

# Assessing The Prevalence Of Periodontal Diseases And Treatment Needs: A Cross Sectional Study

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**ABSTRACT:** *Aim: The objective of this study was to determine the prevalence of periodontal diseases and treatment needs in patients visiting, College of Dentistry, Prince Sattam Bin Abdulaziz University, Alkharj.*

*Methodology: In our study, 400 patients were included within the age group of 15 to 60 years. Using the CPITN index, the status of periodontium as well as treatment needs was recorded. The data was subjected to statistical analysis using frequency calculation. Pearson Chi-square test was used to measure the significance.*

*Results: mAs far as CPITN score was concerned, in the age group of 30-40 years of age group, maximum score was Code 2 (calculus deposition) whereas in comparison age group 40-50 years had Code 3 (shallow pockets) and 50-60 years had Code 4 (Deep pockets). There was an increasing shift of this percentage as the older age group was approached. In case of age group of 40-50 years, around 34.3% of participants were in need of complex periodontal treatment. This trend was increased for the age group of 50-60 years (54.1%).*

*Conclusion: We observed that as the age advanced the CPTIN score increased as well as treatment needs in relation to complex treatment strategy also augmented. It is essential to know the importance of the treatment needs of patients so that proper age based therapy can be carried out.*

**Keywords:** *Community periodontal index of treatment needs score, oral health, periodontal disease*

## 1. INTRODUCTION

Periodontium when healthy serves as a foundation for sound teeth complex and is a baseline for dental treatment. Maintaining the same requires multidisciplinary approach of various dental branches.<sup>1-3</sup> Bacterial plaque deposits and subsequent inflammation leads to initiation of periodontal disease.<sup>4,5</sup> Immune system of a healthy body takes care of small amount of bacterial plaque deposition with minimal destruction of supporting periodontal tissues. However, further damage requires periodontal therapy which shares a complex relationship

with other branches of dentistry as well. The therapy requires complete elimination of inflammation of gingiva and periodontium as well as reducing the etiological factors.<sup>3</sup>

In various epidemiological surveys, CPITN (community periodontal index of treatment needs) index is used to assess the amount of periodontal disease in a given population.<sup>6</sup> Various studies have been carried out using this index considering age, gender, geographical boundaries as well as socioeconomic status of people in a population.<sup>7,8</sup> CPITN serves as a useful diagnostic aid in clinics as well as helps in planning for proper periodontal care.<sup>9,10</sup> Early detection of periodontitis and gingival diseases can help further progressive damage to the periodontium as a whole.<sup>11</sup>

Loss of teeth is the eventual end result of the failure to control periodontal and gingival inflammation.<sup>12</sup> Therefore, early detection of these conditions is of paramount importance. Earlier methods were cumbersome but in comparison CPITN provides a faster and easier method of periodontal examination.<sup>13</sup>

To ensure that adequate prevention from periodontal diseases is there, it is imperative to implement effective oral hygiene measures which will in turn help to avoid ending up getting complex periodontal treatments. Tooth brushing, flossing, as well as use of mouthrinses helps in maintaining this home care routine.<sup>14</sup>

To assess the amount of these diseases (extent as well as severity) in different populations serves to identify the etiological factors of these conditions and planning of further treatment strategies.<sup>15</sup>

## **2. AIM OF THE STUDY**

The objective of this study was to determine the prevalence of periodontal diseases and treatment needs in patients visiting, College of Dentistry, Prince Sattam Bin Abdulaziz University, Alkharj.

## **3. METHODOLOGY**

400 patients within the range of 15-60 years were recruited in this research from the out-patient clinic, College of Dentistry, Prince Sattam Bin Abdulaziz University. CPITN index was used to record the periodontal status as well as the treatment requirements of these patients. The data was recorded using this index by a single examiner in a clinical setting with the help of mouth mirror and a WHO/CPITN probe.

### **Inclusion criteria**

- Age group: 15- 60 years
- No scaling and root planing should be performed in last 6 months
- Subjects without any life-threatening illness

### **Exclusion criteria**

- Any acute infections
- Scaling and root planing performed in last 6 months
- Patients receiving Antibiotic therapy

In this CPITN index calculation; the entire dentition was divided into six different sextants having a code each, the code which was highest in measurement was recorded. After assessing the status of the periodontium, treatment needs (TN) were also measured for each patient on the basis of the score obtained through the index. Tn was classified as TN – 0= no treatment (Code 0), TN – 1= oral hygiene instructions (Code 1), TN – 2= oral hygiene instructions + oral prophylaxis and removal of plaque retentive factors (Code 2 and 3) and TN – 3= oral hygiene instructions along with oral prophylaxis as well as further removal of plaque retentive factors (Code 4) <sup>16</sup>

The statistical analysis of the data was done which comprised of classification of data and calculation of frequencies. The Pearson Chi-square test was performed to test the significance.

The complete data were transferred to the coding forms and analysed by computer using software Statistical Package of Social Sciences (SPSS, version 11.0).

#### **4. RESULTS**

We observed that the maximum number of patients who reported to the clinics were of 40-50 years age group (43%) followed by age group of 50-60 years (34%). Around 11.5% of patients had previous history of hypertension (11.5%) followed by history of diabetes (10%). 27.5% of study participants had history of smoking; mostly in male patients. Around 72.1% of female participants had a history of gestation. 20.5% of patients had a history of previous periodontal therapy; mostly oral prophylaxis. (Table 1)

As far as CPITN score was concerned, in the age group of 30-40 years of age group, maximum score was Code 2 (calculus deposition) whereas in comparison age group 40-50 years had Code 3 (Shallow pockets) and 50-60 years had Code 4 (Deep pockets). However, in case of patients in the age group of 15-30 years, maximum participants had Code 2 with calculus deposition mostly. (Table 2)

When treatment needs were measured for various age groups, we observed that in participants with age group of 15-30 years, mostly (59.1%) required oral hygiene instructions and no periodontal prophylaxis or treatment. There was an increasing shift of this percentage as the older age group was approached. 64.6% of patients in age group of 30-40 years, needed oral prophylaxis as their prime treatment need. In case of age group of 40 -50 years, around 34.3% of participants were in need of complex periodontal treatment which further saw an increase in the age group of 50-60 years (54.1%). (Table 3)

Figure 1- Proforma used in the study.

**PROFORMA & CONSENT FORM**

Date: \_\_\_\_\_

Name of the patient: \_\_\_\_\_

Age: \_\_\_\_\_

Gender: \_\_\_\_\_

History of periodontal therapy: \_\_\_\_\_

History antibiotic therapy: \_\_\_\_\_

Any medical problem: \_\_\_\_\_

CPI

17/16	11	26/27
47/46	31	36/37

Treatment Needs

17/16	11	26/27
47/46	31	36/37

Signature of patient \_\_\_\_\_

Table 1- Demographic characteristics of the patients

Demographic characteristics	Measurements noted in the study participants
<i>Age</i>	15-30 years-7/200 (3.5%) 30-40 years -39/200 (19.5%) 40-50 years - 86/200 (43%) 50-60 years -68/200 (34%)
<i>Gender</i>	Male-96/200 (48%) Female-104/200 (52%)
<i>Past H/O of illnesses</i>	Diabetes-20/200 (10%) Hypertension-23/200(11.5%) Other endocrinal illness-3/200(1.5%) Skin diseases-12/200 (6%) Epilepsy-3/200(1.5%) Other illnesses- 9/200(4.5%)
<i>Past H/O of smoking</i>	Yes- 55/200 (27.5%) No-145/200 (72.5%)
<i>Past H/O of gestation (in Female patients)</i>	Yes-75/104(72.1%) No-29/104 (27.9%)
<i>H/O periodontal therapy</i>	Yes-41/200 (20.5%) No-159/200 (79.5%)

Table 2- Prevalence of Periodontal disease according to CPITN scores

Age group	CPITN Code 0	CPITN Code 1	CPITN Code 2	CPITN Code 3	CPITN Code 4	CPITN Code X	Chi square test
15-30 years	1.6	6.5	72.6	17.7	1.6	0	0.044
30-40 years	1.1	4.4	57.8	31.1	5.6	0	0.03
40- 50 years	0	0	27.3	54.5	15.9	2.3	0.09
50-60 years	1	4.1	32.2	55.7	6.6	0.5	0.031

Table 3- Periodontal Treatment Need Requirements

Age group	TN0	TN1	TN2	TN3
15-30 years	5.4	59.1	34.3	1.2
30-40 years	1.1	10.1	64.6	24.2
40- 50 years	1	31.7	33	34.3
50-60 years	0	15	30.9	54.1

## 5. DISCUSSION

Various approaches have been considered in evaluation of periodontal disease status as well as TN in different population. However, CPITN gives it an entire functional and clinical prospective by incorporating rapid screening of patients in a large populations and planning of needs and amount of healthcare professionals required as well as to form various treatment policies.<sup>17</sup> Systemic illnesses have been found to be an aggravating factor for various periodontal diseases as it alters the host inflammatory response to plaque and the bacterial population. This leads to imbalance in host-microbial interface.<sup>18-20</sup>

Cumulative effects due to age related damages to the supporting structures increased the amount of periodontal diseases and increased CPITN score which was evident in our study also where in the age group of 50-60 years the treatment needs score increased to 4, especially in cases which do not undergo preventive therapies associated with maintenance of oral homeostasis.<sup>21</sup> Many people remain away from getting these dental services due to restrictions imposed by their lifestyle as well as employment deteriorating the oral health further. This was also found out by Kawamura M et al. in his study.<sup>22</sup>

It has been seen that diabetes mellitus has been associated with major occurrence (90%) of chronic gingival and further periodontal diseases leading to drastic attachment loss of periodontal ligament as well as interdental bone destruction.<sup>23</sup> Family history of diabetes and related periodontal disease has been found especially in subjects who were not aware that such an association exists.

Frequent dental visits also play a major role in determining that who will develop severe diseases of gingiva or periodontium. Patients who rarely visited the dentists had an increased chance of developing chronic periodontitis as well as gingivitis which has been investigated in many earlier studies.<sup>24,25</sup> Important to note here that patients who have presence of bleeding on probing ended up with chronic periodontal disease with a chance factor of 94.7%. Therefore, bleeding on probing is a reliable indicator of progression of gingival disease.<sup>26</sup>

The influence of periodontal disease on over-all health has been extensively studied.<sup>27</sup> Among Saudi mothers, an increased incidence of preterm low birth weight was reported in patients with periodontal disease.<sup>28,29</sup> Another study reported a high prevalence of periodontal disease among pregnant females which was also noted in our study, especially with gestational diabetes mellitus.<sup>30</sup> Hence, satisfactory information regarding the load of periodontal disease in a population is vital in order to manage it efficiently.

## 6. CONCLUSION

Oral health surveys are essential to plan for any preventive oral health program and to understand the etiological basis of a disease, so it should be carried out at regular time intervals. With age advancement treatment needs also becomes more complex. Meticulous planning needs proper evaluation of medical, dental history of patient as well as demographic characteristics.

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