

# Assessment of Periodontal Status of Konda Reddy Tribe in Bhadrachalam, Khammam District, India

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## ABSTRACT

**Background:** Though great strides have been taken globally in the fight against oral diseases, problems persist especially among poor, disadvantaged and socially marginalised communities like tribes. Konda Reddies are one of the most primitive tribes of Bhadrachalam who because of their isolation, inaccessibility to dental resources and lack of dental knowledge follow traditional methods of oral hygiene practices, which are found to be inadequate to maintain oral health.

**Aim and Objectives:** To assess the periodontal status of Konda reddy tribes residing in Bhadrachalam of Khammam district, India.

**Materials and Methods:** Based on availability and accessibility the tribes were gathered using convenient sampling method.

The total study population consisted of 500 subjects. Using a preformed Performa the oral hygiene practices and periodontal status was recorded using CPI index.

**Results:** The total study population was 500, comprising of 225 males and 275 females in the age group ranging from 20- >70 years. The mean number of sextants with healthy condition were  $0.04 \pm 0.19$ ; calculus  $4.69 \pm 1.21$ ; pockets 4-5 mm  $0.91 \pm 0.91$  and pockets >6mm  $0.02 \pm 0.15$ .

**Conclusion:** Poor oral hygiene and periodontal status was seen among the tribes. Under these circumstances, the implementation of a basic oral health care programme for these tribes is a high priority.

**Keywords:** Community periodontal index, Oral hygiene, Periodontal disease

## INTRODUCTION

Several epidemiological studies have indicated that diseases of gums and its associated structures are as old as humanity. It continues to be one of the most common diseases. There is a wide variation in the periodontal status of people living in different geographic locations, which could be assigned to differences between life styles and oral hygiene habits, etc [1].

In the present era, still there are people living in isolation far away from civilization with their traditional values, customs, beliefs and myths intact. They are commonly known as "tribes". About half of the world's autochthonous people, comprising 635 tribal communities including 75 primitive tribal communities live in India. In India they are often referred as Adivasi, Vanyajati, Vanvasi, Pahari, Adimjati, and Anusuchit Jan Jati is now considered as its constitutional name [2].

The primitive tribal communities have been identified by the Govt. of India in 15 states/union territories among them Andhra Pradesh is the homeland of nearly 33 tribal groups and, in its Khammam district the largest proportion of population is comprised of tribes, constituting 22% (5.59 lacs) of its total population (25.6 lacs). The major tribes inhabit in the ITDA (Integrated Tribal Development Agency) project area, Bhadrachalam, and mostly include Konda Reddies, Koyas and Lambadas [3].

Konda Reddies are one of the most primitive tribes and based on the geographic settlements, they are divided into three distinct zones-hill settlements, River-side settlements and settlements of lower track. Lack of communication and inadequacy of modern transport and educational facilities make them to depend only upon the local natural resources. The accessibility of the tribes to medical and dental care is minimal. They practice their own traditional methods to treat disease and alleviate pain [4].

As there is paucity of information with regard to their periodontal health status, the present study was conducted with an aim to

determine the prevalence of periodontal disease in Konda reddy tribes residing in Bhadrachalam, Khammam district.

## MATERIALS AND METHODS

The present study is a descriptive cross-sectional epidemiological study conducted to assess the periodontal status of Konda reddy tribe of Bhadrachalam in Khammam district, Telangana India. The study was conducted from October 2012 to June 2013. The Ethical clearance was obtained from the institutional review board of Mamata Dental College, Khammam. Permission was obtained from the ITDA project Officer to conduct the study. The study was conducted in the Edugurallapalli santha (Market area) for Konda Reddy tribe.

A pilot study was conducted to determine the sample size of the study population. With the help of ITDA officers and the medical and non-medical staff from the regional health care agencies, it was ensured that a significant proportion of the participants were available for the pilot study. A modified WHO proforma was used which includes the questions regarding the oral hygiene practices that may preferably have influence on periodontal health. CPI index was preferred so as to determine the prevalence of periodontal disease and also the periodontal attachment loss.

Based on the results of pilot study the prevalence of periodontal disease was estimated and the sample size is attained as 500 subjects. A simple sampling method was used to attain the sample size. The natives belonging to the Konda reddy tribe residing in the villages of Bhadrachalam, the individuals who are willing to participate in the study and the individuals with more than one tooth in each sextant were included in the study. Where as, individuals who were not willing to participate, those individuals who were absent on the day of examination and Children and edentulous subjects were excluded from the study. Verbal informed consent was obtained from all the individuals participating in the study prior to examination after discussing in detail about the purpose of the study.

The investigator was calibrated in the Department of Periodontics, Mamata Dental College, by the concerned staff in order to reduce the intra-examiner variability. Two interns were also trained to record the data when the examiner orates the values during the clinical examination. The periodontal status was assessed using CPI index for which CPITN-C probe was used.

On the day of examination the subjects were made to sit comfortably on a chair in a supine position and the investigator carried out the oral examination by sitting at the same level in front of them. Oral examination was carried every day under sun light. The interns recorded the data when the examiner orated the findings. Instruments were sterilized in the sterilization section of the Area hospital, Bhadrachalam, using autoclave before every visit to the Villages. If necessary, sterilization was done during the study using chemical sterilizing solution Korsolex.

### STATISTICAL ANALYSIS

The Statistical software namely SPSS 15.0, Stata 8.0, MedCalc 9.0.1 and Systat 11.0 were used for the analysis of the data. Microsoft word and Excel have been used to generate graphs, tables etc. Chi-square test/Fisher Exact test has been used. Statistically significant figure set for the study was when  $p < 0.05$ . Confidence interval of 95% was used with  $p \pm 1.96 * SE (P)$ , where  $SE (P)$  is the Standard error of proportion =  $P * Q / \sqrt{n}$ .

### RESULTS

The total study population was 500, comprising of 225 males and 275 females in the age group ranging from 20- >70 years [Table/ Fig-1&2] with the mean age of  $41.77 \pm 14.21$  ( $p < 0.05$ ). All the participants (100%) were found to be farmers [Table/ Fig-3] and their main occupation was cultivation of tobacco and other grains ( $p = 0.00001$ ). The information gathered regarding their usage of oral hygiene aids showed that 468 (93.60%) used twigs, 32 (6.20%) used a combination of twig and finger with charcoal or brick powder and none of them used brush [Table/ Fig-4].

Periodontal status as indicated by Community Periodontal Index is shown in [Table/ Fig-5]. The mean number of sextants with healthy condition were  $0.04 \pm 0.19$ , the mean number of sextants with bleeding were  $0.24 \pm 0.59$ , the mean number of sextants with calculus were  $4.69 \pm 1.21$ , the mean number of sextants with Pocket (4-5 mm) were  $0.91 \pm 0.91$ , the mean number of sextants with

Pocket (6mm or more) were  $0.02 \pm 0.15$ , mean number of Excluded sextants were  $0.00 \pm 0.12$ .

In Konda reddy the mean number of sextants with loss of attachment of 0-3mm was found to be  $3.21 \pm 1.73$ ; followed by 4-5 mm loss of attachment as  $2.25 \pm 1.41$ ; mean number of sextants with loss of attachment of 6-8mm was  $0.40 \pm 0.89$ ; 9-11 mm loss of attachment was found in  $0.01 \pm 0.09$  sextants and loss of attachment of 12 mm or more was not seen in any of the sextants [Table/ Fig-6].

### DISCUSSION

Despite remarkable world-wide progress in the field of diagnostic, curative and preventive medicine, still there are large population of tribal people living in isolation maintaining their traditional values, customs, beliefs and myths [5].

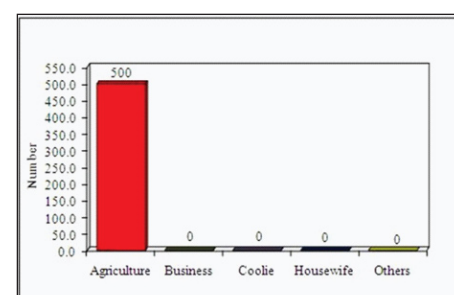
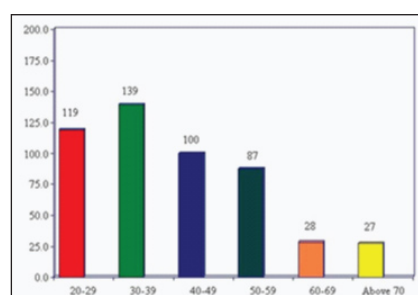
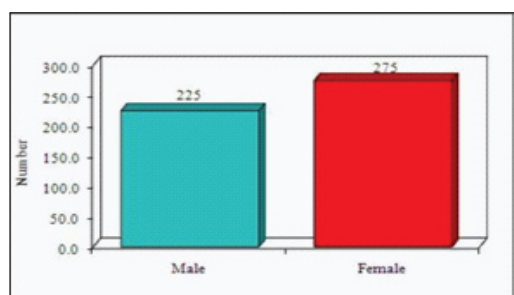
Assessment of the oral health status and associated behaviors is an essential part of the process of planning appropriate and acceptable health services and dental health education programs in order to improve the dental health status of this population. Hence, an integrated multidisciplinary approach is required to study the tribal health problems. Thus, the present study aimed to assess the prevalence of periodontal disease in Konda reddy tribes residing in Bhadrachalam, Khammam district, in southern India.

As per the information attained from ITDA and the observations from the pilot study, the oral examination was conducted at Edugurallapalli Santha (Market area) for Konda Reddy tribe.

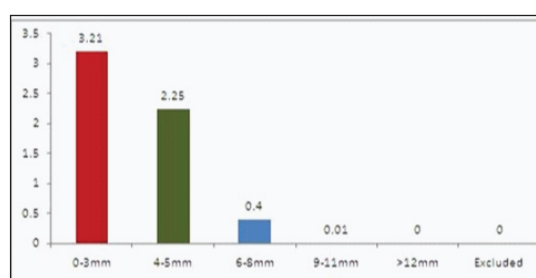
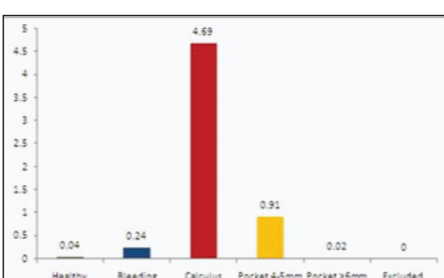
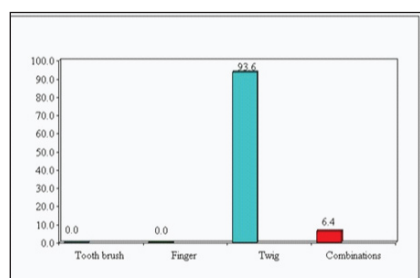
In the present study the majority of the subjects participated were females [Table/ Fig-1]. This is in accordance to study done by Philip et al., [1] in Nilgiris tribal group where the percentage of female participants was 58.4%. This could be because the females are more co-operative than males and are more concerned about aesthetics.

In Konda Reddy group, all the participants (100%) were found to be farmers and their main occupation was cultivation of tobacco and other grains. As this tribe resides near hill and river settlements, their main occupation is agriculture.

In Konda Reddy tribal population, a majority of 93.60% of them cleaned their teeth using twigs followed by only 6.20% of them cleaned their teeth with combination of toothbrush, finger and twig with toothpaste and charcoal. Padma BK et al., [6] has reported that the chew sticks (79.8%) were more commonly used than



[Table/ Fig-1]: Distribution of study sample based on gender [Table/ Fig-2]: Distribution of study population based on age groups [Table/ Fig-3]: Distribution of study sample by their occupations



[Table/ Fig-4]: Distribution of study samples by the type of oral hygiene aid used [Table/ Fig-5]: Mean number of sextants affected by periodontal disease conditions according to cpi index [Table/ Fig-6]: Distribution of population based on mean number of sextants affected with periodontal disease conditions according to loss of attachment component of cpi index

toothbrushes as an oral hygiene aid in Iruliga tribes in Karnataka, India. Contrastingly, Khadir et al., [7] who conducted a study in aborigines of Selangor, West Malaysia reported that the majority of the population used toothbrush with toothpaste and they brushed their teeth once daily. The authors suggested that these responses from the participants could have been influenced by the factors such as social desirability; where by respondents tend to answer questions on dental health and dental health behavior in a socially desirable way.

In the present study, the mean number of sextants with healthy condition was significantly less in Konda Reddy. These findings are similar to the study done by Jordan et al., [8] in rural African Gambia populations where they observed no occurrence of score 0 and 1. The authors suggested that the use of two tooth cleaning aids i.e., Chew sticks and toothbrush resulted in lower gingival inflammation.

Sextants with calculus and shallow pockets were significantly more in Konda Reddy tribe and among all the periodontal condition, calculus ( $4.69 \pm 1.21$ ) was more prevalent in this tribal group. This could be due to the fact that, these tribes practice improper oral cleansing aids and unavailability of proper dental health resources. Cificibasi et al., in a study suggested that the toothbrushes reduced plaque scores significantly compared to the baseline scores and the subjects who do not use a proper tooth cleaning aid show worse oral health [9]. Another probable reason could be their low income and socio economic status which is also known to debilitate oral health. Bertoldi et al., in a study reported a direct relationship between the low socio economic status and worsening of the periodontal condition [10].

The increased prevalence of periodontal disease seen in this tribe could be related to their isolation from the outside world due to lack of communication, inadequacy of modern transport and educational facilities. Their inappropriate oral hygiene practices, inadequate dental health resources and low socio-economic status are the major factors in this population to cause increased prevalence of periodontal disease.

## LIMITATIONS

The main limitation of this study is that the influence of oral habits such as tobacco chewing, smoking, etc. was not recorded and

correlated with the severity and progression of periodontal disease. Other factor such as gingival biotype that may influence the attachment loss was not determined.

## CONCLUSION

There is a consensus agreement that the periodontal health status of the tribal population is very poor and worst among the primitive tribes because of their isolation, remoteness and being largely unaffected by the developmental processes going on around them. 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. Such surveys do help the government to take necessary steps to improvise the health and living status of this tribe. Future studies are required determining the influence of various oral and environmental factors on the initiation and progression of periodontal diseases in this tribe.

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