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Caries Experience among Tribal Gypsies in Thoothukudi District - A Cross-Sectional Study

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ABSTRACT

Dental caries, or tooth decay, is an infectious process involving breakdown of the tooth enamel. Caries form through a complex interaction between cariogenic acid-producing bacteria in combination with fermentable carbohydrates and other dietary, genetic, behavioural, social, and cultural factors. Poor oral hygiene and low dental service levels were found in marginalised areas. The study aimed to assess the caries experience of Narikuravars in Thoothukudi district. A cross-sectional study was done among gipsies in Thoothukudi district. Oral health examination was done the gipsies in the above three taluks in which they were present. All the study participants were examined under adequate illumination, and clinical data were collected on dental caries as described by the World Health Organization (WHO). DMFT (Decayed, Missing and Filled teeth) was used to assess the caries experience. For statistical analysis, t-test and ANOVA was used. The total size of the screened population was 164. There were 128 adults and 36 children who are below 18 years of age. Mean Decayed teeth, mean Missed teeth and mean Filled teeth was found to be 3.38±1.730, 1.01± 2.109, 0.01± 0.088 respectively. Decayed teeth were most common in the study population. Mean DMFT score among the adult study population was found to be 4.40 ± 2.603. The difference between the different age groups to Mean DMFT and was found to be statistically significant (F value- 22.679; $p < 0.05$). The present study concluded that the experience of dental caries was low in the study population. It was more prevalent in males as compared to the female population.

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INTRODUCTION

The health of an individual is an important asset not only for the individual but also for the nation. Development and progress of a country are more rapid when the population are healthier and if they are leading a productive life (Sharda and Shetty, 2009). Oral health is now identified as equally crucial concerning general health (Raju *et al.*, 2015). Oral diseases are related with different factors like hygiene, nutritional status, tobacco smoking, alcohol, hygiene, stress, etc. are linked to a wide range of oral diseases forming the fundamental basis of the common risk factor approach to prevent the oral diseases (Sheiham and Watt, 2000; Kathariya *et al.*, 2013).

Diagnostic, curative and preventive medicine made impressive progress all over the world. Even though there was progress, still there are large populations of people living in isolation maintaining their traditional values, customs, myths and beliefs and also

away from civilisation (Kumar *et al.*, 2009).

Numerous factors influence the health status of a community. Factors affecting the health status of any community includes the following, demographic, health awareness of the people, educational, socio-cultural, economic and political factors (Balgir, 2006).

Oral diseases are a product of socio-economic, cultural status, behavioural and environmental factors. Poor hygiene, poor nutrition and smoking contribute to dental and oral problems (Dragomir and Zafiu, 2019).

In India, there are many communities which are backward in terms of economic, social, political and educational considerations. Tribal community is one among the backward communities. According to 2001 census data, tribal people constitute 8.14% of the total population of India, and they cover about 15% of the country's area, with 84.51 million population (Vijayakumar *et al.*, 2017).

A tribe is defined as a 'collection of families bearing a common name, speaking a common dialect, occupying or professing to occupy a common territory and is not usually endogamous though originally it might have been so.' Due to multidimensional factors, these people especially face many problems, including illiteracy, difficult terrain, isolation, superstitions and inadequate health facilities (Kathariya *et al.*, 2013).

The Narikuravar is a semi-nomadic tribe. As obtained from oral history, it was reported that they originate from North India and before five hundred years they shifted to South India. Around 30,000 people from about 8,500 families live in Tamilnadu representing less than 0.1% of the state's population and they currently spread over state borders. Narikuravars are identified as a "Gypsy" population, and they have similar roots and culture as other Romani communities. Traditionally, they are hunters, as their name means "fox" or "jackal hunters". As hunting was banned in India, they sell home-made beaded jewellery at temples and festive occasions, with part of the community employed in jobs such as collecting garbage (Baldani *et al.*, 2004).

Every culture has its concepts of health, sickness and health promotion depicting values, beliefs, knowledge and practices shared by its people (Dragomir and Zafiu, 2019).

The common beliefs, traditional customs, myths, practices related to well being and disease in turn influence the health-seeking behaviour of the tribal people (Balgir, 2006).

Dental caries is an infectious and a transmissible disease of bacteriological origin' Dental caries is a highly prevalent infection among humans. The impact of this disease on society and the affected individual is considerable (Baldani *et al.*, 2004)

According to Baldani et al., the polarisation of dental caries is a phenomenon associated with economic deprivation. Socio-economic factors have also been identified as risk indicators in the development of dental caries (Dasanayake and Caufield, 2002; Bazmi *et al.*, 2015).

To the best of our knowledge and literature search, no study has been done assessing the caries status of the gipsies in Thoothukudi district. Hence, a study was designed to assess the caries experience of Narikuravars in Thoothukudi district.

MATERIALS AND METHODS

A cross-sectional study was done among gipsies in Thoothukudi district. After obtaining official permission from the institution, this study was planned among narikuravars in Thoothukudi district, India. Thiruchendur, Eral and Srivaikundam were the three taluks in Thoothukudi district in which gipsy population were present. Oral health examination was done the gipsies in the above three taluks after getting permission from the respective taluk officers to screen the gipsy in their taluks. The study was done among 164 study participants. The total tribal population was 164, including 128 adults and 38 children.

Those who were willing to participate in the survey were included, and dental status was examined using the WHO oral health assessment form (World Health Organization, 2013). All the study participants were examined under adequate illumination, and clinical data were collected on dental caries as described by the World Health Organization (WHO). Plane mouth mirrors and curved sharp sickle probes were employed. DMFT (Decayed, Missing and Filled teeth) was used to assess the caries experience

The statistical software, namely SPSS version 20.0, was used for the analysis of the data. Quantitative values were compared using t-test and ANOVA to assess the level of dental caries. The p-value of 0.05 or less was considered statistically significant.

RESULTS

The total size of the screened population was 164. There were 128 adults and 36 children who are below 18 years of age. The demographic details of the study are as follows: 21.95% in 1-18 years old, 48.78% in 19-35 years old, 20.12% in 36-50 years

and 9.14% in 51-80 years old. (Figure 1). 50.6% males and 49.4% females in the study population (Figure 2)

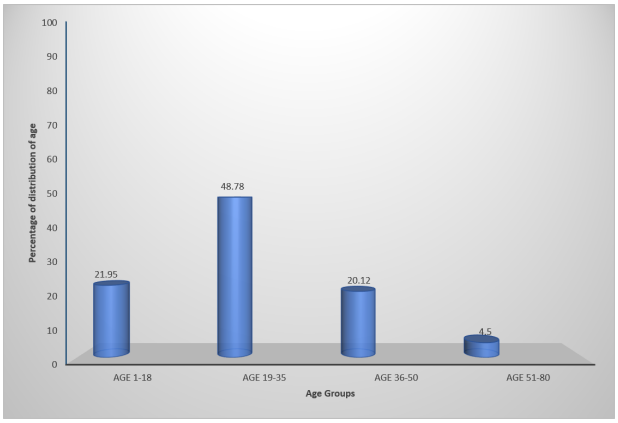

Figure 1: Age-wise distribution of study participants

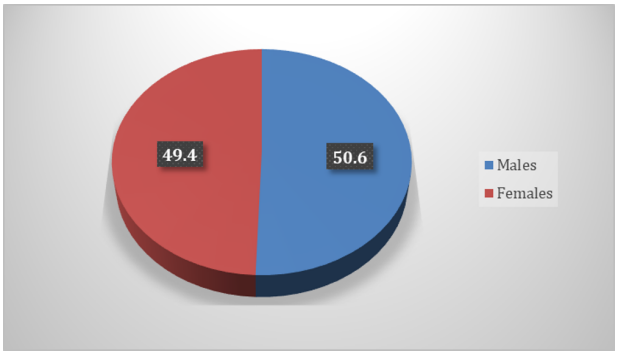

Figure 2: Distribution of gender in the study population

Table 1: Mean distribution of caries status among the study population

Variables	Mean	Std deviation
D	3.38	1.730
M	1.01	2.109
F	0.01	0.088
DMFT	4.40	2.603

Mean Decayed teeth, mean Missed teeth and mean Filled teeth was found to be 3.38±1.730, 1.01± 2.109, 0.01± 0.088 respectively. Decayed teeth were most common in the study population when compared with filled teeth. Mean DMFT score among the adult study population was found to be 4.40 ± 2.603. (Table 1)

The mean DMFT score for male was 4.52 ± 2.173, and the mean DMFT score for female was 4.25 ± 3.043 and was found to be statistically not significant (p-value- 0.578) using Independent t-test (Table 2). The mean DMFT score for the male population was more significant than the female population. Thus the dental caries was more prevalent in males as compared to the female population.

Comparing the mean DMFT score and age of the study subjects showed that the mean DMFT score for the study participants between 18 to 35 yrs, 36 - 50yrs and 51-80 yrs were 3.43 ± 1.56, 5.52 ± 2.37 and 7.13 ± 4.29 respectively. One-way ANOVA was used to find the difference between the different age groups concerning Mean DMFT and was found to be statistically significant (F value- 22.679; $p < 0.05$) (Table 3). Mean DMFT score was more among the study population in the age group of 51-80 yrs when compared with other age groups, suggesting that there was an increase in the DMFT score with an increase in the age of the participant.

DISCUSSION

Every community has an inherent knowledge, custom, belief, tradition and practices related to well-being and illness. Tribal people have their system of health care, which depends on their knowledge and belief. The tribes have a strong conventional system of medicine. Culture plays an important role in defining the shape of the social life of any society, including the concept of well-being and ailment. Culture and belief of the tribes in certain things make the concept of health and ailment very interesting and a matter of great concern and priority (Negi and Singh, 2018).

Dental caries, the most common oral disease, shows a striking difference in its distribution all over the world. The global distribution of dental caries presents a varied picture. In several industrialised countries, a reduction of dental caries incidence and improvement of gingival health care is evident because of the preventive measures undertaken (Petersen *et al.*, 2005; John *et al.*, 2015)

Dental caries remains the leading cause of tooth loss in most populations (Kassebaum *et al.*, 2014). It was reported in the studies conducted among the tribal population, there was a higher number of decayed teeth, and the need for dental extraction among those population was high. The reason for the increased need for extraction could be because of their lack of dental visits which in turn aggravated the oral disease conditions (Arantes and Frazão, 2018; Soares *et al.*, 2019)

In the present study the mean DMFT score of the study population was 4.4 whereas, in the study conducted on Sugali Tribes in Telangana Region, the mean DMFT was 5.90 ± 2.28 (Vijayakumar *et al.*, 2017).

Table 2: Gender wise distribution of Caries experience among study participants

Gender		DT	MT	FT	DMFT	P value
Male	Mean	3.42	1.09	.01	4.52	0.578
	Std. Deviation	1.613	1.908	.120	2.173	
Female	Mean	3.34	.92	.00	4.25	
	Std. Deviation	1.872	2.336	.000	3.043	
Total	Mean	3.38	1.01	.01	4.40	
	Std. Deviation	1.730	2.109	.088	2.603	

Table 3: Age-wise distribution of Caries experience among study participants

Age (in yrs)		DT	MT	FT	DMFT	F value
19-35	Mean	3.20	.23	.00	3.43	
	Std. Deviation	1.602	.763	.000	1.565	
36-50	Mean	3.67	1.82	.03	5.52	22.679
	Std. Deviation	1.865	2.038	.174	2.373	
51-80	Mean	3.73	3.40	.00	7.13	
	Std. Deviation	2.052	4.050	.000	4.291	
Total	Mean	3.38	1.01	.01	4.40	
	Std. Deviation	1.730	2.109	.088	2.603	

Also, in a cross-sectional study conducted among 35 to 44 yrs old adults in a tribal population mean DMFT score was 14.45 (± 5.80) (Soares *et al.*, 2019).Higher DMFT scores were also reported in few other studies (Sampaio *et al.*, 2010; Nascimento *et al.*, 1986; Lalloo *et al.*, 2015) which is a contrast to the results of the present study.

In the present study, Decayed component of the DMFT score was more when compared with missing and filled component. Whereas in a study it was observed that two-thirds of the DMFT score accounted for missing teeth (Soares *et al.*, 2019)

Recommendations

There is a harmony that the oral health status of the tribal population is very substandard among the marginalised tribal population because of their segregation, remoteness; therefore, dental resources should be made easily accessible. Ethnic tribes misconceptions which inhibit the use of health care services should be overcome by motivating, training primary health care workers who are in continuous contact with these tribes.

This would help bridge the gap between oral health practice and oral health needs of tribes. Hence, a community - based approach should be carried out for the promotion of good oral hygiene among the marginalised tribal population on a large scale for control and prevention of oral diseases.

CONCLUSIONS

Caries experience was found to be low among the study population. Males had higher caries experience than females, but it is not statistically significant. Caries experience increased with increase in the age group of the study participants

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Conflict of interest

The authors declare that they have no conflict of interest for this study.

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