ADA CE Program **ARTICLE 4**

Oral health and changes in weight and waist circumference among community-dwelling older adults in Brazil

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Achange in body weight is an important predictor of health outcomes[1] and has been associated with mortality.[2,3] According to Newman and colleagues,[3] weight loss is common in old age,[4] and even a modest decrease in body weight is an important independent marker of mortality risk in older adults. Moreover, there is limited and divergent evidence[2,5] that weight gain may be associated with increased mortality in older adults. Weight gain is considered an important predictor of increased risk of cardiovascular disease in young adulthood through middle age and into later life.[6] In addition to weight changes, increased abdominal adiposity measured by means of waist circumference (WC) has been shown to be a significant predictor of cardiovascular events[1] and mortality.[1,5]

Among the factors reported to be related to weight and WC changes is oral health status, in which there has been increasing interest owing to the high prevalence rates of tooth loss among older adults.[7] In Brazil, people 60 years or older represent approximately 11 percent of the population.[8] The results of the most recent Brazilian

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ABSTRACT

Background. The authors conducted a study to evaluate the association between changes in weight and waist circumference (WC) and oral health status among older adults in Brazil.

Methods. The study sample consisted of community-dwelling people representing the population 60 years and older in the city of São Paulo who were enrolled in the Health, Well-being and Aging cohort study. Changes in weight and WC were classified as stable (within 5 percent of the second-wave weight and WC), loss (5 percent or more decrease since the second wave) and gain (5 percent or more increase since the second wave). The following baseline characteristics were the independent variables: sociodemographic variables (age, sex and education), general health data (number of self-reported chronic diseases, physical activity, weight, WC and smoking status) and oral health (edentulism, need for dental prostheses).

Results. The incidence of weight (33.2 percent) and WC (35.3 percent) gain was higher than that of loss (13.5 percent and 10.6 percent, respectively). Neither weight nor WC gains were associated with dental status. The risk of weight and WC loss was higher among edentulous participants than among dentate participants.

Conclusion. The results of this study show that edentulism status was a significant predictor of weight and WC loss, independent of socioeconomic and general health status.

Practical Implications. Edentulism has a significant impact on weight and WC, which highlights the importance of an integrated approach to health care among health care professionals.

Key Words. Oral health; aging; waist circumference; tooth loss; body weight changes.
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TABLE 1

Distribution of outcomes, according to covariates.

VARIABLE	WEIGHT			WAIST CIRCUMFERENCE		
	Loss, %	Gain, %	P Value	Loss, %	Gain, %	P Value
Age, in Years						
60-69	11.0	36.8		8.4	37.1	
70-79	16.4	28.5	.001	13.6	34.0	.040
≥ 80	25.7	17.3		18.5	23.9	
Education, in Years						
0-3	13.6	37.0		8.9	41.4	
4-7	14.5	31.4	.195	13.8	32.7	.014
≥ 8	11.0	28.0		7.7	26.8	
Sex						
Female	15.3	34.6	.042	11.2	37.2	.237
Male	10.4	30.8		9.5	32.1	
Smoking Status						
Never	13.6	34.4		11.3	34.4	
Former smoker	14.0	30.0	.753	9.6	34.2	.566
Current smoker	11.5	36.4		9.7	42.9	
Diseases						
0-1	9.8	37.0	.053	9.0	38.4	.184
≥ 2	16.6	30.0		11.9	32.8	
Physical Activity						
Yes	12.2	34.0	.095	10.6	36.8	.227
No	19.1	29.6		10.6	29.2	
Edentulism (Dental Status)						
No	9.3	35.8	< .001	7.0	36.1	.001
Yes	19.6	29.3		15.7	34.3	
Need for Dental Prostheses						
No	14.5	29.3	.124	11.8	33.9	.457
Yes	12.4	37.6		9.2	37.0	

oral health survey showed a mean of 27.53 decayed, missing and filled teeth among people aged 65 to 74 years; the missing teeth component accounted for 91.9 percent of the index, and 97.7 percent of the elderly people surveyed needed dental prostheses.[9]

Evidence indicates that impaired oral health is related to inadequate nutrient intake,[10] frailty,[11,12] nutritional status[13] and changes in weight.[14-16] With regard to weight, limited data from longitudinal studies support the associations between weight and oral health, and the available evidence from these studies is inconclusive. Some authors found that edentulous people had a greater chance of gaining weight in a single year,[15] whereas others found that edentulous people were more likely to

lose weight.[14] With regard to WC, the evidence is lacking regarding the association.

The aim of this prospective study was to evaluate the association between changes in two important predictors of mortality and cardiovascular diseases—weight and WC—and oral health status (dentate or edentulous with or without dentures) in a sample of community-dwelling older adults in Brazil.

METHODS

We carried out this prospective study by using data from the Survey on Health, Well-being and Aging (Saúde, Bem-estar e Envelhecimento [SABE]),[17] which is a multiple-cohort study that began in 2000 involving a multiple-stage probabilistic sample (n = 2,143) of people 60 years or older residing in the city of São Paulo. In 2006, researchers conducted a second wave of the study, in which 1,115 participants from the first wave were interviewed again and a new cohort was established. In 2010, the third wave was conducted by means of the same procedures as used earlier. Details pertaining to the study methodology are described elsewhere.[11]

We included participants for whom complete data were available for the covariates needed for analysis in the second and third waves (2006 and 2010). We omitted from analysis participants for whom data were missing regarding any of the variables. Thus, the final sample for our analysis of changes in weight consisted of 798 participants, which represents 648,806 elderly people in the city of São Paulo. The sample for the analysis of changes in WC consisted of 802 participants, representing 650,663 elderly people.

Trained interviewers from SABE collected all data at the participants' homes by means of a structured questionnaire that addressed socioeconomic variables, general health, living conditions and a set of anthropometric measures. Dentists who had undergone a training and calibration exercise performed the oral examinations at the participants' homes on the basis of World Health Organization criteria.[18]

Changes in weight and WC. We assessed weight by using calibrated digital scales in all waves, with the participants barefoot and wearing lightweight clothing. We measured WC by using a nonelastic anthropometric tape and recorded circumference to the nearest 0.1 centimeter at the midpoint between the iliac crest and lower rib. Trained nutritionists obtained two measures in each wave and recorded the mean value as the final measure. We classified changes in weight and WC at the third wave as stable (within 5 percent of the second-wave weight and WC), loss (decrease of 5 percent or more since the second wave) and gain (increase of 5 percent or