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# Dental Caries among the Chakhesang of Sodzulhou village, Dimapur district

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***Abstract:*** *Dental caries is a significant health problem worldwide. The objectives of the study are to estimate the prevalence of caries and association of dental caries with eating habits, oral hygiene practice and literacy among the Chakhesang of Sodzulhou village. The main tool for data collection was oral examination along with personal observation. The finding of the study revealed that out of the total 230 individuals examined, 202 were found to be affected by caries (87.83%) with high incidence of dental caries in the lower age group 4-12 years.*
***Keywords****: Dental caries, Chakhesang, habits,literacy, oral hygiene.*

## I. Introduction

Dental caries and related oral diseases like gingivitis and periodontitis are most common oral diseases throughout the world [1].There are different causes of tooth caries such as the dietary habit and oral hygiene. The morphology of the tooth also plays an important role in the formation of caries [2]. Tooth decay (dental caries) is a significant health problem worldwide. It affects not only the vast majority of adults but also children, from 60% to 90% of them. In other words, six to nine children in every 10 are affected by tooth decay [3]. The disease is the most prevalent of the chronic diseases affecting the human race. The long standing prevailing theory explaining the disease process implicates carbohydrates, oral microorganisms, and acids as the main factors in the caries process. Chemico-parasitic process consists of two stages, the decalcification of enamel surface and its total destruction [4]. The burden of dental caries lasts a lifetime because once the tooth structure is destroyed; it will usually require restoration and on-going maintenance throughout life [5].

Oral hygiene includes all the processes for keeping the mouth clean and healthy by brushing and flossing for the prevention of dental caries, bad breath and other dental problems. Tooth decay and gum diseases can be prevented by proper brushing and flossing of teeth. Flossing can remove plaque from a proximal tooth surfaces and may have a role in reducing caries. A combination of brushing with fluoride toothpaste and flossing is more efficient, especially if regular flossing is carried out by an adult. Flossing on its own cannot be recommended for the prevention of dental caries in pre-school children without the associated application of fluoride to the dentition [6].

Dental caries prevalence was high amongst the studied elderly population and significant differences were observed in those living in rural compared with an urban setting. Also dental caries was associated with literacy level, oral hygiene practices, oral health perception and diet [7]. A study conducted by Moses et al., observed that 57.2% of children in 6 year age group were affected by dental caries indicating a high prevalence of the disease in children [8]. Prevalence of dental caries among the population of Gwalior reported that incidence of dental caries was higher in female. High number of dental caries patients was observed among vegetarian population and 21-30 year age group was found to be most infected with dental caries [1].A study carried out on the prevalence of dental caries by Limbuamong the Gallong children of Arunachal Pradesh aged between 11 – 17 years found prevalence of gingivitis of about 73 % and prevalence of dental caries was very high in both male and female [9].

## II. Land and People

Nagaland is located in the extreme North-eastern part of India. It is one of India's smallest states, with a total area of 16,579 sq km. The total population of the state is 19,78,602 and a literacy rate of 80.11% [10]. There are 11 districts in the states, namely – Kohima, Mokokchung, Tuensang, Mon, Wokha, Zunheboto, Phek, Dimapur, Peren, Longleng and Kiphire.

The present study has been conducted in a village known as Sodzulhou which falls under the Dimapur district, one of the eleven districts of Nagaland covering an area of 927 sq km. The village is inhabited by Chakhesang tribe and is situated at the outskirt of Dimapur town. Sodzulhou was declared and recognized as a villageby the state government in 1972. This village is the first and oldest village among the Chakhesang villages in Dimapur. The dominant language spoken by the people of this village is Khezha language. Nagamese a lingua franca is commonly used by the people while communicating with non-local people and also within themselves. Rice is staple food of the people and Christianity is the major religion that they practice.

## III. Materials and Methods

The present study was conducted among 230 individuals (95 males and 135 females) ranging in the age group between 4 – 73 years of age from Sodzulhou village of Dimapur district, Nagaland. The sampled individuals have been subgroup into three age categories: 4-12 years, 13-25 years and 26-73 years.The main tool for data collection was oral examination along with personal observation. Caries were examined orally with the help of a dental mirror, a torch light and a dental spatula in sufficient day light. Since dental caries and gingivitis was to be assessed for the entire dentition, all the teeth of the subject were examined. If any spot was noticed in any tooth, the same is checked whether it was a food residue or the subject's tooth is affected by caries.Each tooth was checked for caries disease and was then recorded. The entire data on dental caries was tabulated for statistical analysis.

## IV. Results and Discussion

TABLE 1 shows the distribution of age group in the present study which have been categorized into three age groups namely, 4-12, 13-25 and 26-37 years. Overall the total number of individuals is 230 with 95 male and 135 female. Based on the data collected, it is further cetegorised into: 4-12 years as children, 13-25 years as adolescent and 26-73 years as adults.

**Table 1: Distribution of age group**

| Age group (years) | Male | Female | Total |
|---|---|---|---|
| 4 – 12 | 52 | 56 | 108 |
| 13 – 25 | 22 | 36 | 58 |
| 26 – 73 | 21 | 43 | 64 |
| Total | 95 | 135 | 230 |

TABLE 2 shows the caries affected and non-affected individuals in their respective age group. Out of the total 95 male, caries affected was 86(90.52%) while from the total 135 females caries affected was 116(85.93). It further shows that males tend to be slightly more affected by caries as compared to females.

**Table 2: Dental caries affected and non-affected individuals**

| Age group (years) | Male | | Female | |
|---|---|---|---|---|
| | Affected (%) | Non-affected (%) | Affected (%) | Non-affected (%) |
| 4 – 12 | 49.47 | 5.26 | 36.30 | 5.19 |
| 13 – 25 | 20.00 | 3.16 | 20.74 | 5.93 |
| 26 – 73 | 21.05 | 1.05 | 28.89 | 2.96 |
| Total | 90.52 | 9.47 | 85.93 | 14.07 |

TABLE 3 shows the comparison of caries affected teeth of the Maxilla and Mandible for both male and female. It is observed that caries affected teeth was found to be more frequent in the molar teeth following the order of M1, M2 and PM2.

**Table 3: Comparison of caries affected teeth of the Maxilla and Mandible**

| | | |
|---|---|---|
| **Maxilla** | **Male** | **$M^1 > M^2 > P^2 > I^1 > I^2 > P^1 > C^0 > M^3$** |
| | **Female** | **$M^1 > M^2 > P^2 > I^1 > M^3 > P^1 > I^2 > C^0$** |
| **Mandible** | **Male** | **$M_1 > M_2 > P_2 > P_1 > I_1 > M_3 > C_0 > I_2$** |
| | **Female** | **$M_1 > M_2 > P_2 > M_3 > I_1 > P_1 > I_2 > C_0$** |

TABLE 4 shows the prevalence of caries among the betel nut/leaf and tobacco chewers and non-chewers of both male and female. The prevalence of caries is more among betel nut/leaf (91.81%) and tobacco chewers (91.17%).

**Table 4: Prevalence of caries among the betel nut/leaf and tobacco chewers**

| | No. of respondents (n=61) | | No. of respondents (n=68) | |
|---|---|---|---|---|
| | Betel nut/leaf chewers with caries (%) | Betel nut/leaf chewers without caries (%) | Tobacco chewers with caries (%) | Tobacco chewers without caries (%) |
| Male | 32.79 | 3.28 | 35.29 | 4.41 |
| Female | 59.02 | 4.92 | 55.88 | 4.41 |
| Total | 91.81 | 8.2 | 91.17 | 8.82 |

TABLE 5 shows caries affected and non-affected in relations to brushing habits. In both male and female the prevalence of caries was high among who brush their teeth once daily, by twice daily brushing and no brushing.

**Table 5: Frequency of brushing teeth in both male and female**

| | Once daily brushing | | Twice daily brushing | | No brushing | |
|---|---|---|---|---|---|---|
| | With caries (%) | Without caries (%) | With caries (%) | Without caries (%) | With caries (%) | Without caries (%) |
| Male(n=95) | 69.47 | 9.47 | 12.63 | 2.11 | 6.32 | 0.0 |
| Female(n=135) | 65.19 | 5.19 | 16.29 | 5.19 | 7.41 | 0.74 |

TABLE 6 shows that the incidence of caries is higher in literate females (44.35%) as compare to literate males (35.22%) and from this study it appears to be that educational status of the subjects has had no effect or role to play in the incidence and prevention of dental caries in the studied population.

**Table 6: Dental caries and education**

| | | Caries affected (%) | Caries non-affected (%) |
|---|---|---|---|
| Literate | Male | 35.22 | 4.35 |
| | Female | 44.35 | 6.52 |
| Illiterate | Male | 1.74 | 0.0 |
| | Female | 7.0 | 0.87 |

## V. Conclusion

From the present study, it was observed thatin general dental caries prevalence was higher among males as compare to females. Incidence of caries has a positive relation to tobacco and betel nut/leaf chewing habits. No association was observed between education and prevalence of caries.However more detailed collaborative study is required to infer actual role of these associated factor indental caries etiology. The data can be helpful for creating awareness and designing preventive measures against dentalcaries on the basis of factors associated with it.

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