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Original article

A Retrospective Study on the Prevalence of Periodontal Disease among Libyan Adults

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ABSTRACT

Background and objectives*: Periodontal disease is a condition that causes inflammation of the gingiva and tooth-supporting structure, which affects a significant number of people worldwide. The aim of this study is to describe the prevalence of gingivitis and periodontitis in records files among the adult population attending a private dental clinic in Tripoli, Libya.* ***Methods:*** *This retrospective observational study reviewed records of patients aged 30 to >50 years who diagnosed as gingivitis or periodontitis and attended a private dental clinic at Tripoli, Libya from 2012 January to March 2019.* ***Results:*** *A total number of 368 patient's records files were included. 57.6% were females, nearly half of the patients 181 (49.2%) were ranged from the age 30–50 years old. The prevalence of gingivitis 55.4% was more than periodontitis 44.6%. The prevalence of gingivitis was higher in females 60.4% than males and the prevalence of periodontitis was more in males 51.3 %. The prevalence of gingivitis was higher at age group 18-30 years where the periodontitis was more in age group above 50 years.* ***Conclusion:*** *The prevalence of gingivitis was high among the young age group, where the prevalence of periodontitis was high at older age group in Tripoli, Libya.*

Keywords: Prevalence, age, Periodontal Disease, Gender, Retrospective, Libya

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INTRODUCTION

Periodontitis is an inflammation of the dental support structures which include cementum, periodontal ligaments, and alveolar bone, and is produced by certain bacteria present in subgingival dental plaque [1], where gingivitis is an inflammation of the gingiva resulting from interactions between the dental plaque biofilm and the host's immune-inflammatory response, it is reversible when the amount of dental plaque is reduced [2].

The leading cause of gingivitis and periodontitis is bacterial biofilm. Periodontal disease has host-microbial interaction in which, because the change in the balance between host and bacterial factors, like a decrease in the host resistance, an increase in the dental plaque biofilm, or an increase in bacterial virulence factors may lead to a change from health to gingivitis or from gingivitis to periodontitis [3]. Periodontal disease is affected by the immune and inflammatory responses of the individual and is modified by many risk factors such as smoking, systemic diseases, medications, age, gender, and alcohol [4].

Periodontal diseases are common in both developed and developing countries and affect around 20-50% of the world's population. The prevalence of periodontal disease will increase as one gets older [5]. Periodontal disease is a public health concern because it is highly prevalent in adolescents, adults, and older individuals [6]. Gender association suggests that males are more likely to experience periodontal disease than females of similar age [7].

METHODS

Study Design and Data Collection

Data were collected from records files of 1,238 patients attending private institution (B.D.C clinic) at Tripoli, Libya from 2012 January to March 2019. From 1,238 records files the 368 records were selected to be included in the study and divided into two groups either gingivitis or periodontitis which have been diagnosed by the periodontist. Periodontal disease is categorized based on the classification of periodontal disease, the 2018 EFP/AAP new classification of Periodontal and Peri-Implant Diseases and Conditions, as gingivitis and periodontitis without using a staging and grading system [8].

Age is categorized into three groups as follows: 18-30 years, 31-50 years, and above 50 years. This study began with the collection of medical records from 2012 to 2019, which were later selected the medical records must consist of information on the patient's age, gender, and periodontal diagnosis

Inclusion criteria

All patients who were diagnosed with gingivitis or periodontitis by their periodontist and patients from both genders.

Exclusion Criteria

Individuals with a systemic disease other than diabetes, individuals who do not suffer from gingivitis or periodontitis, patients with inaccessible files because of bad debt, destroyed records, and patients below the age of 18 years.

Data management and statistical analysis

Data coded, entry then analysis were performed by statistical package for social science (SPSS) software 25 version.

Simple descriptive statistics were used; frequency with percentage for categorized variables. Inferential statistics used Chi square test with. $P < 0.05$ as statistically significant

RESULTS

Demographic Characteristics of Study Participants

During the two-month study period, data was collected from 368 patients, all of whom were attending the private clinic in Tripoli, Libya.

Out of 368 participants, 212 (57.6%) of whom were female, and 156 (42.4%) were male. The age of the patients ranged from 18 to 65 years. 132 (35.9%) were 30 years or younger, nearly half 181 (49.2%) were 30–50 years old, and only a quarter 55 (14.9%) were older 50 years.as shown in (Table 1).

Table 1. Demographic Characteristics of Study Participants

Variable		F	%
Gender	Male	156	42.4%
	Female	212	57.6%
Age group (years)	< 30	132	35.9%
	31 – 50	181	49.2%
	> 50	55	14.9%
	Total	368	100.0%

Prevalence of periodontal disease

The results as shown in figure 1 according to our results, shows overall, the prevalence of participants who had gingivitis 204 (55.4%). The prevalence of participants who had periodontitis was 164(44.6%).

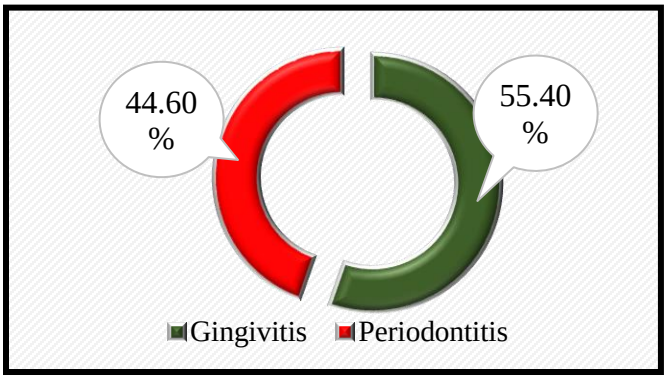

Figure 1. Prevalence of periodontal disease

Periodontal disease among studied participants according to sex

Females 128 (60.4%) were more likely than male participants76 (48.7%) to have gingivitis.

Male participants 80 (51.3%) were more likely than female participants 76 (48.7%) to be had periodontitis. There was a significant difference between males and females ($p = 0.026$).

Table 2. Periodontal disease among studied participants according to sex (N=368)

Periodontal disease	**Total**		**Male**		**Female**		**P-value**
Clinical examination	F	%	F	%	F	%	
Gingivitis	204	55.4%	76	48.7%	128	60.4%	0.026C
Periodontitis	164	44.6%	80	51.3%	84	39.6%	
Total	368	100.0%	156	100.0%	212	100.0%	

C: Chi square test. P < 0.05 is statistically significant

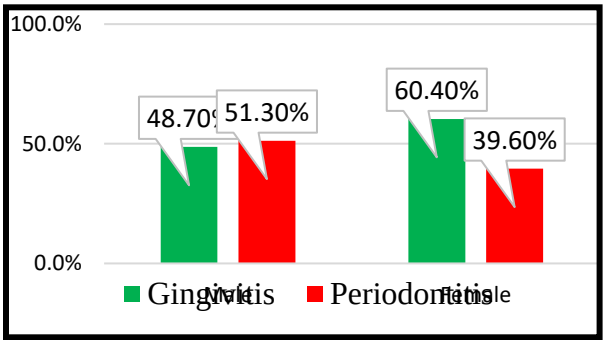

Figure 2. Periodontal disease among studied participants according to sex

Periodontal disease among studied participants according to age group

Participants who were younger than 30 years old were much less likely to have periodontitis than gingivitis (17.4% vs. 82.6%) respectively. In the second group (30 -50 years old) were also less likely to have likely periodontitis than gingivitis (48.6% vs. 51.5%) respectively. In studied participants who older than 50 years old were much more likely to have periodontitis than gingivitis (96.4% vs 3.6%) respectively. There was statistically significant difference between periodontal disease and age group (p = 0.01)

Table 2. Periodontal disease among studied participants according to sex (N=368)

Periodontal disease	**Total**		**Male**		**Female**		**P-value**
Clinical examination	F	%	F	%	F	%	
Gingivitis	204	55.4%	76	48.7%	128	60.4%	0.026C
Periodontitis	164	44.6%	80	51.3%	84	39.6%	
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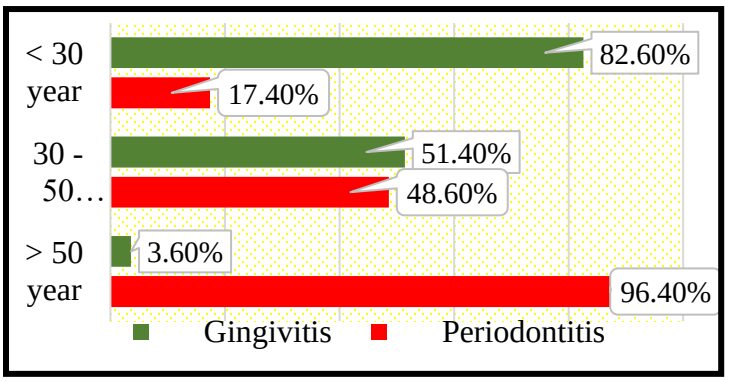

Figure 3. Periodontal disease among studied participants according to age group.

DISSCUSION

Oral diseases are considered as major public health problems due to their high prevalence and incidence in all regions of the world [9]. Periodontal disease is

classified as a major dental disease by the World Health Organization (WHO) and is a public health problem that impacts oral and systemic health worldwide [10].

Gingivitis is an inflammatory condition of the gingiva that only affects the soft-tissue compartment and the tooth does not experience any loss of attachment [11]. Periodontitis is defined by the American Academy of Periodontology as inflammation of the periodontal tissues that leads to clinical attachment loss, alveolar bone loss, and periodontal pocketing [12].

The present study assessed the prevalence of the periodontal disease among 18- above 50 years it was 29.7 %, this is low compared to other studies done in, America, and China (96%, 90%) but comparable with a study done in Nigeria 19% [13-15]. The reasons for this variation may be due to the proportion of patients diagnosed with periodontal disease is small compared with the large number of recorded patient files included in the present study.

The prevalence of gingivitis reported in the present study 55.4% was comparable to other studies in Saudi Arabia 63.2%, Jordan 76%, Nigeria 71.6% and India 76% but the prevalence of periodontitis (44.6%) was a little higher than those countries [16,17,15,18].

Most participants were 20-29 years old, probably reflecting the large proportion of young individuals in the Libyan population. The lowest proportion of participants was ≥ 50 years of age. Epidemiological studies have revealed the prevalence of the periodontal disease increases with age [19,20].

In the present study, gingivitis is more prevalent in the young age group <30 years 82.6% similar to a study by Ababneh KH, et.al 76.5% where periodontitis is more prevalent in the old age group >50 years 96.4% similar to the study by Geethika b, et.al were 74.7% above 45 years.

Similar to other studies the prevalence of gingivitis was higher in females and the prevalence of periodontitis was more frequent among males than females [17].

The limitation of the present study was that the data was taken from one privet dental clinic and no available published data in Libya to compare the present results, further research in the whole country to investigate the prevalence of gingivitis and periodontitis is recommended.

If the patients with a periodontal disease were not recorded as having it because it was not the main chief complaint and not referred to the periodontist in this clinic, this will lead to underestimation, therefore, it is possible that these results may not reflect the true effect size.

CONCLUSION

Females aged 18-30 had a higher prevalence of gingivitis, while males above 50 years had a higher prevalence of periodontitis. The results indicate that the majority of the population needs a preventive program to educate, motivate, and instruct people about oral hygiene maintenance and provide treatment in its early stages.

Conflict of Interest

There are no financial, personal, or professional conflicts of interest to declare.

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