tobacco users had good OHRQOL. The association between tobacco use and poor OHRQOL was found to be statistically significant (p<0.005).

DISCUSSION

The current study highlighted that a substantial proportion (75.2%) of the elderly participants had poor oral health-related quality of life (OHRQOL) as determined by GOHAI scores. This suggests a concerning burden of unaddressed oral health issues among the elderly population in rural Western Maharashtra. These findings are in line with similar studies that underscore the vulnerability of older adults in under-resourced settings to oral health neglect and its psychosocial consequences.[15,16]

Tobacco use emerged as a significant determinant of poor OHRQOL in the present study, with 82.9% of tobacco users reporting poor quality of life compared to 64.6% of non-users. This association was statistically significant and supports findings from earlier research which established that tobacco- both smoked and smokeless- exerts a detrimental impact on oral mucosa, periodontal tissues, and prosthetic adaptability in geriatric patients.[14,15] The chronic inflammatory processes and tooth loss induced by tobacco severely impair mastication and social interaction, thereby reducing perceived oral well-being. The study conducted by Raja and Radha showed a significant association among smokers with a p value of 0.042, Shao et al showed that elderly subjects who reported smoking (p<0.01) had a higher GOHAI score.[17,18]

Although the relationship between income levels and OHRQOL in this study was not statistically significant, international literature has reported strong associations between socioeconomic status and oral health among older adults. A study by Petersen et al emphasized that individuals with lower income often postpone or forgo dental care, leading to worsening of oral conditions and lower quality of life.[19] Moreover, elderly individuals who lack retirement benefits or are financially dependent on family may prioritize systemic health needs over oral care, further worsening oral morbidity.

Co-morbidities such as diabetes and hypertension were more frequently observed in participants with poor OHRQOL, although the association did not reach statistical significance. Other studies have shown that systemic diseases can aggravate oral issues such as xerostomia, periodontal inflammation, and delayed healing, all of which negatively impact the functional and emotional dimensions of OHRQOL.[16,20] The presence of co-morbidities may also increase polypharmacy, a known contributor to dry mouth and secondary oral lesions in elderly populations.

The need for targeted oral health programs for the elderly in rural India cannot be overstated. According to Batra et al., successful geriatric oral health promotion should include routine screenings, denture services, and culturally sensitive education programs delivered through primary healthcare systems.[21] Strengthening the capacity of community health workers in oral health assessment and referral can also bridge the existing rural-urban service gap. Studies from other parts of India have demonstrated the effectiveness of mobile dental clinics in reaching remote elderly populations with preventive and prosthetic services.[7,14,16] Recent interventions have shown success when oral health education is integrated into routine chronic disease management at the primary care level. Policy-level frameworks like the National Programme for Health Care of the Elderly (NPHCE) advocate inclusion of dental care under geriatric wellness packages, ensuring oral health is not treated in isolation and hence basic oral health services have been included in comprehensive health package under PMJAY at subcenter HWC.

The limitations of the present study are that OHRQOL status of the elderly is assessed on the basis of using only GOHAI which is essentially a self-reported format. No definite information regarding some socio-economic factors, treatment seeking behavior and alcohol use was collected in this study limiting its applicability.

CONCLUSION

The study revealed a high prevalence of poor oral health-related quality of life among the elderly in rural Maharashtra, with significant associations observed with tobacco use. While factors like gender, education, and systemic illnesses showed trends in OHRQOL variation, only tobacco consumption demonstrated statistical significance. These findings underline the urgent need for geriatric oral health interventions at the primary care level, with a focus on prevention, cessation of harmful

habits, and affordable access to dental care for rural elderly communities.

Recommendations

Based on the findings of this study; and the analysis of the findings, following measures are recommended for better OHRQOL and promotion of oral health in elderly. The association of tobacco use with poor OHRQOL points to the importance of promoting healthy lifestyle with a special emphasis on quitting/ non-initiation of tobacco use. Early screening for detection of oral health related disorders at community level integrated with existing healthcare delivery system will lead to significant progress in curbing this burden. Larger community-based studies need to be carried out using GOHAI along with some additional information to know the distribution, magnitude, associated risk factors, morbidities and also treatment seeking behaviour among geriatric population. This will help in formulating appropriate policies to prevent oral health related disorders and improve OHRQOL of geriatric populations.

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