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Impact of Periodontal Disease on Quality of Life (Qol) Among Adult Population of Maharashtra- A Questionnaire Based Study.

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ABSTRACT

Background: Periodontal disease is a prevalent chronic inflammatory disease that involves the supporting tissues of teeth, resulting in pain, tooth loss, and functional restriction. The present study was conducted to evaluate the effect of periodontal disease on the quality of life in adults of Maharashtra by questionnaire-based survey.

Aims: To assess the impact of periodontal disease on the oral health-related quality of life (OHRQoL) among the adult population of Western Maharashtra using the OHIP-14 questionnaire.

Methods and Material: A cross-sectional questionnaire survey on patients and relatives of Krishna Vishwa Vidyapeeth college and community health centers among adults aged 18 and above. An assessment involving the OHIP-14 questionnaire was conducted on 300 participants via face-to-face and self-administered formats. Data were analyzed using SPSS version 20.0.

Results: The findings indicated that the patients with higher severe periodontal disease had a greater negative effect on daily functioning, especially in physical pain and psychological discomfort. Poor periodontal status and reduced quality of life were strongly correlated.

Conclusions: These findings emphasize the necessity for increased awareness, early case detection, and preventive interventions to reduce the disease burden of periodontal disease and promote general well-being in this population.

Keywords: Periodontal disease, OHIP-14, oral health, quality of life, questionnaire survey.

INTRODUCTION

A chronic and common inflammatory disease, periodontal disease targets the gums and the tissues that anchor the teeth. As periodontitis progresses, it causes continued attachment loss, alveolar bone resorption, and, in severe cases, tooth loss[1,2,3]. It includes both the early, mild stage of gingivitis and the more advanced, destructive form known as periodontitis. Periodontal disease is still one of the most prevalent oral health issues worldwide and poses a serious threat to public health, particularly in emerging nations like India.

An individual's overall health and well-being are significantly influenced by their oral health. Pain, trouble chewing, halitosis, and aesthetic issues are all consequences of poor periodontal health that can affect one's ability to interact with others and one's sense of self. Because of this, periodontal disease frequently has an impact outside of the mouth cavity, influencing everyday activities, mental health, and general quality of life (QoL). In recent years, the idea of oral health-related quality of life (OHRQoL) has become more significant since it places more emphasis on people's subjective experiences than only clinical measurements.

A useful tool for understanding how oral problems impact several facets of life, such as functional constraint, physical pain, psychological discomfort, and social well-being, is the Oral Health Impact Profile-14 (OHIP-14). These items were distributed considering seven dimensions (functional limitation, physical pain, psychological discomfort, physical disability, psychological disability, social disability, and handicap) elaborated from the theoretical model proposed by

Locker[4]. Shortened versions of this instrument were developed, highlighting the Oral Health Impact Profile-14 (OHIP-14)[5].

Few studies have examined the relationship between periodontal health and quality of life in particular regional populations in India. Planning successful preventive and therapeutic initiatives requires an understanding of this link in Maharashtra's adult population. This study uses a structured questionnaire approach to evaluate the impact of periodontal disease on the quality of life in this area.

Subjects and Methods:

Study design:

The study was cross-sectional survey conducted among the adult population of 18 years and above in Maharashtra visiting the School of Dental Sciences at Krishna Vishwa Vidyapeeth, deemed to be a university, (KVV), Karad and community dental camps in Western Maharashtra. The Ethical clearance for the study was obtained from the Institutional Ethical Committee (EIC) of KVV, Karad, (Ref. No. 081 /2025-2026, dated: 08/07/2025) before commencement of the study. The study was conducted after obtaining informed consent from each participant.

Sample size:

The estimated sample size was of 302 participants**.** The sample size was calculated using the formula n = Z2pq/d2, assuming an expected prevalence of 70% for periodontal disease, 95% confidence level (Z = 1.96), and a precision of approximately 5%.

Inclusion and exclusion criteria:

The adults aged 18 years and above and those able to read or understand the local language (Marathi/Hindi/English) where included in the study. The individuals not willing to participate where excluded from the study.

Data collection:

The data was collected by a structured survey using the Oral Health Impact Profile-14 (OHIP-14) Questionnaire survey which allows for uniform data collection and facilitates quantitative analysis. The Questionnaire includes age, gender, level of education, socioeconomic status and 14 questions of Oral Health Impact Profile-14 (OHIP-14). The questionnaire is scored based on a 5-point Likert scale (0= Never, 1= Rarely, 2= Sometimes, 3=Frequently, 4=Always). The survey was administered in a face-to-face interview format to ensure clarity and completeness of responses. In some cases, self-administered questionnaires were used for literate participants comfortable with reading and writing.

Statistical analysis:

All collected data were entered into Microsoft Excel. The analysis was conducted using SPSS (Statistical Package for the Social Sciences), version 20.0. Descriptive statistics such as mean, standard deviation, frequencies, and percentages were used to summarize socio-demographic details, and OHIP-14 scores. All analyses were double-checked to ensure accuracy, and results were presented in the form of tables and charts where appropriate.

RESULTS

A cross-sectional study was carried in Maharashtra to assess the impact of periodontal disease on quality of life (QoL) among adult population in Maharashtra. The total of 300 participants were included in study. The demographic data was collected along with the questionnaire of Oral Health Impact Profile (OHIP-14).

The participants were aged from 18 and above years of age. On average, participants were 40.9 years old. Among the participants gender group was kept balanced with 53.8% females and 46.2% males (Figure 1). The level of education obtained from response is 6.8% were post-graduates; 33.7% were graduates; 41.9% were high-school; 13.3% were middle-school; 4.3% were illiterate (Table1.A). The socioeconomic status of participants based on Kuppuswamy socioeconomic status scale was 4.7% upper class; 36.6% upper middle class; 43% lower middle class; 11.8% lower middle class; 3.9% lower class (Table1.B).

The Oral Health Impact Profile (OHIP-14) includes 14 questions. The questionnaire used a 5-point Likert scale for scoring. Table.2 summarizes the OHIP-14 response distribution based on a 5-point Likert scale. Among the study population, 62.4% reported experiencing occasional difficulty in speech due to gum disease or oral infections. The majority of participants (71.9%) stated that they "never" or "rarely" experienced altered taste as a result of bleeding gums or pus. Painful aching in the gums or jaw area was reported as occurring sometimes or more frequently by 67.8% of participants, indicating a substantial burden of oral discomfort. Masticatory difficulties, attributed to gum disease or mobile teeth, were experienced sometimes or more frequently by 46.5% of respondents. Approximately 43.7% of participants reported sometimes feeling self-conscious due to gum issues. 39.4% of participants indicated that they sometimes experienced tenseness. Similarly, 43.4% reported an unsatisfactory diet due to oral problems, and 38.8% noted interruptions during meals for the same reason, emphasizing the functional limitations imposed by poor oral health. Difficulty in relaxing was reported sometimes by 32.6% of participants. 33% experienced occasional

embarrassment related to gum disease or tooth loss. Additionally, 48.8% reported experiencing frustration or irritability due to gum problems. The 37.9% participants indicating they sometimes had difficulty performing their usual tasks, and 32.9% feeling their life was less satisfying due to oral health problems. Moreover, 27.3% of participants reported being completely unable to function at times due to the severity of their gum issues.

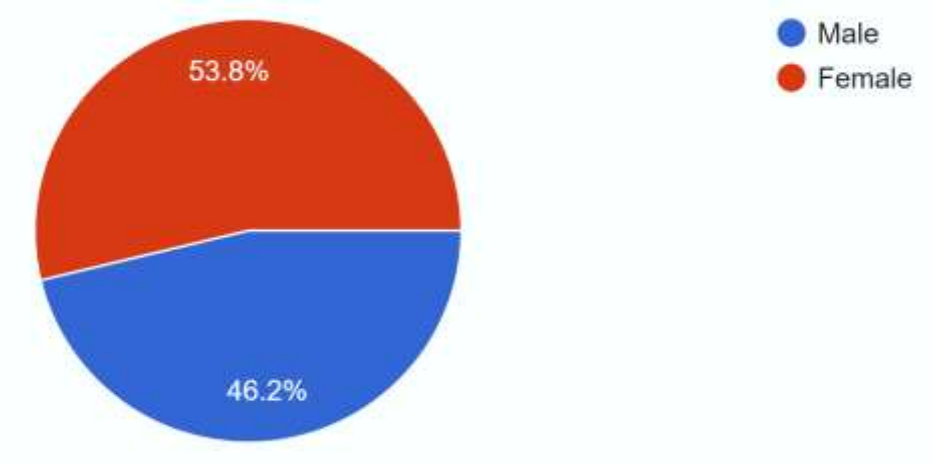

Figure 1. Gender of study participants.

TABLE 1. (A)Level of education and (B)Socioeconomic status of the study population

DEMOGRAPHIC DATA	
A) LEVEL OF EDUCATION	
Post-Graduate	6.8%
Graduate	33.7%
High-School	41.9%
Middle-School	13.3%
Illiterate	4.3%
B) SOCIOECONOMIC STATUS	
Upper Class	36.6%
Upper Middle	43%
Lower Middle	11.8%
Upper Lower	3.9%
Lower	4.7%

TABLE 2. Percentage-wise OHIP-14 responses using a 5-point Likert scale

Questions	Responses	N (%)
1. Have you had trouble pronouncing any words because of gum disease / infection?	Never	15.4
	Rarely	22.2
	Sometimes	44.8
	Frequently	15.4
	Always	2.2
2. Have you felt that your sense of taste has worsened because of bleeding gums / pus discharge from gums?	Never	34.8
	Rarely	37.1
	Sometimes	22.9
	Frequently	2.2
	Always	3
3. Have you had painful aching with gums or jaw area?	Never	10.8
	Rarely	21.5
	Sometimes	40.5
	Frequently	21.9
	Always	5.4
4. Have you found it uncomfortable to eat any foods because of problem with gum diseases / mobile tooth?	Never	18.6
	Rarely	34.9
	Sometimes	38
	Frequently	5.7
	Always	2.8
5. Have you been self - conscious because of problem with your gums?	Never	19.7
	Rarely	36.6
	Sometimes	35.8
	Frequently	6.1
	Always	1.8
6. Have you felt tensed because of problem with your gums?	Never	24
	Rarely	36.6
	Sometimes	33
	Frequently	5.7
	Always	0.7
7. Have your diet been unsatisfactory because of problem with your gums / tooth mobility?	Never	21.9
	Rarely	34.8
	Sometimes	35.1
	Frequently	6.5

	Always	1.8
8. Have you had to interrupt meals because of problem with your gums / tooth mobility?	Never	22.9
	Rarely	38.4
	Sometimes	31.2
	Frequently	7.2
	Always	0.4
9. Have you found it difficult to relax because of problem with your gums?	Never	32.6
	Rarely	34.8
	Sometimes	27.6
	Frequently	4.3
	Always	0.7
10. Have you been a bit embarrassed because of problem with your gums / mobile tooth / tooth loss?	Never	35.1
	Rarely	31.9
	Sometimes	27.6
	Frequently	5
	Always	0.4
11. Have you been a bit irritable with other people because of problem with your gums?	Never	20.1
	Rarely	31.2
	Sometimes	38
	Frequently	9.7
	Always	1.1
12. Have you had difficulty doing your usual jobs because of problem with your gums?	Never	27.2
	Rarely	34.8
	Sometimes	33.3
	Frequently	3.9
	Always	0.7
13. Have you felt that life in general was less satisfying because of problem with your gums?	Never	28.3
	Rarely	38.7
	Sometimes	29
	Frequently	3.2
	Always	0.7
14. Have you been totally unable to function because of problem with your gums /mobile tooth?	Never	33
	Rarely	39.8
	Sometimes	23.7
	Frequently	2.2
	Always	1.4

DISCUSSION

The Oral Health Impact Profile-14 OHIP-14 questionnaire was employed in this study to evaluate the impact of periodontal disease on the quality of life among adults in Maharashtra. Total of 300 adults, between the ages of 18 and 65, participated in the survey. Analysis of the data concentrated on how factors like age, educational attainment, and socioeconomic status (SES) relate to periodontal health and how these factors relate to the OHIP-14 domains. The studies conducted previously showed that higher incidence rates of periodontal diseases are observed in certain populations, including older adults, males, and individuals with lower income and education levels[1,6,7,8]. Functional limitation, physical pain, psychological discomfort, physical disability, psychological disability, social disability, and handicap are the seven domains in which the OHIP-14 questionnaire assesses the social impact of oral health on well-being. There are two Likert-scale-rated questions in each domain.

The burden of periodontal disease and its effects on life are positively correlated with age. Our study's older participants reported more psychological effects, social constraints, and discomfort. As people age, periodontal diseases worsen dramatically and affect speech and chewing, which lowers social engagement and self-esteem. M. Hijryana et al. reported that, beyond pain, physical discomfort, and limitations in physical function, older individuals commonly perceived the progression from tooth mobility to tooth loss as an unavoidable consequence of aging.

Findings suggest that education is likely plays a protective role. Higher educated people may have visited the dentist more frequently, practiced better oral hygiene, and knew more about preventive care showed that people with higher literacy levels are more likely to practice health-promoting behaviours and possess better self-care skills. Suzan Seif Allah Ibrahim et al. conducted a study and found that literacy and higher levels of education may play a significant role in shaping oral health behaviours and improving Oral Health-Related Quality of Life (OHRQoL). There is a sustained link between socioeconomic status and health outcomes. Our results show that people in lower socioeconomic groups experienced significantly greater psychological and social burdens as a result of oral health problems, in addition to having worse periodontal conditions. These disparities are caused by a number of factors, including the cost of dental care, work-related limitations, and conflicting health priorities.

In our study, the prevalence of functional limitation was 62.4%, affecting the pronunciation of words. This indicates that oral health problems can impact verbal communication**.** The 28.1% have worsened taste due to bleeding gums/pus discharge, which is suggestive that taste perception is not severely affected by periodontal problems. The study conducted by Rouxel et al. states a contradictory response that gingival bleeding more commonly related to impact on quality of life (difficulty cleaning teeth and/or dentures)[9]. The physical pain domain states that 67.8% of participants have aching in the gums or jaw area, which could be a major contributor to discomfort and possibly reduce quality of life. Acharya S. stated physical pain domain positively correlated with gingivitis[10].

The 46.5% had uncomfortable eating, suggesting that there is functional impairment in chewing or food intake due to oral issues. Reisine et al. conducted study in periodontal patients (one of groups studied) had greater discomfort upon chewing; 12% of patients had considerable discomfort with appearance of teeth and 27% reported pain in the previous week; Patients reported at least one impact on function/most common problem– speech/communication[11]. In a study carried out in Sri Lanka, physical pain was identified as the leading concern[12]. while research from Germany highlighted functional limitation as the primary concern[13]**.** This explains that gum problems affect personal confidence and social interactions, which make a person feel embarrassed and thus create psychological stress. According to Meusel et al., individuals with severe periodontitis experienced a greater negative impact on their quality of life compared to those with mild or moderate forms of the disease. The most affected domains included functional limitations, physical disability, and psychological disability[14].

The physical disability in 43.4% had diet issues, which indicates that oral problems can limit food choices and appetite, which impacts nutritional status. 38.8% of the participants experienced that their eating routines were affected by periodontal diseases. Qualitative study by O'Dowd et al. in 2010 reported psychological discomfort and disability related to periodontal disease might affect social interactions and self-esteem.

In research conducted by Suzan Seif Allah Ibrahim and colleagues in Egypt, periodontitis was found to significantly impair the oral health-related quality of life in older adults, with the psychological and physical aspects suffering the greatest impact. Western industrialized countries found that psychological discomfort and physical pain as key OHRQOL determinants in elderly patients with periodontitis[15]. The psychological disability in 32.6% had difficulty in relaxing due to gum issues, which shows that oral problems interfere with the ability to rest and lead to life quality concerns.

The 33% had embarrassment due to gum problems/mobile teeth/tooth loss, which explains that oral health has a social and emotional impact, influencing self-esteem and social behaviour. The study conducted highlighted a clear link between periodontal disease and diminished quality of life, with advanced periodontitis causing the most pronounced disruptions in functional and aesthetic aspects[16]. The social disability, i.e., irritability due to gums and difficulty in

doing usual jobs, was reported by 48.8% of participants and 37.9% of participants, respectively. This indicates that oral health can affect mood, making individuals more prone to frustration, and gum problems are not only oral problems but can also affect the routine functioning of the individual. Study by Lacerda et al. showed that 0.7% of individuals reported some interference of oral health status on performance of daily activities in previous 6 months[17].

The handicap domain includes life less satisfactory in 32.9% of participants, which highlights the potential psychological and emotional burden of chronic oral health issues. The number of participants totally unable to function is 27.3%, with fewer respondents reaching the extreme of being totally unable to function, while a number of participants reported major life disruption. Carvalho et al. stated that individuals with periodontal problems more likely to experience impact on quality of life than those without periodontal problems[18].

CONCLUSION

The present study highlights that periodontal disease has a significant negative impact on the oral health-related quality of life of adults in Maharashtra. The findings indicate that domains such as physical pain, psychological discomfort, and functional limitations are most commonly affected, demonstrating how periodontal problems extend beyond the oral cavity to influence daily activities, social interactions, and overall well-being. The educational level and the socioeconomic status also contribute to poor periodontal health as there is lack of awareness about oral hygiene and inaccessibility to treatment services.

These results emphasize the importance of early detection, timely intervention, and comprehensive periodontal care to reduce the burden of disease and improve quality of life outcomes. Public health strategies focusing on awareness, preventive measures, and accessible treatment services are essential to address this often-neglected aspect of oral health.

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