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Original Research Article

A Study on Oral Health Problems among Patients Attending Health Training Centres of a Tertiary Care Hospital in Chengalpattu District, Tamil Nadu

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Conflict of interest: Nil

Abstract:

Background: Oral health is an essential component of general health and it plays an important role in improving quality of life. Poor oral health may lead to social and economic consequences in the population, personal and also at health systems levels. These factors can bring serious economic implications in the country. [2] It is thus essential to study oral health problems among people in rural areas to provide appropriate health services.

Objective: (1). To assess the oral health problems among patients attending the Health Training Centres of a Tertiary Care Hospital. (2). To determine the underlying systemic co-morbid conditions among the patients.

Methodology: A Retrospective Cross sectional study was conducted for a period 3 months at the Heath Training Centres of a Medical College among patients who attended Dental OPDs. The prevalence of periodontal disease was 39.3% in a study by Vishnuprasad S et al with which sample size was calculated as 300. After obtaining dental OPD registers from the centres, sampling frame for year 2022 was generated and by using simple random sampling, 150 study participants were included in the study from each centre. The collected data from registers were computerised for analysis using SPSS version 21. Descriptive and preliminary inferential data analysis was performed based on the information obtained.

Results: Among the total 300 study participants, 141(47%) were males and 159(53%) were females. It was observed that 31.60% had dental caries followed by periodontal disease (29.3%), other diseases like tooth fracture, leucoplakia, malignancy etc. Diabetes mellitus was the most common co-morbid condition found among the study participants.

Conclusion: The prevalence of oral health problems is considerably high among the study population which may lead to poor health status of the population and may even contribute to development of systemic co-morbid conditions.

Keywords: Oral Health, Comorbidity, Health Training Centres.

Introduction

Oral health is a component of general health and it plays an important role in improving the quality of life. Poor oral health may lead to social and economic consequences which can be seen in the population, personal and health systems level. Dental caries and periodontal diseases deteriorate an individual's health and wellbeing, decreasing their economic productivity. They also act as significant risk factors for acquiring other systemic health ailments. [1] Dental diseases affect day to day activities that are essential for livelihood; especially dental pain causes loss of concentration on work and may render the person unable to work. This factor can bring serious economic implications in the country. [2] Moreover, 26% of the Indian population is living in below poverty line dependent on their daily earnings; loss of working hours is thus significant in the Indian context.

Further, growing incidence of some chronic diseases like diabetes can have a negative impact on oral health. [3] There is a vast difference in oral health status between the urban and rural population of India. It is estimated that in rural areas, about 50% of school children are suffering from dental caries and more than 90% of the adult population is affected by periodontal disease. [4] Extensive research in public health has shown that a number of individual, professional, and community preventive measures are effective in preventing most oral diseases and associated co-morbid conditions. [5] It is thus essential to study the oral health problems among people residing in urban and rural areas of Chengalpattu District such that prevention of oral diseases is done at the earliest by providing appropriate health services.

Objective:

1. To assess the oral health problems among patients attending the Health Training Centres of a Tertiary Care Hospital.
2. To determine the underlying systemic co-morbid conditions among the patients.

Materials and Methods

A retrospective cross sectional study was conducted in Health Training Centres of Karpaga Vinayaga Medical College and Research Centre namely, Rural Health Training Centre (RHTC) located at Pulipakkam and Urban Health Training Centre (UHTC) in Anna Nagar.

The duration of the study was from January 2023 to March 2023. Patients who attended the Dental outpatient department of the respective Health Training Centres were chosen as the study population. In a study by Vishnuprasad S et al [21], the prevalence of periodontal disease was 39.3%. With this prevalence, the sample size was calculated as 300 using the formula n = [DEFF*Np(1-p)]/ [(d2/Z21-α/2*(N-1)+p*(1-p)]. After obtaining the dental OPD registers from RHTC and UHTC, sampling frames for the year 2022 was generated. Further, 150 study participants were selected by using simple random sampling from each centre. Patients who attended the Dental OPD of Health Training Centres within the study period were included and the records which were incomplete or missing were excluded from the study. Dental OPD registers from the respective Health Training Centres were considered as the study instruments from which secondary data was collected for study purpose. Further, the collected data from the registers were computerised for analysis using Statistical Package of Social Sciences 21v. Descriptive and preliminary inferential data analysis was performed based on the information obtained.

Ethical clearance was obtained from the Institutional Ethics Committee of Karpaga Vinayaga Institute of Medical Sciences and Research Centre, Chengalpattu District, Tamil Nadu.

Results

Among the 300 study participants, 141(47%) were males and 159(53%) were females. It was observed that 246(82%) were residing at rural areas while 54(18%) were from urban areas. The total number of new cases were 201(67%) followed by 81(27%) and 18(6%) old and referral cases respectively.

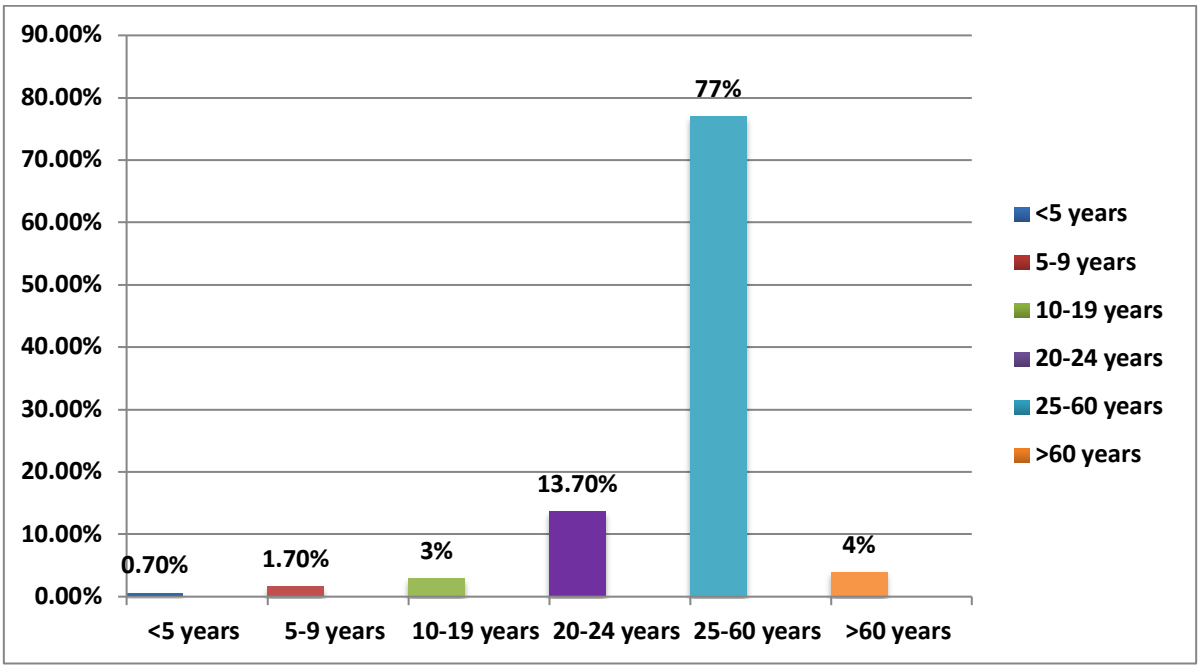

Figure 1: Distribution of age group of the study participants (n=300)

Figure 1 shows that maximum number of participants, 231(77%) were adults 25-60 years followed by young adults 20-24 years 41(13.7%), elderly >60 years 12(4%), adolescents 10 – 19 years 9(3%), children 5-9 years 5(1.7%) while the least from under five <5 years 2(0.7%). It was observed that the most common chief complaint was painful tooth 93(31%) followed by decayed tooth 74(24.6%), deposits in the teeth 58(19.3%), swelling 35(11.7%), tooth sensitivity 16(5.3%), painful gums 9(3%), discomfort and discharge 5 (1.7%), mobile tooth 5 (1.6%), bad breath 3(1%) and others 2(0.6%) that included bleeding gums, fractured tooth. (Table 1)

Table 1: Distribution of chief complaints of the study participants (n=300)

Chief complaints	Frequency (%)
Painful tooth	93 (31)
Decayed tooth	74 (24.6)
Deposits in the tooth	58 (19.3)
Swelling	35 (11.7)
Painful gums	9 (3)
Discomfort and discharge	5 (1.7)
Tooth Sensitivity	16 (5.3)
Mobile tooth	5 (1.6)
Bad breath	3 (1)
Others	2 (0.6)

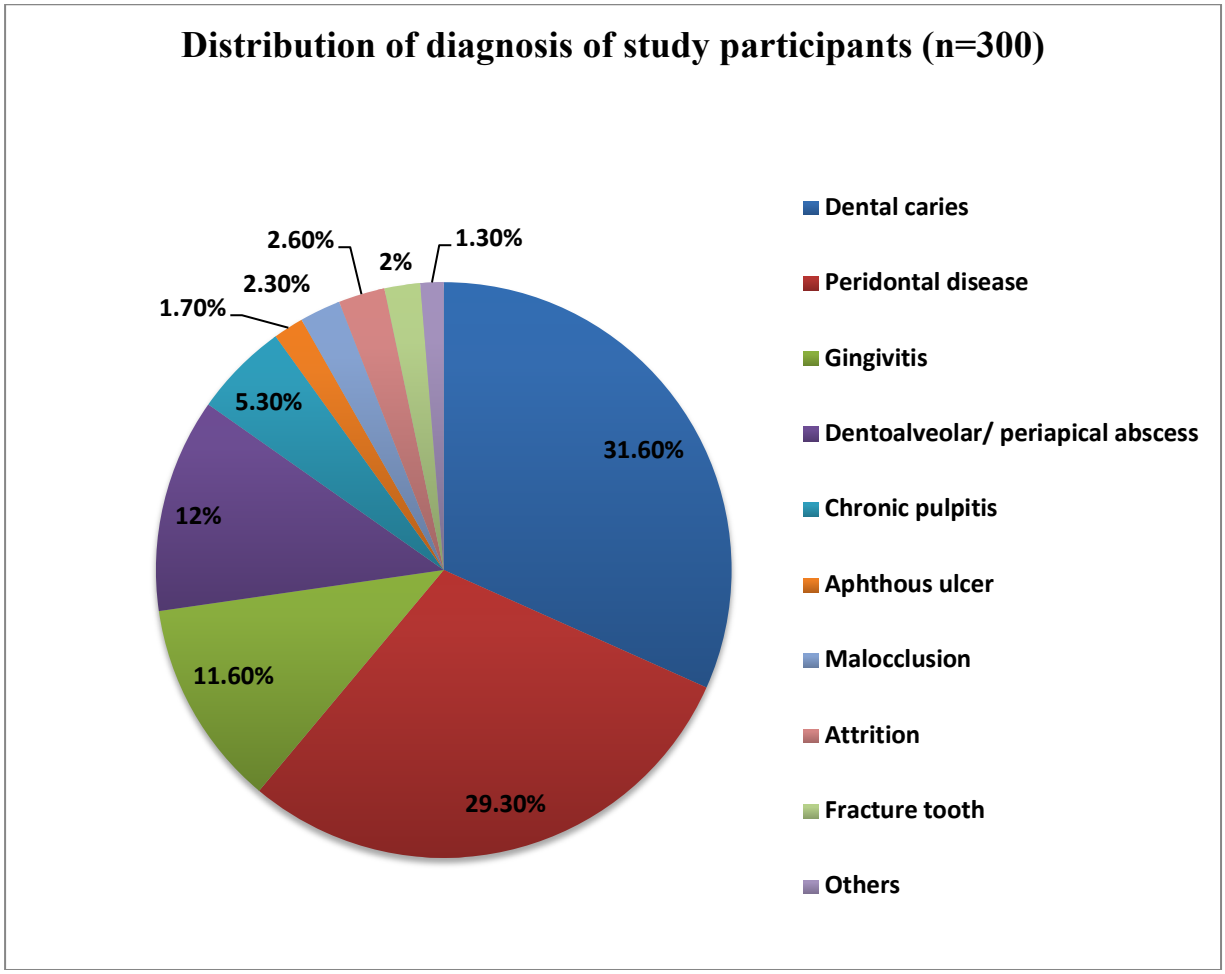

Figure 2: Distribution of diagnosis of study participants (n=300)

The above pie chart shows that 95(31.60%) study participants had dental caries followed by periodontal disease 88(29.3%), gingivitis 35(11.6%), dentoalveolar/ periapical abscess 36(12%), chronic pulpitis 16(5.3%), aphthous ulcer 5(1.7%), malocclusion 7(2.3%), attrition 8(2.6%), fracture tooth 6(2%) and others 4(1.3%) that included leucoplakia, malignancy. (Figure 2)

Table 2 Distribution of study participants based on treatment (n=300)

Treatment	Frequency (%)
Extraction	101 (33.7)
Extraction and restoration	85 (28.3)
Scaling	57 (19)
Medications	25 (8.3)
Saline irrigation	8 (2.6)
Referral	19 (6.3)
Others	5 (1.6)

The above table shows the treatment provided for the study participants that included extraction 101(33.7%), extraction and restoration 85(28.3%), scaling 57(19%), medications 25(8.3%), saline irrigation 8(2.6%), referral 19(6.3%), others 5(1.6%) that included conservative treatment, surgery (Table 2)

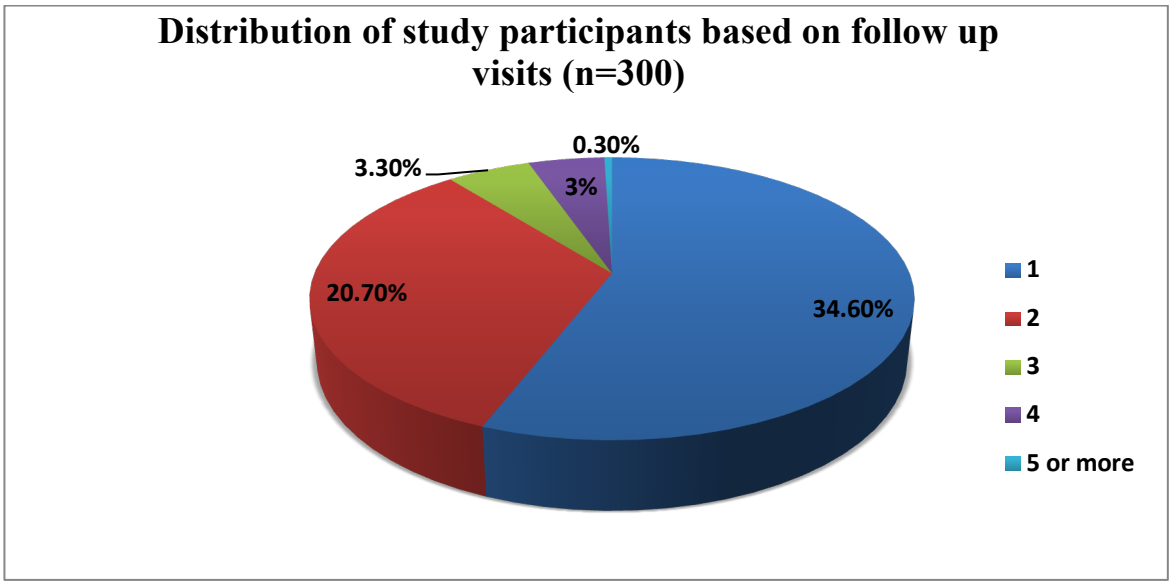

Figure 3: Distribution of study participants based on follow up visits (n=300)

The above pie diagram shows the number of follow ups for the presented symptoms by the study participants among which 34.6% had 1 follow up followed by 2 (20.7%), 3(3.3%), 4 (3%) and 5 or more (0.30%).(Figure 3)

Table 3: Distribution of co-morbid conditions among study participants (n=300)

S.No	Underlying morbid condition	Frequency (%)
1	Diabetes Mellitus	43 (14.3)
2	Hypertension	10 (3.3)
3	Bronchial asthma	4 (1.3)
4	Cardiac disease	3 (1.0)
5	Others	5 (1.7)

It was observed that co-morbid conditions like diabetes mellitus was present in 43(14.3%) followed by 10(3.3%) with hypertension, 4(1.3%) had bronchial asthma, 3 (1%) cardiac disease and 5(1.7%) others which included thyroid diseases, stroke. (Table 3)

Discussion

This study showed that oral health conditions of the population residing in the study area were poor. Of the 300 study participants, it was observed that 47% were males and 53% were females which was similar to a study by Sherley et al [30] and Kim et al [28] (65.1%) and (50.93%) respectively. However, it was contrary in a study by Appukuttan et al with less female participants (36.2%). [29]

It was noted in the present study that a total of 67% were new cases, followed by old cases (27%) and referral cases (6%) unlike a study by Iyer et al. [27] Majority of the study participants were in the age group of 25-60 years in the current study with mean age of 37.6 ± 2.76 similar to a study by Appukuttan et al (34.76%). [29] However this was found to be higher in a study by Sherley et al [30] with mean age 47.04 years.

It was observed in this study that painful tooth (31%) was the most common complaint followed

by decayed tooth (24.6%) and deposits in the tooth (19.3%) in contrast with that of an epidemiologic survey of the general population of Jodhpur by Vashista et al [3] where 80% of the participants examined complained about bad breath while 37% of the total subjects reported bleeding gums and also and Gupta et al [8] who showed that self-reported bleeding gums was high in percentage.

Further, it was revealed in this study that majority (31.6%) study participants were diagnosed with dental caries, similar to a study by Vishnuprasad et al [21] (57.3%) and Nazeem Shah et al [14] (50-60%). However, results were found to be higher by 8% in a study conducted by Doifode et al in Nagpur [11] and the prevalence of periodontal disease was 29.3% which was lesser compared to the study by Visnuprasad et al (39.3%). [21] A MEDLINE search which included 47 studies revealed that 29 out of the 36 studies were in favor of association between 5 socio economic factors and periodontal disease. In the current study 5.3% patients were diagnosed with malocclusion in contrast to 30% in the study by Vishnuprasad et al [21]. However, lower percentage was shown in the present study and this may be due to the observer's error who might have not considered malocclusion as a problem. Also, during screening, the issue of underestimation of oral disease may occur. Most of the patients were treated with tooth extraction (33.7%) in this study similar to a study by Vishnuprasad et al [21] in which scaling, restoration and extractions were done for the patients. It is quite known that a wide number of systemic diseases exhibit oral manifestations which is a well-explored topic in dentistry. In the current study, it was observed that 21.6% had underlying co-morbid conditions like diabetes mellitus (14.3%) followed by hypertension 10(3.3%).

Conclusion

The oral health problems like dental caries, periodontal disease and gingivitis were predominantly high among the study population, deteriorating their overall health status. Moreover, majority of the study participants were already having underlying co-morbid conditions which may also pose as a risk factor for development of other systemic ailments if they are not promptly and adequately treated.

Recommendations: The burden of Oral health problems can be decreased by conducting health education/ awareness programs, initiating oral hygienic measures and performing preventive procedures thereby improving the overall oral health status of the population.

Limitations: The association between oral health problems and various social strata could have been analysed with additional information of the patient's sociodemographic profile.

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