

### Matched Case-Control Study of Beans Intakes and Breast Cancer Risk in Urbanized Nigerian Women

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**Objectives:** To examine the association between dietary intake of beans and breast cancer in Nigerian women.

**Methods:** Overall 630 newly diagnosed patients with primary invasive breast cancer were age-matched ( $\pm 5$  years) with 630 controls from the Nigerian Integrative Epidemiology of Breast Cancer (NIBBLE) Study from 01/2014 to 07/2016. Dietary intakes were collected using a food frequency questionnaire (FFQ) to derive daily intake of beans. The daily bean intakes included intakes of beans alone, bean porridge, bean cake (akara), bean pudding (moinmoin), beans and corn (adalu) and bean soup (gbegiri). We categorized the daily bean intake into low, medium and high equally based on the distribution. Additional covariates included occupation, education, wealth index, contraceptive use, menopause status, number of pregnancies, breastfeeding, Body Mass Index, Waist to Hip Ratio and physical activity. Conditional logistic regression models were utilized to estimate the crude and adjusted Odds Ratio (OR) of total beans intake per day and breast cancer.

**Results:** The mean (SD) age of the cases was 42.5 (10.1) and controls was 41.5 (9.2) years. Among controls, almost 36% consume a high intake of total bean compared to 30% among cases, whereas among the cases 37.3% consumed the low intake of total bean compared to 31.6% among controls. In the multivariable, we found a significant association between total beans intakes and breast cancer (OR = 0.85; 95% CI: 0.74–0.97, p-value = 0.02). Comparing the highest category (approximately two portions or more a day) with the lowest category (less than one portion a day), the adjusted OR was 0.72 (95% CI: 0.52–0.98, p-value for trend = 0.04).

**Conclusions:** We found a significant association between high intakes of beans and reduce risks for breast cancer. Future studies are needed to evaluate the causality of this relationship and the specific component of beans that is responsible for this reduction.

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