

3<sup>rd</sup> World Congress on

# Women's Health & Breast Cancer

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## Smoking and obesity combine to increase breast cancer risk in a Native American population

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**Objective:** To study the combined impact of obesity and smoking on the risk of breast cancer in Native American population.**Design:** Cross-sectional, population-based study.**Background:** Obesity is a well-established risk factor for the development of breast carcinoma. Epidemiologic studies of the impact of smoking on the development of breast carcinoma, however, have shown mixed results. Thus, smoking may have conflicting effects on the development of breast carcinoma: Increasing the risk through the toxins found in cigarette smoke that accumulate in the breast epithelium while concomitantly decreasing breast cancer risk by lowering the smoker's estrogen levels. Because the impact of obesity on postmenopausal breast cancer is believed to be mediated through an increase in bioavailable estradiol, we proposed that smoking, when combined with the pro-estrogenic effect of obesity, will have a positive correlated effect on the risk of developing breast carcinoma.**Patients:** A case series of female Native American patients with biopsy-proven infiltrating breast carcinoma diagnosed from 1990-2015 (breast cancer cohort, BCC) was compared with 2 population databases: The behavioral risk factor surveillance system of the Oklahoma population (general control group) and 500 female age-matched Native American patients who attended our clinics without evidence of breast cancer.**Results:** The prevalence of obesity (BMI>40) in patients within the breast cancer population was higher than that in the general Oklahoma population (44% vs. 38%; P<0.001) and higher than that in the Native American population attending our clinics. The prevalence of smoking in the BCC population was higher than in the general Oklahoma population (47% vs. 33%; P<0.001) though not higher than in the Native American clinic population (47% vs. 45%). I found a substantially higher prevalence of smokers in the obese population within the BCC than in the obese population within the Oklahoma population (33% vs. 24%; P<0.001). The model was well calibrated according to the Hosmer-Lemeshow test.**Conclusions:** Patients diagnosed with breast carcinoma attending the Chickasaw Nation Medical Center clinics were more likely to be obese and to smoke compared with control groups. The combined high prevalence of obesity and smoking in a breast cancer cohort has not been previously noted; if confirmed, it supports the need for intensive public health intervention in the population of patients with both obesity and nicotine dependence.

### Biography

Will Imbrie Moore is a High School Senior at St. Andrew's School in Middletown, DE. He has worked on several other biological and medical projects in the past; he is currently working on a clinical trial on the prevention of diabetes.

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