

## SEVERITY OF PERIODONTAL DISEASE — A STUDY

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## ABSTRACT

*Current study was done to assess the severity of gingivitis and periodontitis in adult patients who were examined at the Department of Periodontology, Khyber College of Dentistry, Peshawar. It was conducted from September 2013 to November 2013. Six hundred patients were examined. All willing adult patients were included in the study and those who refused to give consent, edentulous patients, pregnant females, and patients with a recent history of cardiovascular disease or any other systemic disease were excluded. A printed self designed questionnaire containing demographic data and information regarding oral hygiene habits was completed by a single operator. CPITN probe was used to carry out periodontal screening. Mouth was divided into six sextants and each tooth was examined at six different sites and highest score was recorded. Codes 0, 1, 2, 3 and 4 were used as scoring criteria denoting good oral hygiene, bleeding on probing, presence of dental calculus, pocket depths measuring 3.5-5.5mm and pocket depths of more than 6mm respectively.*

*Among the 600 subjects examined, mean age of respondents was 32.6 years. There were 324 (54%) males and 276 (46%) females in the study. Pocket depth of 3.5-5.5mm was observed in 264 (44%) patients and 54 (9%) patients had a pocket depth of 6 mm or more. Among the subjects 312 (52%) were illiterate. Those who belonged to urban areas were 342 (57%) where as 258 (43%) were from rural areas.*

*Periodontal disease was widespread in the participants. Disease was found to be significantly related to poverty, poor oral hygiene, low educational status, diabetes and smoking.*

**Key Words:** Periodontal disease, poverty, low educational status.

## INTRODUCTION

Periodontal diseases are characterized by inflammation of the supporting tissues of the teeth which are considered to be caused by opportunistic infections which may lead to destruction of these supporting tissues. About 90% of the adult population suffers from periodontal diseases but 10% are affected severely.<sup>1</sup> Host response to these bacterial infections by genetic variances determines the risk factor for the periodontal diseases.<sup>2</sup> Periodontal disease has a worldwide distribution and includes a variety of problems ranging from mild gingivitis to severe periodontitis. It is one of the

major causes of tooth loss in adults<sup>3,4</sup> that affects human populations in many countries with high prevalence rate and plaque biofilm as being major factor in causing periodontal disease.<sup>5</sup> Almost all types of periodontal diseases are infectious diseases caused by interaction between bacterial plaque and the host immune response. Gingivitis and periodontitis are the two forms of periodontal diseases, and each has a variety of types. Gingivitis is inflammation of the gingiva, diagnosed by redness, oedema and bleeding on brushing with plaque as main factor in majority of cases although it may be non plaque induced gingivitis.<sup>6</sup> Periodontitis refers to inflammation of tooth supporting tissues and slow destruction of alveolar bone and periodontal ligament<sup>7</sup> that may lead to increased mobility and tooth loss.<sup>8,9</sup> The presence of dental plaque over time is the major risk factor for developing periodontitis.<sup>10</sup> The microbial components of the plaque biofilm can also affect the risk of having periodontal disease. Smoking increases the risk of developing periodontal disease and also negatively affects treatment.<sup>11</sup> Several genetic factors have a risk of developing periodontal disease. Systemic inflammations, diabetes mellitus and elevated BMI are

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**Received for Publication:** June 4, 2015  
**First Revision:** July 7, 2015  
**Second Revision:** July 27, 2015  
**Approved:** August 1, 2015

a risk factor for periodontal diseases.<sup>12,13</sup> Nutrition is an important lifestyle factor which is related to periodontal diseases. In this case vitamin C deficiency was shown to be directly related to periodontal diseases.<sup>14</sup>

## METHODOLOGY

The study was conducted at the Department of Periodontology, Khyber College of Dentistry, Peshawar from September 2013 to November 2013. Six hundred patients were examined. Adults aged between 15-65 years were included in the study. Pregnant women and adults above the age of 65 were excluded. It was a cross sectional study. A printed self designed questionnaire containing demographic data and information regarding oral hygiene habits was used. The Questionnaire was completed by single operator. CPITN probe was used to carry out periodontal screening. The mouth was divided into six sextants and each tooth was checked at six sites and highest score was recorded.

Scoring criteria: Code 0 was used for healthy periodontium. Code 1 for bleeding on probing, Code 2 was used for the presence of calculus, Code 3 for pockets measuring 3.5-5.5 mm and code 4 was used for pockets of 6mm or more. Approval for the study was obtained from ethical committee of the college as well as verbal consent from individual patient after detailed explanation of purpose of study. SPSS-16 was used for analysis of data.

## RESULTS

Among 600 subjects examined mean age of respondents was 32.6 years, 324(54%) were males and 276(46%) were females (Table 1). Two hundred eighty-seven (47%) patients had dental calculus, 195(33%) had pocket depth of 3.5mm – 5.5mm and 70(12%) patients had pocket depth of 5.5mm or more (Table 2). Out of 324 patients in the age group 15-30 years 230(71%) of the patients had dental calculus and thus were given a score of 2 according CPITN. 122(62%) patients out of 196 patients in the age group 31-50 had pocket depth of 3.5-5.5mm and 25(13%) had pocket depth of more than 6.5mm. Of the 80 patients in age group 51 years and above 41(51%) subjects had pocket depth of more than 5.5mm where as 30(38%) subjects had pocket depth of 3.5-5.5mm (Table 3).

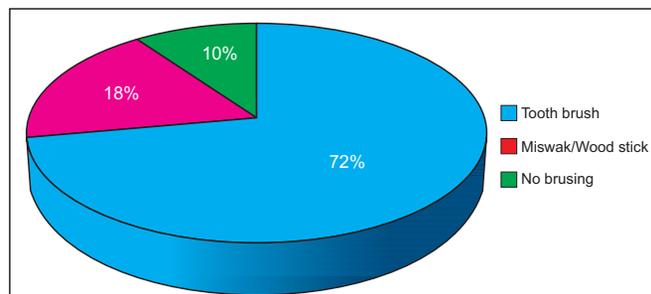


Fig 1: Oral Hygiene Measures

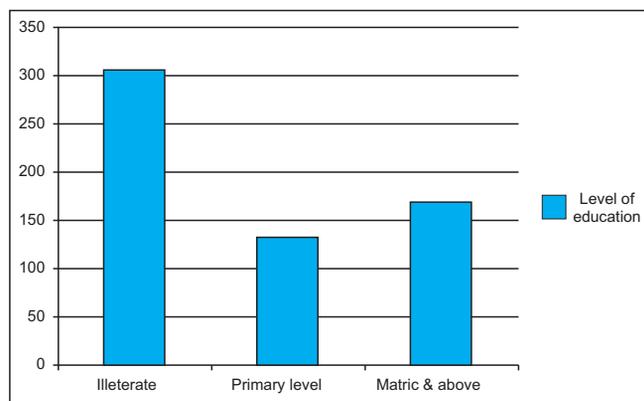


Fig 2: Level of education

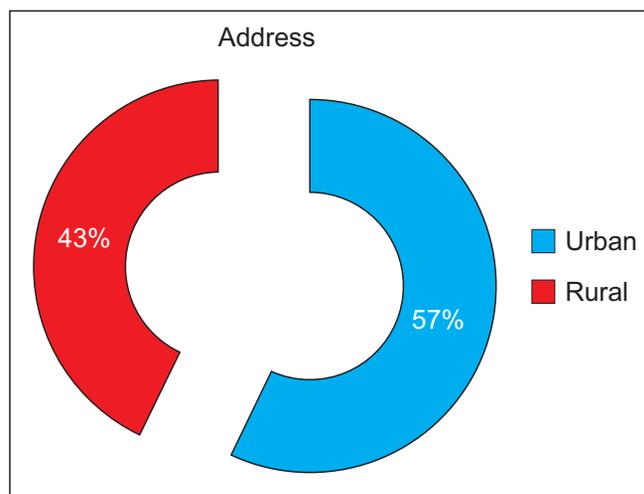


Fig 3: Area of Respondents

TABLE 1: GENDER OF SUBJECTS

Gender	Patients
Males	324(54%)
Females	276(46%)
Total	600(100%)

TABLE 2: CPITN SCORES

CPITN scores	No. of patients
Code 0	20(3%)
Code 1	28(5%)
Code 2	287(47%)
Code 3	195(33%)
Code 4	70(12%)

TABLE 3: HIGHEST CPITN SCORES IN DIFFERENT AGE GROUPS

Age group	No. of patients	Highest CPITN score	No. & %age
15-30 years	324	Code "2"	230(71%)
31-50 years	196	Code "3"	122(62%)
51 years & above	80	Code "4"	41(51%)

TABLE 4: CPITN SCORE ACCORDING TO AGE

Age	Code "0"	Code "1"	Code "2"	Code "3"	Code "4"	Total
15 – 30	18	25	230	51	0	318 (53%)
31 – 50	2	3	40	122	29	208 (35%)
51 & above	0	0	17	22	41	74 (12%)

TABLE 5: CPITN SCORES ACCORDING TO GENDER

Gender	Code "0"	Code "1"	Code "2"	Code "3"	Code "4"	Total
Males	4	9	153	111	47	324
Females	16	19	134	84	23	276

When asked about oral hygiene measures 432(72%) were brushing their teeth, 108(18 %) were using Miswak (wooden stick) where as 60(10 %) were neither brushing their teeth nor they were using Miswak (Fig 1). Out of 432 respondents who were brushing their teeth 255(59%) were brushing teeth in the morning and 82(19%) were brushing before going to bed, 95(22%) brushed their teeth twice a day.

## DISCUSSION

The main findings showed that periodontal destruction was more in males as compared to females as well as severity of periodontal disease were higher in males (Table 5). These findings are in accordance with WHO reports about many under developed countries regarding poor health conditions.<sup>15,20</sup> Dental calculus was found to be a major cause of periodontal destruction as has been reported in many other studies.<sup>26,27</sup> Males were more affected as compared to females, the reason may be that females are more concerned regarding cleanliness and are more conscious about their appearance and good oral hygiene than males.<sup>16</sup> Those who were brushing their teeth regularly were having low sextant score as compared to those who were not brushing teeth or using wooden sticks as tooth brush. Mechanical means of plaque control is proven in various studies.<sup>17,19</sup> On a clean tooth surface bacteria colonize quickly and if mechanical plaque control is not achieved within few days signs of inflammation appear.<sup>18</sup> These changes are reversible if proper tooth cleaning procedure is followed regularly.

There seemed to be a relationship between education level and periodontal disease severity because a significant decrease in gingivitis and periodontitis was observed as the education level increased<sup>21</sup> where as

those patients who were illiterate or had low socioeconomic status, the severity of periodontal disease was higher.<sup>22</sup> This study found out that 64% of the rural population had pockets of 3.5mm or more, where as in a similar study in India Singh et al in the state of Ludhiana found out that urban subjects had higher level of prevalence of moderate and severe periodontitis as compared to rural subjects.<sup>28</sup> The findings in the present study are in accordance with another study conducted by Nazir S et al<sup>29</sup> in Baqai University, Karachi and they also found out that male were having more periodontal problems than females and they also noticed that calculus was a major problem in young adults. Among the participants,<sup>14</sup> were diabetic and majority of them were suffering from severe periodontitis. There exists a direct relationship between diabetes and periodontal disease and its presence increases the risk for severity of periodontal diseases.<sup>23</sup> The increased prevalence and severity of periodontitis typically seen in patients especially those having poor metabolic control, led to the designation of periodontal disease as the sixth complication of diabetes, by American Dental Association.<sup>24</sup> Prolonged hyperglycemia impairs collagen structure and function, which may directly affect the health of the periodontium.<sup>25</sup>

## CONCLUSION

Periodontal disease was found to be significantly related to poverty, poor oral hygiene, educational status, diabetes and smoking. Oral hygiene practices of the participants were not satisfactory as many of the patients were not brushing their teeth even once a day. There is a need for dental education programmes either hospital based or community based to motivate and educate people especially from poor socioeconomic background, to improve their oral health and also to increase the level of awareness regarding oral health.

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### CONTRIBUTION BY AUTHORS

- 1 Shakeel Anwar:** Title selection, study designed data processing, prepared Tables & Figs
- 2 Mohammad Nasir Shah:** Patients examined data collection helped in writing introduction.
- 3 Fareedullah Shah:** Helped in methodology.