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PERIODONTAL DISEASE IN IDEAL WEIGHT, OVERWEIGHT AND OBESE PATIENTS IN DIFFERENT GENDER OF A TERTIARY CARE HOSPITAL IN PAKISTAN.

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ABSTRACT… Introduction: Chronic periodontitis is the inflammation of the gingiva extending into the supporting structure of teeth. Periodontal disease is characterized by loss of clinical attachment due to destruction of the periodontal ligament and loss of the adjacent supporting bone eventually leading to tooth loss. Obesity is unusual or unnecessary fat deposition that may harm health. A number of hypotheses for biological reactions among obesity and periodontal disease have been anticipated. **Objectives:** To determine the frequency of ideal weight, overweight and obese patients in dental outdoor of FMH Pakistan. **Study Design:** Cross-Sectional Study. **Setting:** Medical Outdoor at Tertiary Care Hospital in Pakistan. **Period:** 15th January to 14th July 2017. **Material & Methods:** A total 100 patients came to the medical outpatients department between 25 to 45 years of age were included. Patients satisfying the inclusion criteria, subjects BMI score were checked by classifying him/her obese, overweight or normal weight. Periodontal pocket depth was observed by WHO probe of one tooth from each male and female patient. Frequency of periodontal disease was seen in subjects. **Results:** Age range in his study was from 25 to 45 years with mean age of 36.9 ±7.51 years. In 100 patients 66 (66%) were females & 34 (34%) were males and with male to female ratio 1.9:1. Periodontal disease was seen in 47 female patients (71%) and in 24 male patients (70%). Pocket depth was present in over weight and obese patients more than normal weight. **Conclusion:** current study accomplished that there is positive association of periodontal disease in overweight and obese patients. The incidence of periodontal disease was highest in female obese patients.

Key words: Different Gender, Overweight, Obese, Periodontal Disease.

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INTRODUCTION

The periodontal disease also called as gingivitis and periodontitis. Gingivitis is a dental disease which includes inflammation of the gingival and is a frequent occurrence in patients as young as 5 years old. Periodontitis is a chronic multimicrobial dental problem seen with dysregulated immune and inflammatory reaction at the level of connective tissue and bone support adjacent to teeth leading to tooth loss if left untreated.[1]

Dental plaque is a primary etiologic factor in periodontal disease.[2]A literature have revealed that there are several systemic risk factors for periodontal disease; these reasons comprise tobacco use, obesity, diabetes, rheumatoid arthritis, , osteoporosis, respiratory diseases certain cancers, erectile dysfunction, cardiovascular disease kidney disease and dementia.[3]

The frequency of mild to modest periodontitis is 13-57% and occurrence of severe periodontitis is 10-25%. Periodontitis can involve up to 90% of the world population.[4] According to the outcome of the third National Health and Nutrition Examination Survey (NHANES III), it has been predictable that, in the United States, around 35 per cent of the dentate people aged 30 years or older have periodontitis.[5] By recognizing patients at high risk for this illness, we can introduce more efficient screening and managements. In addition, if we compare severity of periodontal infection with obesity, then those subjects who are obese may be treated more intensively.[6]

Obesity is irregular or increase fat accumulation that may harm health[7]. Multiple hypothesis for biological interaction among obesity and periodontal disease have been anticipated for example decreased glucose tolerance, perturbation in lipid profile, modification in host immunity, growing activity of macrophages, weaken microvascular function, physiologic response to psychosocial tension and release of pro-inflammatory substance from adipose tissue together with TNFα, IL6 and C-reactive protein.[6]

Body mass index (BMI) frequently used to categorize overweight and obesity, is simple index described as "individual's weight in kg divided by square of his height in meters". Overweight persons have BMI 25-29 while obese individuals have BMI equal or more than 30.[7,8] Prevalence of normal weight/ ideal weight, overweight and obese mentioned as 29.9%, 29.4% and 20.8% respectively in a study conducted in Karachi.[8] Recent literature suggesting a correlation between periodontal disease and obesity, one study proposed the frequency of periodontal disease according to BMI in overweight was higher (88%) than non obese.[9]

Suvan[1], et al., in 2011 proposed the association among obesity and overweight and periodontitis. They accomplished that there is a correlation between raised BMI and periodontitis, even though the magnitude is not obvious. Incorporated in this review was a prospective cohort study of 1504 person specially defining periodontal disease by attachment loss and viewing the correlation involving attachment loss and BMI.[1]

MATERIAL AND METHODS

Patients were selected from the medical outpatients department at Fatima Memorial College of dentistry, Lahore. Demographic information of the patient will be recorded. Sample size will be chosen according to the inclusion criteria that patient which has greater than 12 permanent teeth in their mouth with age between 25 to 45 years presenting in medical OPD for management of medical problems but not seeking dental treatment. Informed consent will be taken.

After completion of history and examination from the patients fulfilling the inclusion criteria, subjects BMI score was determined by classifying him/her obese, overweight or normal weight. Periodontal pocket depth was determined by WHO probe of at least one tooth from each sextant under supervision of my supervisor and three senior trainees. Frequency of periodontal disease was seen in ideal weight, overweight and obese subjects. All this information was documented in a pre-designed proforma.

Data was investigated by using SPSS version 21, a computer based software program. Qualitative variables (i.e. gender, ideal weight, overweight and obese) were presented as frequency percentage. Data was stratified for gender. Chi-square test was used. Post-stratification with p-value ≤ 0.05 measured as significant.

RESULTS

Out of 100 patients 66 (66%) were females & 34 (34%) were males and with male to female ratio 1.9:1 (Table-I). Out of 100 patients 27 were ideal weight, 37 were overweight and 36 were obese (Table-II). Out of 100 patients periodontal disease was present in 71 patients (71%) and in 29 patients (29%) Periodontal Disease was not present (Table-III). Gender wise periodontal disease distribution (Table-IV). Gender wise periodontal disease distribution according to BMI (Table-V).

	Frequency	Percent	Valid Percent	P-Value (Chi-square)
Male	34	34.0	34.0	0.948
Female	66	66.0	66.0	

Table-I. Gender distribution

		Fre-quency	Percent	Valid Percent	P-Value (Chi-square
Valid	Ideal Weight	27	27.0	27.0	0.948
	Over Weight	37	37.0	37.0	
	Obese	36	36.0	36.0	

Table-II. Distribution of BMI

		Frequency	Percent	Valid Percent	P-value(chi-square)
Valid	Not Present	29	29.0	29.0	0.948
	Present	71	71.0	71.0	

Table-III. Presence of periodontal disease

		PD		P-value(chi-square)
		Not Present	Present	
Gender	Male	10	24	0.948
	Female	19	47	

Table-IV. Gender wise periodontal disease distribution

Gender			PD		P-Value(Chi-square)
			Not Present	Present	
Male	BMI_T	Ideal Weight	5	5	0.39
		Over Weight	5	9	
		Obese	0	10	
	Total		10	24	
Female	BMI_T	Ideal Weight	7	10	0.138
		Over Weight	8	15	
		Obese	4	22	
	Total		19	47	
Total	BMI_T	Ideal Weight	12	15	
		Over Weight	13	24	0.09
		Obese	4	32	

Table-V. Gender wise PD distribution

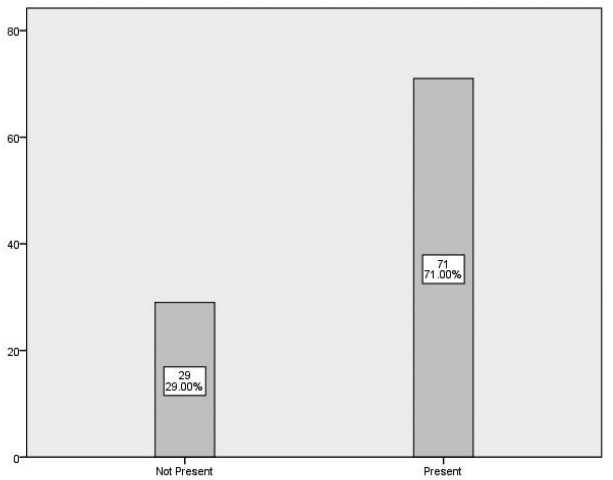

Figure-1. Distribution of PD

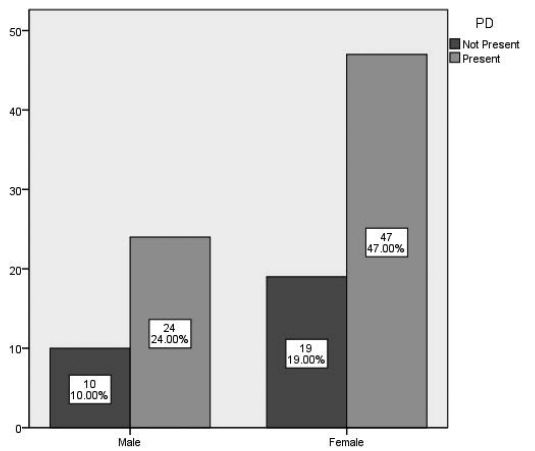

Figure-2. Gender wise periodontal disease distribution

DISCUSSION

The correlation linking obesity and periodontitis has been recommended in several studies. On the other hand, the likely role of oral infections in the etiology of obesity is still ambiguous.[10,16]

Current study revealed that obese and overweight subjects have more frequency of periodontal disease as compared with normal/ideal weight. According to BMI out of 100 total patients, 27 were normal weight, 37 were overweight and 36 were obese.

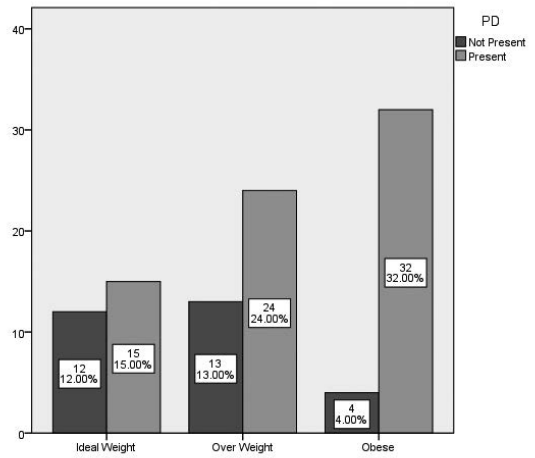

Figure-3. PD distribution according to BMI

BMI index and the occurrence of periodontitis, with a significantly ($P < 0.05$) higher frequency of periodontitis in obese than in average weight females.[15]

BMI is very much connected with fat mass and morbidity and mortality as a result adequately reflects obesity-related disease risk in a broad range of population; though, there are a few limits.[11] For instance, for the similar BMI, aged individuals have a tendency to have an elevated body fat composition; and consequently, risk measurement by BMI is less precise in older people (over 65 years of age).[12] Body fat distribution is judged by the dimension of waist circumference, with 102 cm in male and 88 cm in female, respectively, being the cut-off point for abdominal obesity linked with an high risk of morbidity.[13,14] Waist circumference give you an idea about a close association with the quantity of visceral adipose tissue, and this has been revealed to be metabolically more active and to secrete far large quantity of cytokines and hormones measure up to with subcutaneous adipose tissue.[15,17] Recent studies showed that size of waist circumference or waist-hip ratio may be a improved disease risk predictor than BMI, and there is thorough investigation continuing as to whether BMI, waist circumference or both should be used to evaluate disease risk.[20]

The logistic regression investigation discovered that the risk of Periodontitis raise by l6% increase of 1 kg/m2 in BMI.[9] Another study estimated 513 mine laborers in India aged 18 to 54 years, reporting a 57% risk of periodontitis high of 1 kg/m2 in BMI.[18]

CONCLUSION

This study accomplished that there is positive correlation of periodontal problem in overweight and obese patients. The frequency of Periodontal infection was higher in overweight and highest in obese patients.

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AUTHORSHIP AND CONTRIBUTION DECLARATION

Sr. #	Author-s Full Name	Contribution to the paper	Author=s Signature
1	Zaheer Hussain Chachar	Idea, Abstract Methodology.	
2	Gotam Das	Introduction, Data collection.	
3	Shabir Ahmed	Data analysis anddiscussion conclusion.	
4	Maimuna Khokhar	Critically reviewed the manuscript.	
5	M. Ilyas Shaikh	Literature review.	
6	Kinza Mushtaque	Literature review & Referencing.