Birth Weight and Age at Menarche: An NHANES Analysis

Gabriela Livia Ghita

Abstract

**Background:** Breast cancer is a major public health concern, currently being the most common type of cancer in women worldwide. Birth weight and age at menarche are established breast cancer risk factors. Previous investigations indicate women of higher birth weight and those experiencing menarche earlier in life are at an increased risk of developing breast cancer. While a few studies have suggested a positive association between birth weight and age at menarche, limited research exists on the relationship between these two breast cancer risk factors.

**Objective:** This project aimed to provide needed insight into the effect of birth weight on age at menarche.

**Methods:** This analysis utilized data from the National Health and Nutrition Examination Survey (NHANES), including 5 cycles, 1999-2008. Females between 8 and 18 years of age with no diabetes or pregnancies who experienced menarche within 1 year of the NHANES examination were included in the study. Furthermore, participants with missing data for birth weight or age at menarche were excluded. Linear regression analysis was used to investigate the relationship between age at menarche (modeled continuously) and birth weight (both continuous and categorical), while logistic regression analysis was used when age at menarche was modeled categorically.

**Results:** The analyses did not detect any significant association between birth weight and age at menarche. Although insignificant, the findings suggest delayed menarche with increasing weight at birth. Furthermore, the findings suggest a non-linear relationship may exist between the two.

**Conclusions:** Future investigations should be conducted prospectively to provide further insight into the relationship between birth weight and age at menarche.
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 MPH competencies strengthened:

• Conduct research for new insights and innovative solutions to health problems

• Diagnose and investigate health problems and health hazards in the community using an ecological framework

• Monitor health status to identify and solve community health problems

• Communicate effectively with constituencies in oral and written forms

Concentration competencies strengthened:

• Interpret and critique analyses found in public health studies

• Use appropriate statistical methodology to address public health problems

• Communicate effectively with investigators in other areas of public health

• Develop presentations based on statistical methods and analyses for both public health professionals and educated lay audiences

• Apply software to conduct statistical analyses

Public Health Relevance:

Considering the vast impact of breast cancer in today’s world, investigating the relationship between two of its established risk factors contributes to the understanding of the development of this complex disease. Although these analyses did not yield significant results, this study did illuminate directions for future investigations on this topic.