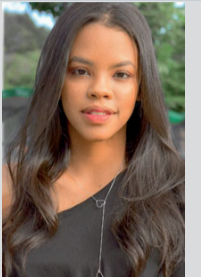




Julia Mascarenhas Pimentel\*  
Daline Oliveira Carneiro  
Johelle de Santana Passos-Soares

College of Dentistry, Federal University of Bahia, Bahia, Brazil.



## Introduction

Obesity has a modified inflammatory condition and a hyperoxidative state, leading to a greater susceptibility to bacterial infection, which may facilitate the onset or progression of periodontitis. Previous studies have shown that overweight may influence occurrence of periodontal disease. However, some of these investigations didn't show consistent associations, signaling the need for more research on this subject.

## Objective

The aim of the study was to investigate the association between abdominal obesity and periodontitis.

## Materials and Methods



### Diagnosis of obesity

Obesity was defined as a waist circumference (WC) of >102 cm for men and >88 cm for women (*National Cholesterol Education Program- Adult Treatment Panel III - NCEP/ATP-III*)

### Diagnosis of Periodontitis

Case definition proposed for population-based surveillances of periodontitis by Center for Disease Prevention and Control and American Academy of Periodontology (CDC/AAP)<sup>1</sup>

CASE	DEFINITION
No Periodontitis	No evidence of mild, moderate or severe periodontitis
Mild Periodontitis	≥2 interproximal sites with CAL ≥3 mm and ≥2 interproximal sites with PPD ≥4 mm (not on same tooth) or one site with PPD ≥5 mm
Moderate Periodontitis	≥2 interproximal sites with CAL ≥4 mm and ≥2 interproximal sites with PPD ≥5 mm (not on same tooth)
Severe Periodontitis	≥2 interproximal sites with CAL ≥6 mm (not on same tooth) and ≥1 interproximal site with PPD ≥5 mm

## Results

Prevalences of obesity and periodontitis were 49.7% and 74.2%, respectively. Table 1 summarizes the socio-demographic characteristics. There was statistically significant association between abdominal obesity and periodontitis only in female gender, even adjusted by confounders (table 2).

Table 1. Number (N) and percentage (%) of characteristics of the study population according to High Waist Circumference.

Characteristics	Non-obese n (169)	Obese n (167)	P*
<b>Sex</b>			
Males	63 (70.8)	26 (29.2)	
Females	106 (42.9)	141 (57.1)	<0.01
<b>Age (years)</b>			
18-49	81 (51.6%)	76 (48.4%)	0.65
≥50	87 (49.2%)	90 (50.8%)	
<b>Skin Color</b>			
White	13 (54.2)	11 (45.8)	0.71
Non-white	155 (50.3)	153 (49.7)	
<b>Education</b>			
≥4 years	151 (51.5)	142 (48.5)	0.11
<4 years	5 (31.3)	11 (68.8)	
<b>Current Occupation</b>			
employed	69 (57.5)	51 (42.5)	0.04
unemployed/ retired	98 (46.2)	114 (53.8)	
<b>Familiar Income*</b>			
>1 salary	75 (54.3)	63 (45.7)	0.26
≤1 salary	85 (48.0)	92 (52.0)	
<b>Marital status</b>			
Married	59 (43.7)	76 (56.3)	0.04
Single	110 (54.7)	91 (45.3)	
<b>Number of children</b>			
≤3	137 (53.7)	118 (46.3)	
>3	18 (30.0)	42 (70.0)	<0.01
<b>Physical Activity Practice</b>			
Yes	74 (55.6)	59 (44.4)	
No	94 (46.5)	108 (53.5)	0.10
<b>Smoking</b>			
No	132 (51.2)	126 (48.8)	
Yes	37 (47.4)	41 (52.6)	0.56
<b>Diabetes</b>			
No	156 (53.4)	136 (46.6)	<0.01
Yes	13 (29.5)	31 (70.5)	
<b>Hypertension</b>			
No	128 (58.7)	90 (41.3)	
Yes	41 (34.7)	77 (65.3)	<0.01
<b>Self-perception of oral health</b>			
Excellent-good	59 (56.2)	46 (43.8)	0.14
Regulate-bad	109 (47.6)	120 (52.4)	

\*1 salary= \$254,06 dollars  
Chi-square test, p≤0.05 significance

Table 2. Prevalence ratio (PR), crude and adjusted, and 95% confidence interval (95% CI) for periodontitis according to high waist circumference.

Obesity (NCEP-ATP III)	PR (95% CI)
<b>Crude</b>	1.10 (0.97-1.24)
18 to 49 years old	1.08 (0.86-1.38)
≥50 years old	1.09 (0.96-1.24)
Males	0.99 (0.80-1.25)
Females	1.19 (1.01-1.40)*
<b>Adjusted</b>	
Females	1.20 (1.01-1.44)*

\*Adjusted for schooling, diabetes, family income, smoking, sex and age.

## Discussion

These findings corroborate previous studies that found positive association in women as compared to man<sup>2;3;4</sup>. These investigations also suggest worse periodontal condition in obese individuals.

## Conclusion

Results suggest that women in age group 18 to 49 years having elevated WC are more likely to develop periodontitis compared to individuals with normal WC.

## Clinical Implications

Periodontitis and obesity are very prevalent chronic diseases in Brazilian population, and they have high impact on quality of life. Elucidation about real influence of overweight on oral health may contribute to clinical care management.

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