



## Assessment of Knowledge and Attitude Among Rural Population of Kanpur Towards Periodontal Disease And Its Treatment

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### **Abstract**

**Introduction:** Periodontal diseases are highly prevalent in India and periodontitis is one of the main causes of tooth loss. Periodontal diseases are also related to various systemic diseases. 64.61% population lives in rural India. Accessibility to dental care is one of the major challenges of the rural population and hence, dental health education is an essential prerequisite for improving the periodontal health in rural population.

**Objective:** To assess the knowledge related to periodontal disease, its impact on systemic health and to evaluate the attitude towards periodontal treatment among rural population of Kanpur.

**Material and Methods:** Questionnaire survey on knowledge and attitude towards periodontal disease and its treatment was conducted among 1000 participants age ranging between 30-60 years, The responses recorded were subjected to statistical analysis to obtain results.

**Results:** According to the findings, majority of respondents had poor knowledge about periodontal disease and its treatment. In terms of knowledge related to periodontal disease, its impact on systemic health and their attitude towards periodontal treatment was not statistically significant.

**Conclusion:** It was concluded that rural population had poor knowledge about periodontal disease, its impact on systemic health was also very poor and they also had a very poor

attitude towards periodontal treatment. Hence, special attention is needed to educate and motivate the rural population regarding importance of maintaining periodontal health.

**Keywords:** Attitude, Knowledge, Periodontal Disease, Periodontal Treatment, Rural Population, Systemic Health

## **Introduction**

One of the main reasons of tooth loss in India is periodontal disease. 90% of people have periodontal and gingival disorders. According to epidemiological data from the Global Oral Health Data Bank, only a small fraction (3%) of individuals between the ages of 35 and 44 and seniors over the age of 60 in underdeveloped nations like India have healthy periodontium. The mouth is thought of as the body's entrance and serves as a mirror to reflect the general state of health.<sup>1</sup> Nowadays, it is acknowledged that oral health and general health go hand in hand.<sup>2</sup> Some chronic systemic disorders, including diabetes, congestive heart failure, chronic kidney disease, obesity, stroke, and even some coagulative diseases, may have a close connection to poor periodontal health.<sup>3</sup> Periodontal disease prevalence varies widely across the world depending on factors including age, sex, race, ethnicity, education, geographic location, environmental conditions, oral hygiene practises, way of life, social traits, and dental awareness. India's rural population is 64.61 percent. Poverty and disease, both of which can have a serious influence on wellness, are frequently linked to rural locations.<sup>4</sup> The average level of education, the kind of jobs people have, their wages, and other related characteristics of wellbeing varies between urban and rural areas. There are still significant gaps in health and access to healthcare for rural populations.

## **Aim**

To assess the knowledge related to periodontal disease, its impact on systemic health and to evaluate the attitude towards periodontal treatment among rural population of Kanpur.

## **Material and Methods**

This questionnaire survey was conducted among rural population of Kanpur, Uttar Pradesh. Out of 1035 participants, 35 subjects could not complete the questionnaire proforma were excluded, all the other responses were considered. The study was approved by the Institutional Ethics Committee (RDCHRC/ETHICSCOMMITTE/0156). Written informed consent was obtained from each study participants. Both male and female subjects within the age group of 30-60 years, resident of rural population were included in the study. The purpose of the study was explained to every participant and they were asked to fill the questionnaire. The questionnaire proforma consisting of total 15 questions in native language (Hindi) were given to them to record their responses with respect to each question by ticking the answer "yes" or "no". And the questionnaire consists of three sections; first section consisted of 5 questions to assess the knowledge about periodontal diseases. Second section consists of 5 questions to assess the knowledge on impact of periodontal diseases on general health. The third section consists of 5 questions to assess the attitude towards periodontal treatment. Participation was voluntary, and all the participants were assured about the confidentiality of

the data received. The percentage analysis of knowledge of periodontal disease its impact on systemic health and to evaluate the attitude towards periodontal treatment, among rural population of Kanpur are graded based on the following grading system:

Percentage	Grading
0-20	Very poor
21-40	Poor
41-60	Average
61-80	Fair
81-100	Good

### Statistical Analysis

Statistical analysis was carried out using Statistical Package of Social Sciences (SPSS Inc. Chicago IL, version 11.0 for windows.) For quantitative variations percentage were calculated. Means were compared among the three groups. Mean, standard deviation and p value were calculated using independent t test.

### Results

The data from the questionnaire comprised of 73.8% male and 26.2% female. Most of the participants of the study were in the age group of 45-50 years with mean and standard deviation of  $44.85 \pm 8.60$  years. [table 1] Table 2 and Graph 1 shows that majority of the subjects (78.3%) had knowledge about periodontal disease but they were unaware about dental plaque as the main cause for periodontal disease (80.6%). 84% of the subjects did not agree that it is necessary to have good periodontal care for healthy and firm dentition. Only 4.2% and 9.5% of the subjects knew that periodontal disease if untreated can ultimately results in loss of teeth, and periodontal disease can manifest with many symptoms such as bleeding gums, tooth sensitivity, tooth mobility, swollen gums, receding gums. etc.

**Table 1:** Demographic representation of age and gender of rural population of Kanpur

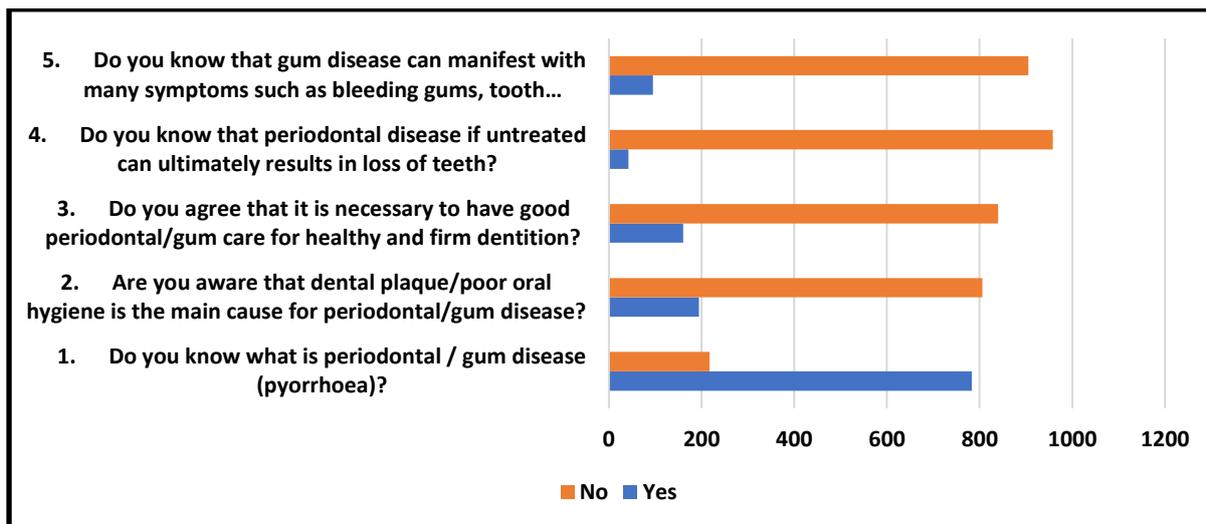
Variable	Category	Mean $\pm$ SD / n(%)
Age (in years)		44.85 $\pm$ 8.60
Gender	Male	738 (73.8)
	Female	262 (26.2)

**Table 2:** Assessment of knowledge of periodontal disease among rural population of Kanpur n (%)

Question	Yes	No
1. Do you know what is periodontal / gum disease (pyorrhoea)?	783 (78.3)	217 (21.7)
2. Are you aware that dental plaque/poor oral hygiene is the main cause for periodontal/gum disease?	194 (19.4)	806 (80.6)

3. Do you agree that it is necessary to have good periodontal/gum care for healthy and firm dentition?	160 (16.0)	840 (84.0)
4. Do you know that periodontal disease if untreated can ultimately results in loss of teeth?	42 (4.2)	958 (95.8)
5. Do you know that gum disease can manifest with many symptoms such as bleeding gums, tooth sensitivity, tooth mobility, swollen gums, receding gums etc.?	95 (9.5)	905 (90.5)

**Graph 1:** Assessment of knowledge of periodontal disease among rural population of Kanpur



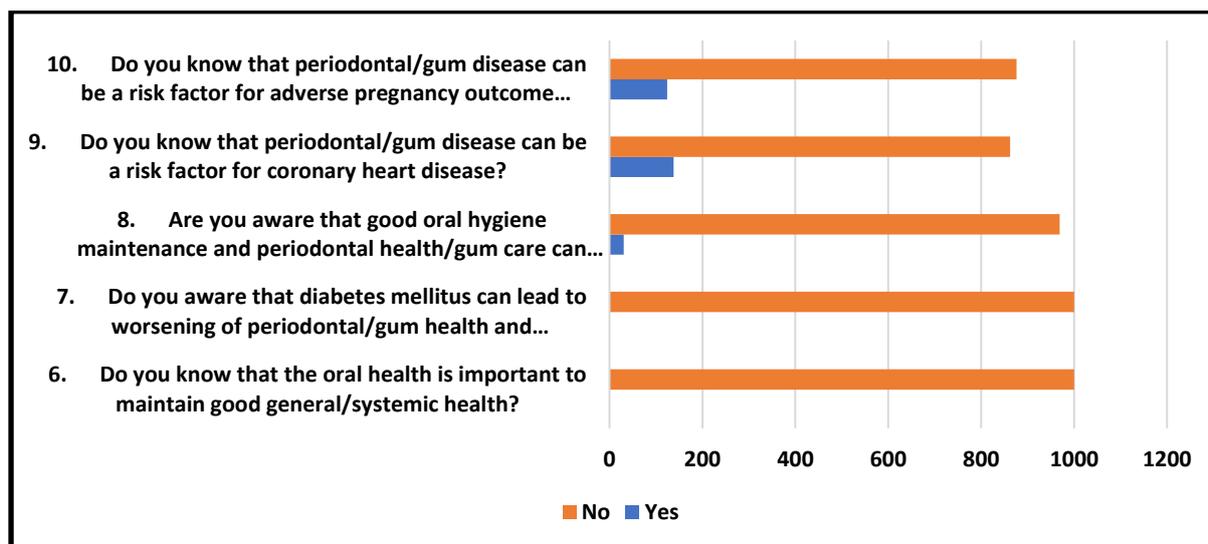
None of the subjects were aware about the fact that oral health is important to maintain good systemic health and diabetes mellitus can lead to worsening of periodontal health and periodontal diseases is one of the complications of diabetes mellitus. Only 3.1% of the subjects were aware about the fact that good oral hygiene maintenance and periodontal care can lead to better blood sugar control. Very few subjects knew that periodontal disease can be a risk factor for coronary heart disease (13.8%) and periodontal disease can be a risk factor for adverse pregnancy outcome (preterm low birth weight) (12.4%) as shown in table 3, graph 2

**Table 3: Assessment of Knowledge on impact of periodontal disease on general health among rural population of Kanpur**

Question	Yes	No
6. Do you know that the oral health is important to maintain good general/systemic health?	0	1000 (100)
7. Do you aware that diabetes mellitus can lead to worsening of periodontal/gum health and periodontal diseases is one of the complications of diabetes mellitus?	0	1000 (100)
8. Are you aware that good oral hygiene maintenance and periodontal health/gum care can lead to better blood sugar control?	31 (3.1)	969 (96.9)

9. Do you know that periodontal/gum disease can be a risk factor for coronary heart disease?	138 (13.8)	862 (86.2)
10. Do you know that periodontal/gum disease can be a risk factor for adverse pregnancy outcome (preterm low birth weight)?	124 (12.4)	876 (87.6)

**Graph 2:** Assessment of Knowledge on impact of periodontal disease on general health among rural population of Kanpur

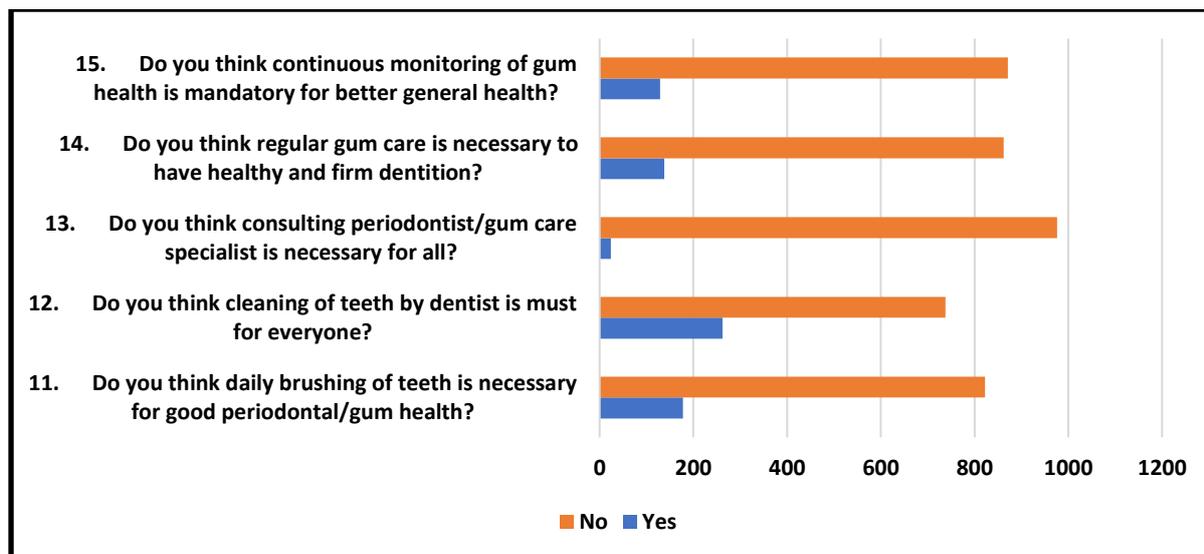


Only 17.8% of the subjects agreed that daily brushing of the teeth is necessary for good periodontal health. Only 26.2% of the subjects agreed that cleaning of teeth by dentist is must for everyone. Only 2.4% of the subjects agreed that consulting periodontist is necessary for all. Only 13.8% of the subjects agreed that regular gum care is necessary to have healthy and firm dentition. Only 12.9% of the subjects agreed that continuous monitoring of periodontal health is mandatory for better systemic health, as shown in table 4, graph 3.

**Table 4: Assessment of attitude towards periodontal treatment among rural population of Kanpur**

Question	Yes	No
11. Do you think daily brushing of teeth is necessary for good periodontal/gum health?	178 (17.8)	822 (82.2)
12. Do you think cleaning of teeth by dentist is must for everyone?	262 (26.2)	738 (73.8)
13. Do you think consulting periodontist/gum care specialist is necessary for all?	24 (2.4)	976 (97.6)
14. Do you think regular gum care is necessary to have healthy and firm dentition?	138 (13.8)	862 (86.2)
15. Do you think continuous monitoring of gum health is mandatory for better general health?	129 (12.9)	871 (87.1)

**Graph 3:** Assessment of attitude towards periodontal treatment among rural population of Kanpur



There was no difference in overall knowledge of periodontal disease, knowledge on impact of periodontal disease on systemic health and attitude towards periodontal health among male and female subjects as shown in table 5.

**Table 5: Comparison of knowledge, impact, and attitude towards periodontal treatment (in %) among male and female subjects**

Domain	VAR00001	Mean	Std. Deviation	P value
Knowledge	Male	25.420	14.804	0.828
	Female	25.649	14.282	
Impact	Male	5.935	13.504	0.766
	Female	5.649	13.049	
Attitude	Male	15.068	14.938	0.107
	Female	13.359	14.121	
Independent t test; * indicates significant difference at $p \leq 0.05$				

### Discussion

Around the globe, periodontal disease is one of the common and major dental disease amongst the human population. There have been very few studies in India regarding periodontal disease in rural area. In Uttar Pradesh, 77.7% of the population belongs to the rural category. The present study was the first of its kind, a questionnaire study was conducted with 5 questions in each group to explore the knowledge related to periodontal disease, its impact on systemic health and to evaluate the attitude towards periodontal treatment respectively among rural population of Kanpur. The questionnaire was in native language (hindi) for the ease of understanding of the subjects. In the present study, 78.3% rural population had knowledge about periodontal disease but they were unaware about dental plaque and poor oral hygiene as the main cause for periodontal disease which is in

accordance with the study by Bala K et al.<sup>5</sup> in 2019 they have found that there was adequate knowledge but poor attitude regarding oral health. In our study 84% of the subjects did not agree that it is necessary to have good gum care for healthy and firm dentition. Only 4.2% and 9.5% of the subjects knew that periodontal disease if untreated can ultimately result in loss of teeth and gum disease. This is in accordance with studies by Sekhon *et al.*<sup>6</sup>, Ramoji Rao *et al.*<sup>7</sup> in 2015 and 2017 respectively where they found that there was a higher prevalence of periodontal disease in rural subjects due to lack of awareness. In this study only 3.1% of the subjects were aware about the fact that good oral hygiene maintenance and gum care can lead to better blood sugar control. Very few subjects i.e., 13.8% knew that gum disease can be a risk factor for coronary heart disease and 12.4% knew periodontal disease can be a risk factor for adverse pregnancy outcome (preterm low birth weight), which is in accordance with the studies conducted by Gandhimadhi D. et al.<sup>8</sup>, Dhadse P. et al.<sup>9</sup> both in the year 2010 and Jepsen S. *et al.*<sup>10</sup> 2020. Only 17.8% of rural population agreed that daily brushing of teeth is necessary for good periodontal health, along with 26.2% of the subjects agreed that cleaning of teeth by dentist is must for everyone and 13.8% of the subjects agreed that regular gum care is necessary to have healthy gum which is in accordance with the study conducted by Jain N. et al.<sup>11</sup> in 2012 stated that there was an acute lack of oral hygiene awareness and limited knowledge of oral hygiene practices among patients of Jodhpur. Overall, in our study, it was seen that rural population had poor knowledge about periodontal disease, its impact on systemic health was also very poor and they also had a very poor attitude towards periodontal treatment. In India 65% of population lives in rural areas, hence it is of utmost requirement to educate, motivate rural population about oral and periodontal health and to provide accessibility for dental and periodontal treatment to achieve comprehensive health among both among urban and rural population.

## **Conclusion**

Rural population had a poor knowledge about periodontal disease, the impact of periodontal disease on systemic health was also very poor and there was a very poor attitude towards periodontal treatment. Hence, special attention is needed to educate and motivate the rural population regarding importance of maintaining periodontal health for firm and healthy dentition, through comprehensive dental health educational programs by conducting various dental camps and public oral and periodontal health awareness programs.

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