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Dental Health Status among College Students and the Treatment Needs

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ABSTRACT

Aim: The aim of this cross-sectional study was to investigate the oral health status and normative need of college students both from urban –rural population of age group 17-23.

Materials and method: A descriptive cross-sectional study was done among 3312 college students belonging to urban –rural population of age group 17-23 in Coimbatore district, Tamil Nadu using purposive sampling method. Data entered in Microsoft excel sheet and analyzed using statistical package for social science (SPSS) version 24. Chi-square test was used for computing statistical significance

Result: Overall dental caries prevalence accounted to 70% (rural-72.12% urban-68.43%) with a mean DT of (1.14) in the rural population than urban population (1.09) and majority of the student's required one surface restoration. Periodontal status of the students as measured by community periodontal index (CPI) showed that majority of the student participant (32.66%) had calculus necessitating the need for oral prophylaxis, with the mean CPI index of (1.13) rural than (0.94) Urban.

Conclusion: In this study the dental caries prevalence and the periodontal problem was more in the rural population than the urban population with the one surface restoration and oral prophylaxis as the predominant treatment need.

Key words: College students, Oral health, Urban, Rural, Dental caries, Periodontal disease

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INTRODUCTION

Oral diseases are the most common of the chronic diseases and are important in public health problems because of their prevalence, their impact on individuals, society, and the expense of their treatment [1]. On September 6, 2016, a new definition of oral health was approved by the FDI (World Dental Federation General Assembly) [2]. The new definition acknowledges the multifaceted nature and attributes of oral health. In developing countries were the resources are sparse it is of utmost importance to plan primordial preventive strategies rather than treating oral diseases and data regarding the prevalence of oral diseases gives us comprehensive picture to identify the target group and impart preventive modalities and there is a paucity of such data of this age group (17-23) in Coimbatore, Tamil Nadu, India.

College life is a crucial period of transition with personal responsibility. Students in this period can be targeted for preventing dental diseases and building future oral health [3] voluminous literature pertaining to oral health status of school children [4,5] is available, but data pertaining to young adults, especially to college students are sparse. Thus, analysing epidemiological data of age groups not customarily studied [world health organisation (WHO) index age groups] give the exact picture of the current oral health status and normative needs of the population. The aim of this study was to accesses the oral health status among and the normative needs among college students in Coimbatore in Tamil Nadu.

MATERIALS AND METHOD

Study Design: Descriptive cross-sectional

study. A health screening camp of dental, ophthalmology and general medicine was conducted for students in a private college in Coimbatore from 22-1-2018 to 22-2-2018 and about 3500 students were screened by a team of doctors from PSGUHTC. Two examiners were involved in this research study, examiner A and examiner B. The study was carried out for a period of 28 days approximately examining 125 students per day. Demographic data including name, age, gender, and permanent address of the candidate were recorded. The Inclusion criteria were subjects with permanent dentition, with no remaining deciduous dentition, subjects with age group of 17-23, Students present during the period of oral examination. The students taken for the study were 3312. The study protocol was submitted to the institutional ethical committee [PSGIMSR] and clearance was obtained Project proposal number-18/223 August 10th 2018.

Oral examination was performed by two trained and calibrated examiners. Before the survey, both the examiners and recording clerks were participated in a training and clinical calibration program in the department. Following this training, 10% of the students were examined by each of the two investigators to assess inter-examiner reliability and Kappa Values of 0. 87 and 0.88 were found, respectively. The interview and examination of a single study subject took 3 to 4 minutes. The study was done using probability sampling method and the sample size of calculated reference to Punitha et al. [6] using prevalence of caries as 36.7%. Sample size was calculated using formula $n=4 \times pq/d^2$ and found to be n=372.

Method of registration

Oral examination was done using the WHO Basic Oral Health Assessment [7] form with plane mouth mirror and WHO periodontal probe. Clinical examination was conducted using natural light with the participant sitting on a chair with a head rest. The examination was performed in a classroom. The examination area was arranged in such a way to allow one person at a time apart from the examiner and the recorder. The recorder was made to stand close to the examiner so that the instructions and the code could be easily heard, and the examiner could see that the findings were being recorded correctly. The data were coded and analyzed using the SPSS version 24 software the level of statistical significance was kept at $p<0.05$. The descriptive statistics were calculated. Chi-square test was used.

RESULT

A total of 3312 (urban-1888; 57%, rural -1424; 43%) participated in this study. The average DMFT among the target group was 1.92 with urban having DMFT score of 1.95 rural with 1.80 (Table 1).

In this study the highest score as measured by CPI showed that a total of 21.13% of the student had a bleeding as their highest score, 32.66% had calculus indicating the need for oral hygiene instruction and oral prophylaxis and 5.07% had a pocket of 4-5mm necessitating surgical interventions (Table 2). The community–wise distribution according to the highest score as measured by CPI showed that35.74% rural and 30.34% urban had calculus as the highest score.

Mean number of sextants with bleeding was higher in urban (0.21), whereas the mean number of sextants with calculus and shallow pocket was more in rural (0.35) compared to urban (0.30) (Table 3).

Association of CPI Index with community (urban/rural) shows that rural population has increased periodontal diseases than urban, and it is statistically significant $p < .000$ with 95% CI (0.255-0.121) (Table 4).

Loss of attachment according to the highest score showed that loss of attachment of 0-3mm was seen in 94.41%, 4-5mm in 3.38%, 6-8mm in 1.20% of the population (Table 5).

Mean number of sextants with score 1 was more in rural than urban (0.04; 0.02) (Table 6).

Association of Loss of attachment with community (urban/rural) shows that rural population has increased Loss of attachment than urban and it is statistically significant $p < .003$ with 95% CI (0.048-0.010) (Table 7).

Among the study participant 0.3% had prosthesis in the upper arch and 0.1% in the lower arch, out of which 0.3% had bridge denture and 0.1% had both bridge and partial denture.

Table 1: Distribution of study participants according to dental caries status.

	Urban	Rural	Total	P value	95% Confidence interval
Caries prevalence	1292 (68.43%)	1027 (72.12%)	2319 (70%)	-	-
DT	1.09 ± 0.92	1.14 ± 0 .90	1.11 ± 0.91	0.094	-0.117-0.009
MT	0.27 ± 0.86	0.24 ± 0.86	0.26 ± 0.86	0.226	-0.023-0.096
FT	0.59 ± 1.36	0.5 ± 1.26	0.55 ± 1.32	0.051	0.000-0.182
DMFT	1.95 ± 1.97	1.80 ± 1.86	1.92 ± 1.92	0.271	-0.058-0.205
DMFT-decayed, missed and filled teeth; DT-decayed teeth; FT-filled teeth; MT-missing teeth.					

Table 2: Periodontal status according to the highest score as measured by CPI.

	Urban	Rural	Total
Dentate	1888	1424	3312
Score 0	836 (44.27%)	521 (36.58%)	1357 (40.97%)
Score 1	402 (21.29%)	298 (20.92%)	700 (21.13%)
Score 2	573 (30.34%)	509 (35.74%)	1082 (32.66%)
Score 3	77 (4.07%)	91 (6.39%)	168 (5.07%)
Score 4	0 (0%)	5 (0.35%)	5 (0.15%)
[Score 0- Normal, score 1- Bleeding gums, score 2-Calculus, Score 3-4-5 mm pocket depth] [Chi square value- 34.191, P value-.000(Significant)]			

Table 3: Distribution according to mean number of sextants with highest score as measured by CPI.

	Urban	Rural	Total
Score 0	0.44	0.36	0.41
Score 1	0.21	0.2	0.21
Score 2	0.3	0.35	0.32
Score 3	0.04	0.06	0.05
Score 4	-	0.003	0.001

Table 4: Association of CPI Index with community (urban/rural).

Distribution	Number	Mean (SD)	F-value	P-value	95% Confidence interval
Urban	1888	0.94 ± 0.952	8.31	0	0.255- 0.121
Rural	1424	1.13 ± 0.997			

Table 5: Loss of attachment according to the highest score.

	Urban	Rural	Total
Dentate	1888	1424	3312
Score 0	1821 (96.45%)	1339 (94.03%)	3160 (94.41%)
Score 1	48 (2.54%)	64 (4.49%)	112 (3.38%)
Score 2	19 (1%)	21 (1.47%)	40 (1.20%)
Chi square value-11.119, P value-0.004 (Significant)			

Table 6: Loss of attachment according to the mean number of sextants with the highest score.

	Urban	Rural	Total
Score 0	0.96	0.94	0.95
Score 1	0.02	0.04	0.03
Score 2	0.01	0.01	0.01

Table 7: Association of Loss of attachment with community (urban/rural).

Distribution	Number	Mean (SD)	F-value	P-value	95% Confidence interval
Urban	1888	0.05 ± 0.252	33.52	0.003	0.048- 0.010
Rural	1424	0.07 ± 0.314			

DISCUSSION

Oral health is an essential component of general health and overall well-being of an individual. Oral cavity and its surrounding structures that are free of any diseases are indicative of good oral health. This not only makes a person look and feel good, it is equally relevant in maintaining oral function [8-10]. Oral disease is one of the most common public health issues worldwide with significant socio-economic impacts, and yet it is frequently neglected in public health policy [11].

Schools and colleges play an immense role in the growth of young minds not only for learning new information but also by having long-lasting effects [12]. In India despite improvements in infrastructure and dental manpower, oral health care remains to be neglected entity as it is not considered to be life threatening [13].

As there is no national level oral health policy and fee for services is still the most common mode of payment for dental service preventive strategies hold priority as the most economical way for improving oral health of the community. To advocate preventive measures, it is essential to assess the complete presence of disease burden in the community.

This cross-sectional study aims at finding the percentage and prevalence of dental caries, periodontal diseases in students of age group 17-23 from urban and rural population in a college in Coimbatore district, Tamil Nadu State, India.

Overall caries percentage in the study conducted by DharV et al. [14], Saravanan S et al. [15], Niyanta Joshi et al. [16], Farooqi FA et al. [17], Kumar S et al. [18] was found similar to the present study around 70%

The mean DMFT of the study conducted by theFarooqi et al. [17], Kumar et al. [18] is like the present study (1.94 ± 2.0) and (1.94).

The study conducted by Mohammed A.AL-Rafee et al. [19], Sriailapanan P, et al. [20], Soroye et al. [21], Sanadhya et al. [22], Akinyamoju et al. [23], showed rural population had more caries prevalence which is supporting to the present study.

The study conducted by Maserejian NN et al. [24], Patro et al. [25], David J et al [26] showed Urban population to have more Dental caries prevalence contradicting to the present study.

The study conducted by Kalsbeek H et al. [27] (24%) (Score-1), Hannan et al [28] (33.5%) (score-2) periodontal index was like the present study.

The study conducted by Arvidson et al. [29], Baiju et al. [30], Vadiakas et al. [31] concluded that rural population had more periodontal diseases than urban population like the present study.

The study conducted by Popoola et al. [32], Sane [33] had mean plaque index (1.12 ± 0.41) which was like the present study (1.13 ± 0.997). The study conducted by Zhang S et al. [34] showed that only 7% of the population had normal periodontium which was contradicting to the present study. The limitations of this study are inherent to cross-sectional studies, which do not allow establishing a relationship of cause and effect, and it only addresses the prevalence and severity of the disease without looking at sociodemographic variables such as parental education, economic status or family size. Furthermore, the current paper only reports the dental caries and the periodontal status and does not examine the oral hygiene practice or other individual reasons for the above dental morbidity.

CONCLUSIONS

The caries prevalence and the periodontal diseases severity were higher in students from rural areas than the students from the urban area. The DMFT index was higher in students from urban area than the students from rural area; this is because the FT value was higher in the urban area indicating the awareness and availability of dental care.Dental health care needs are high in rural areas than in urban areas.

RECOMMENDATION

It is recommended that continuous scientific monitoring, design, and effective implementation of preventive and restorative programs to be carried out by dental surgeons and included in national wide program like RBSK (RASHTRIYA BAL SWASTHYA KARYAKRAM).

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