# Comparision of Periodontal Status of Urban and Rural Population in Dakshina Kannada District, Karnataka State

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## ABSTRACT

Periopathological studies have indicated that diseases of gums and loosening of teeth are as old as humanity. It continues to be one of the most common diseases affecting the human dentition. It has been seen that, due to differences between life styles and oral hygiene habits, there is a wide variation between the periodontal status of urban and rural population. As 70-80% of Indian population live in rural areas devoid of adequate treatment facilities, an attempt has been made through this study to compare the periodontal status of the urban and rural population of Dakshina Kannada District, Karnataka State using CPI (Community Periodontal Index with Loss of Attachment).

A total of 1251 individuals were examined from Mangalore and Ujire populations in the age group of 15-19, 35-44 and 65-74 years using two stages stratified random sampling technique. It was observed that the periodontal status of urban population (14.52% with CPI code 0) was significantly better than in rural population (2.48% with CPI code 0). Also with increasing age, there was increase in severity of periodontal disease. These findings highlighted that the prevalence of periodontal disease was more in rural compared to the urban population.

## KEYWORDS

Periodontitis, Community Periodontal Index, Loss of attachment, Urban population, Rural population, Survey

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## INTRODUCTION

Epidemiological surveys conducted throughout the world confirm the universal distribution of periodontal disease. It affects the supporting and investing tissues of the teeth and is the commonest cause of tooth loss.

To assess the periodontal status and treatment needs of a given population, Ainamo et al (1982) developed an index called Community Periodontal Index for Treatment Needs (CPITN)(1). But Baelum et al (1995) observed that this may result in severe underestimation of periodontal treatment in younger individuals (2). To overcome these limitations, a new index called Community Periodontal Index (CPI) with attachment loss was included in WHO Oral Health Surveys- Basic Methods (3).

It has been seen that there is a wide variation in the periodontal status of urban and rural population as seen in the study conducted by Loe et al (4). He compared the periodontal status of Norwegian teachers and Srilankan tea labourers and found that there was a wide variation in the periodontal status of the two groups with greater loss of attachment in Srilankan tea labourers. This can be attributed to various factors such as age, education, occupation socioeconomic status, dental visits, indigenous oral hygiene methods and deleterious habits like smoking which are reported to have significant influence on periodontal status of the population. This was also reported by Kurien et al in their study (5).

As 70 – 80% of Indian population live in rural areas devoid of adequate treatment facilities an attempt has been made through this study to compare the periodontal status of urban and rural population of Dakshina Kannada district of Karnataka State using CPI.

## MATERIALS AND METHODS

A total of 1251 individuals were examined from both urban and rural population of Dakshina Kannada district. The sample population was taken from the following 3 age groups according to WHO criteria. The age groups were 15-19 years, 35-44 years and 65-74 years. Patients were selected from colleges, factories and old age homes. This was done in accordance with Oral Health Surveys Basic Methods (1997) (5).

Out of the 1251 selected sample, 40 individuals were excluded from the study as they were either complete denture wearers or completely edentulous. All remaining 1211 people readily consented to take part in this survey. Here two stage stratified random sampling technique was adopted. An interview cum oral examination with the help of proforma was conducted for collection of data. The recording of data was based on WHO oral health assessment survey form 1997. All subjects were examined seated on an ordinary chair under adequate natural light by a single examiner using a CPI-C WHO periodontal probe. Distal, midline and both facial and lingual/ palatal surface of each index teeth were probed. This survey was carried out in a span of 6 months. Ordinal regression analysis using PLNM procedure in SPSS version 10.0 was used for comparing periodontal status between urban and rural population.

## RESULTS

Out of 1211 subjects examined, 606 people belonged to urban area and 605 people belonged to rural area. The population was divided into two groups according to location urban (Group I) and rural (Group II).

Table 1 shows relationship between location and periodontal status. In Group I (urban) 14.52% had CPI

| Table 1: Relationship between Location and CPI Scores | | | | | | |
|---|---|---|---|---|---|---|
| LOCATION | 0 | 1 | 2 | 3 | 4 | T |
| GROUP I | 88 | 17 | 363 | 108 | 30 | 606 |
| (URBAN) | 14.52% | 2.81% | 59.90% | 17.82% | 4.95% | 50.04% |
| GROUP II | 15 | 14 | 31 | 160 | 104 | 605 |
| (RURAL) | 2.48% | 2.31% | 251.57% | 26.44% | 17.19% | 49.96% |

code 0 while only 4.95% had code 4. In Group II (rural) 2.48% had CPI code 0 while 17.19% had code 4.

When attachment loss was evaluated in Group I, 58.91% had code 0 and none had code 4. In Group II, 42.98% had code 0 and 0.83% had code 4 (Table 2).

It was seen that urban population had better periodontal health than the rural population and this relationship was found to be statistically significant (p <0.001).

When age groups were evaluated it was seen that in the urban Group I (15-19 years) 31.37% had code 0 and none had code 4. In Group II (35-45 years) 6.53% had code 0 and 5.53% had code 4. In Group III (65-74 years) 5.42% had code 0 and 9.36% had code 4.

In rural Group I (15-19 years) 6.53% had code 0 and 1.51% had code 4. In Group II (35-45 years) 1% had code 0 and 20.9% had code 4. In Group III (65-74 years) none had code 0 and 28.78% had code 4.

It was seen that the severity of periodontal disease increased with age in both the urban and rural population. This relationship was found to be statistically significant (p <0.001).

## DISCUSSION

In this study a comparison between urban and rural population showed that the number of people with severe periodontal disease were more in the rural population (4.94% of urban population had CPI code 4 compared to 17.19% of rural population). This is in accordance with study done by Singh et al (6) where they have shown that,

**Table 2: Relationship between Location and LOA Scores**

| LOCATION | 0 | 1 | 2 | 3 | 4 | T |
|---|---|---|---|---|---|---|
| GROUP I (URBAN) | 357 58.91% | 145 23.93% | 83 13.70% | 18 2.97% | 3 0.50% | 606 50.04% |
| GROUP II (RURAL) | 260 42.98% | 187 30.91% | 111 18.35% | 42 6.94% | 5 0.83% | 605 49.96% |

**Table 3: Age distribution with CPI Scores in Urban Population**

| Age | 0 | 1 | 2 | 3 | 4 | T |
|---|---|---|---|---|---|---|
| GROUP I (15-19) | 64 31.37% | 3 1.47% | 134 65.69% | 3 1.47% | 0 0% | 204 |
| GROUP II (35-44) | 13 6.53% | 10 5.03% | 119 59.80% | 46 23.12% | 11 5.53% | 199 |
| GROUP III (65-74) | 11 5.42% | 4 41.97% | 110 54.19% | 59 29.06% | 19 9.36% | 203 |
| TOTAL | 88 14.52% | 17 2.81% | 363 59.90% | 108 17.82% | 30 4.95% | 606 |

**Table 4: Age distribution with CPI Scores in Rural Population**

| Age | 0 | 1 | 2 | 3 | 4 | T |
|---|---|---|---|---|---|---|
| GROUP I (15-19) | 13 6.53% | 10 105.03% | 157 78.89% | 16 8.04% | 3 1.51% | 199 |
| GROUP II (35-44) | 2 1% | 4 1.99% | 84 41.79% | 69 34.33% | 42 20.90% | 201 |
| GROUP III (65-74) | 0 0% | 0 00% | 71 34.63% | 75 36.59% | 59 28.78% | 205 |
| TOTAL | 15 2.48% | 14 2.31% | 312 51.57% | 160 26.45% | 104 17.19% | 605 |

poor educational background and low socio-economic status was responsible for the increased prevalence of periodontal disease in the rural population.

When age was taken into consideration, it was seen that there was increase in periodontal disease with advancing age (Table 2). These findings co-relate with the findings of Rao et al where it was seen that the percentage of people with periodontal disease was more in rural population in all the age groups evaluated (7). This might have been due to a difference in lifestyle between the two groups and exposure of certain risk factors such as smoking, chewing tobacco and use of indigenous oral hygiene methods for cleaning teeth which are more prevalent in rural population. Also lack of oral hygiene awareness among the rural population must have contributed to the increased risk of periodontal disease among them.

## CONCLUSION

In light of the observations from the present study, the following recommendations can be made.

Good treatment facilities have to be made available to rural people. It should be in accessible areas where people can reach out for treatment. It should be made affordable for economically backward class people. Both urban and rural people should be made aware of the need of oral health care and harmful effects of smoking, inadequate plaque control and inadequate treatment facilities. This can be achieved by training school teachers and primary health care workers to impart necessary oral health care instructions to people early in life.

In short, community based approach for general promotion of good oral hygiene practices should be carried out on a large scale for control and prevention of periodontal disease.

India is a country with a population having diverse culture, lifestyle and religious beliefs which might influence the health status of the individuals significantly. Hence it is necessary to conduct such surveys in different parts of the country and develop a strategy to improve the periodontal status of the population as a whole.

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