

## 45th Biennial Convention (16-20 November 2019)

### Body Weight and General Health Among Female Breast Cancer Survivors

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#### Background

Increased body mass index (BMI) has been related to higher breast cancer incidence, and obese women have higher risk of all-cause and breast cancer specific mortality when compared to non-obese women with breast cancer (Engin, 2017; Chan, Vieira, & Aune, et al., 2014). Further, being overweight is related to a higher risk of mortality among breast cancer patients (Chan, Vieira, & Aune, et al., 2014). Yet, for long term survivors, the relationship between BMI and overall perceived health or health-related quality of life is less clear. A recent study in China found that being overweight is related to better health-related quality of life, with normal weight and overweight survivors reporting better quality of life than obese survivors. (Xia, Teng, & Deng, 2018). Is this relationship also evident in American breast cancer survivors?

#### Methods

We analyzed data from the 2016 Behavioral Risk Factors Surveillance System (BRFSS) which included a nationally representative sample generated using the multi-stage random sampling methods. Ten states/territories administered the cancer survivorship module. We included adult women diagnosed with breast cancer who had completed cancer treatment at the time of the survey. We excluded women who were underweight (BMI<18.5, n=15). The final sample included 1,106 participants. General health was measured by perceived health status (poor, fair, good, very good and excellent). We recoded this variable into two categories, poor/fair versus good to excellent (Zhou et al, 2012; MMR, 2014). Weight was classified into 5 categories, normal (BMI 18.5 to 24.9), overweight (BMI 25-29.9), class I obesity (BMI 30-34.9), class II obesity (BMI 35 to 39.9), and extreme (class III) obesity (BMI ≥40) (National Institute of Health, 2018). We also measured sociodemographic variables including age, race/ethnicity, income, and education; clinical variables including length of diagnosis and comorbidities; and whether or not exercised within the past 30 days. Descriptive, correlational, and logistic regressions were performed to analyze the data.

#### Results

Nearly half of the participants were long term survivors with more than 10 years history since diagnosis of breast cancer (48.7%), 31.4% were diagnosed for 5 years or less, and 19.9% for 6-10 years. According to self-reported BMI, 32.1% were normal weight, 35.5% were overweight, 20.9% were class I obese, 6.5% were class II obese, and 5.0% were class III obese. While majority of the participants reported good to excellent health (78%), 22% reported fair or poor health. The majority (69.4%) had one or more comorbid conditions including cardiovascular conditions (15.4%), current asthma (9.7%), arthritis (52.7%), depressive disorders (20.7%) and diabetes (17.2%). In the

previous 30 days, 29.4% of the participants had no physical activity or exercise outside work or daily living. In bivariate analysis, body weight was significantly related to general health,  $\chi^2 = 29.08$ ,  $p < 0.001$ . The rate of reporting fair/poor health was 14.6% among women with normal weight, 22.7% for the overweight group, 25.2% for the class I obesity group, 27.8% for the class II obesity group, and 43.6% for the class III obesity group. Body weight remained significant after controlling for participants' age, race/ethnicity, education, income, length of diagnosis for breast cancer, and number of comorbidities. However, it became non-significant when adding "doing any physical activity or exercise in the past 30 days" to the model. In the logistic regression model, significant predictors for perceived fair/poor health included number of comorbidities (OR=1.67, 95% CI: 1.40-2.00), income greater than 35K (OR=0.64, 95% CI: 0.42-0.98), education greater than high school (OR=0.50, 95% CI: 0.34-0.74), and doing any physical activity or exercise in the past 30 days (OR=2.58, 95% CI: 1.74-3.81).

#### Conclusion

BMI is a significant predictor for perceived general health in the bivariate model. The BRFSS data did not show a positive correlation between overweight and general health when compared to normal weight; however, women in the overweight group did report better health than those who were obese. Physical activity or exercise in the past 30 days accounted for most of the variance in the correlation between BMI and general health. Lifestyle and medical interventions should be developed to target breast cancer survivors who were extremely obese to improve their general health conditions.

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#### Title:

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#### Keywords:

Obesity, breast cancer survivors and general health

#### References:

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### **Abstract Summary:**

Overweight and obese breast cancer survivors reported lower general health than women with normal weight. Significant predictors for perceived fair poor health include number of comorbidities income, education, and physical activities or exercise in the past 30 days.

### **Content Outline:**

Introduction

A: BMI has been related to breast cancer incidence and prognosis

B: The relationship between BMI and general health is not clear

Body

Main point #1 Methods

Main point #2 Descriptive results

Main point #3 Bivariate and logistic model results

Conclusion

- Summary of findings
- Recommendation for practice

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