Original Research Article

Relationship of age with periodontal diseases for males and females in Bangladesh; A hospital registry based cross-sectional observational study.

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ABSTRACT

Periodontal diseases are the most commonly occurred diseases in the oral cavity with a widespread distribution around the globe. Variation in periodontal tissues associated with the aging and gender of the patient. The aim of this study was to determine relationship of age with periodontal diseases for males and females in Bangladeshi people. This study was conducted on 1837 patients visiting Department of Periodontology & Oral Medicine, Update Dental College & Hospital, from January 2017 to December 2018 (2 years) through a non-interventional cross-sectional method using descriptive and analytical statistics. Periodontal disease is the dependent variable of this study; patient age and gender serve as the independent variable. Total 37.5 % patients suffered from periodontitis and 62.5% suffered from gingivitis. Up to 48 years of age the prevalence of gingivitis was higher (70.64%) but periodontitis was more common (64.76%) in case of people over 48 years age. There is a significant (p<0.05) correlation between age and periodontal diseases exists in this study but no significant (p>0.05) correlation identified with gender. Distribution of periodontal diseases shows similar pattern between female (gingivitis=62.61%, periodontitis=37.53%) and male (gingivitis=62.47%, periodontitis=37.39%).Periodontal diseases are primarily correlating with the age but gender may not be associated. The most prevalent form of periodontal disease is gingivitis.

KEY WORDS: **Periodontal disease, Periodontal diseases with gender distribution, Age & periodontal disease.**

INTRODUCTION

Periodontal disease is termed as infection in the periodontal tissues[i]. It is classified into gingival disease, chronic periodontitis, aggressive periodontitis, periodontitis as a manifestation of systemic disease, necrotizing periodontal disease, periodontal abscess, periodontal disease associated to endodontic lesion and developmental/acquired deformities and condition[ii]. Multiple studies have concluded that periodontal diseases occur due to multi-factorial etiology[iii]. One of the factors that influence the prevalence of periodontal disease is age. With the increase of age the severity and extent of periodontal diseases increase[iv]. The alterations in the periodontal structure related to the patient age also helps in considering age as a periodontal diseases risk factor[v]. Some studies showed significant gender predilection in periodontal disease prevalence where men are more affected than female[vi]. Oral hygiene unawareness tends to be the main cause of these gender variations[vii]. Hormonal changes during menstrual cycle may cause appearance of periodontal disease in female at certain period of time in females[viii]. The general concept of an epidemiology study it to gain information to promote, protect and restore health based on evidence[ix]. However, since very limited numbers of epidemiological studies have been performed to see the prevalence of periodontal diseases in Bangladesh, this study aims to serve as a source of consideration for taking further actions to tackle

the disease.

METHODS & MATERIALS:

This study was conducted at the Department of Periodontology & Oral Medicine, Update Dental College & Hospital, through a non-interventional cross-sectional method using descriptive and analytical statistics. Total 1837 patients visiting department of Periodontology from January 2017 to December 2018 (2 years) used as a sample, with total sampling as the sampling method. Periodontal disease is the dependent variable of this study; patient age and gender serve as the independent variable.

Periodontal disease is classified based on American Academy of Periodontology that includes gingival disease, chronic periodontitis, aggressive periodontitis, and periodontitis as a manifestation of systemic disease.

Gingival disease or gingivitis is an inflammatory condition of gingival tissues and periodontitis refers to the inflammation of periodontal ligament and alveolar bone resulting in attachment loss. Apical migration of junctional epithelium from its biological location, cemento-enamel junction (CEJ), is known as AL and was measured in millimeters from CEJ to base of the periodontal pocket by William's periodontal probe in this study. Gingivitis was identified and diagnosed using Modified gingival index (MGI) and absence of AL. Presence of AL, gingival recession, tooth mobility and furcation involvement also examined during routine examination at first visit. Though, only AL was fixed to identify Periodontitis in this study.

This study began with the collection of dental records from January 2017 to December 2018, which were later selected from based on the criteria that the medical records must consist of information on patient age, gender and periodontal diagnosis. The 1,837 selected dental records were then recorded and processed by Microsoft Excel. For bivariate analysis, the variables of periodontal disease were ranked in two categories namely gingivitis and periodontitis, including chronic periodontitis, aggressive periodontitis and periodontitis as a manifestation of systemic disease. Data analysis was done by IBM SPSS Statistics version 21.0.

RESULTS

Among 1837 patients reported, 54.2% were male and 45.8% were female (Figure-01). The mean age was 36.82 years and ranged from 10-85 years (Table-01). Out of the total patients diagnosed, 37.5 % suffered from periodontitis and 62.5% suffered from gingivitis (Figure-02). There is a significant (p<0.05) correlation between age and periodontal diseases exists in this study (Table-2). Up to 48 years of age the prevalence of gingivitis was higher (70.64%) but periodontitis was more common (64.76%) in case of people over 48 years age (Figure-3). Distribution of periodontal diseases shows similar pattern between female (gingivitis=62.61%, periodontitis=37.53%) and male (gingivitis=62.47%, periodontitis=37.39%) (Figure-04).

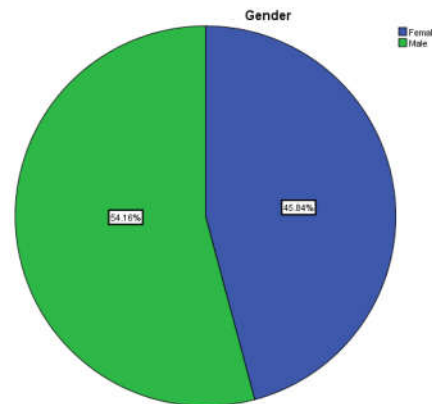**Figure 1: Gender Distribution of total sample.**

Table 1: Age distribution of total sample

Age Distribution					
	N	Minimum	Maximum	Mean	Std. Deviation
Age	1837	10	85	36.82	13.557
Valid N (listwise)	1837				

Figure 2: Distribution of Periodontal Diseases
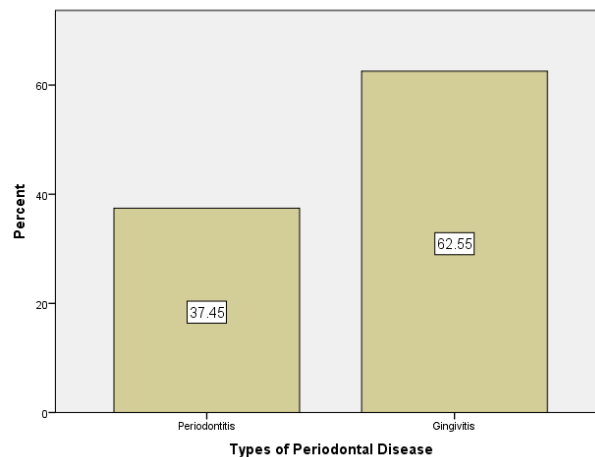
Table 2 Spearman's rho test

			Age	Diagnosis
Spearman's rho	Age	Correlation Coefficient	1.000	-.354**
		Sig. (2-tailed)	.	.000
		N	1837	1837
	Periodontal Disease	Correlation Coefficient	-.354**	1.000
		Sig. (2-tailed)	.000	.
		N	1837	1837

**. Correlation is significant at the 0.01 level (2-tailed).

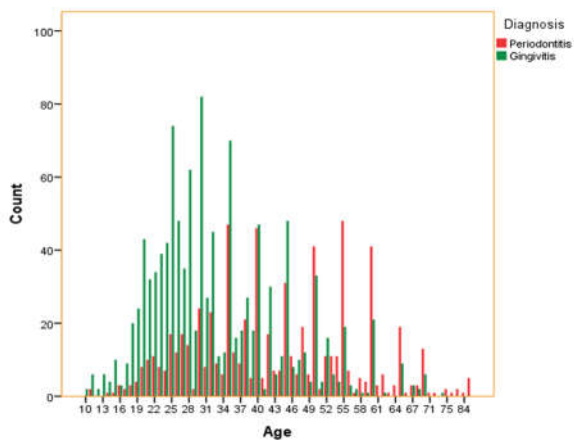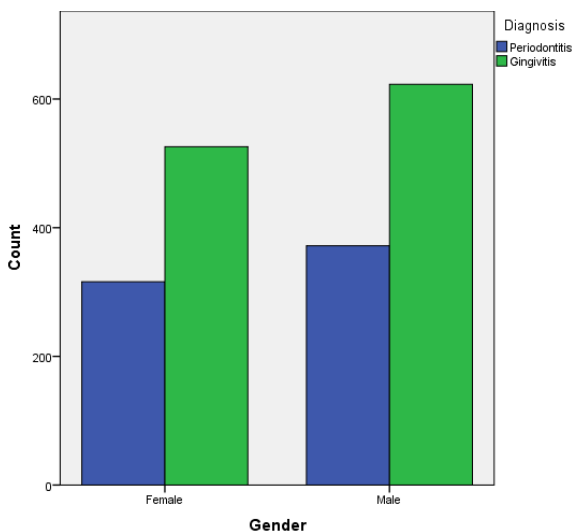Figure 3: Distribution of periodontal diseases in different ages.

Figure 4: Gender distribution of Periodontal diseases.

DISCUSSIONS:

The results in this current study indicated that periodontitis generally appeared with in the older age group of both males and females, which support the findings of Sheridan[x], Albert et al.[xi], Novaes et al.[xii] and Bridges et al.[xiii] studies where they showed that periodontal diseases prevalence and severity increases with the advancing patients' age. The results also show that gingivitis was comparatively more experienced before 48 years of age, while periodontitis occurred after 48 years age. All these findings are in consistent with a study by Eke et al. that revealed a high prevalence of periodontitis in US adults aged 30 years and older[xiv]. Nanaiah et al. (2013) reported that only 1.5% of 1100 subjects (15-18 years old) had chronic periodontitis, moreover the author confirmed that the gingivitis started to increase in adolescence (16 years old)[xv]. Bokhari et al. (2015) also stated that subjects aged 40 years and above were four times more likely to suffer from periodontitis[xvi]. The outcome of the current study confirmed

that there is a little impact of gender on distribution of periodontal diseases in this context.

The current study demonstrated that age is possible etiologic factor of change periodontal diseases severity in Dhaka, Bangladesh. This factor should be included in the diagnostic aids, to rule out various types and severity of periodontal diseases. More advanced methods of studies are important to find out other possible etiologic factors for periodontal diseases in this region and to identify the effects of environmental, societal and lifestyle in Bangladesh on periodontal diseases.

CONCLUSION:

We conclude that periodontal diseases are primarily correlating with the age but gender may not be associated. The most prevalent form of periodontal disease is gingivitis. This study might tell the starting-age of disease initiation and outline of disease progression.

ACKNOWLEDGEMENTS:

CONFLICTS OF INTEREST

There are no conflicts of interest.

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