

Objective

The African American community has a dark past in the medical realm. Medical projects and trials such as the Tuskegee project has caused a high level of distrust within the African American community towards medical professionals. The researchers of the Tuskegee project led 600 black men to believe they were being treated for “bad blood” or syphilis in 1932.² This so called treatment lasted for 40 years, even after penicillin was found as a treatment for syphilis. The objective of this research project is to discuss the cultural and socioeconomic factors that put premenopausal African American women at risk of aggressive disease, specifically Triple Negative Breast Cancer. I hope to bring about awareness on the issue and remind medical professionals to not give up on the African American community. Lives are being lost.

Abstract

Breast Cancer is a disease that enters the lives of women of all races and ethnicities. However, Triple Negative Breast Cancer (TNBC) is an aggressive subtype that is prevalent among premenopausal African American (AA) women.³ Reasons for this include socioeconomic and cultural factors such as lack of breastfeeding, distrust towards non-black physicians, lack of a doctor/patient relationship, lack of adequate healthcare, and a lack of participation in clinical trials. Most of these factors have not been fully explored. However, reproductive factors such as lactation and parity have been assessed. AA women have been found to have more children and breastfeed less than other ethnicities (Figure 1).⁶ A study done by the AMBER Consortium tested this by analyzing the reproductive factors of 3,698 AA women who were diagnosed with invasive breast cancer. Each participant was classified as ER+, PR+, or triple negative (ER-, PR-, HER2-). Data regarding the participant’s age at diagnosis, number of births, lactation, and age at first birth were collected and compared with each breast cancer subtype. 56.8% of the parous participants had never breastfeed, and 43.2% had ever breastfeed (Figure 2). The results revealed that parous women have an increased risk of ER- and TNBC, and that breastfeeding can reduce these risks. Choosing to not breastfeed can increase risk of breast cancer among all women. However, this is mainly an issue in the African American community due to cultural aspects along with a lack of education on the matter. In this case, a connection between reproductive factors and TNBC could be found among AA women. However, cultural and socioeconomic factors such as distrust and lack of adequate healthcare have yet to be investigated. More research that specifically targets and aims to aid and educate the AA community about the damaging effects of these factors is necessary.

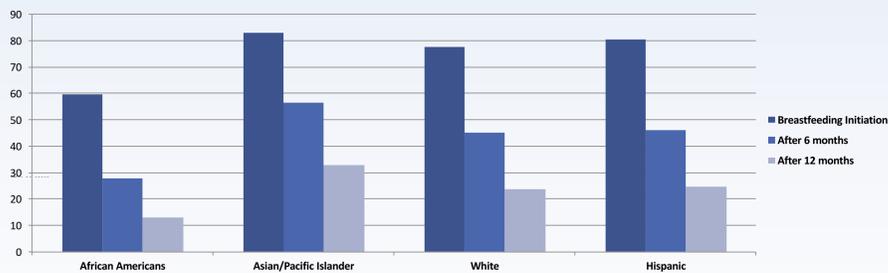


Figure 1. Healthy People 2010 and 2020 Goals and Centers for Disease Control and Prevention Data from 2007 on Racial and Ethnic Breastfeeding Initiation and Continuation. Jones, K. M., & Power, M. L. (2015, May 01). Racial and Ethnic Disparities in Breastfeeding.

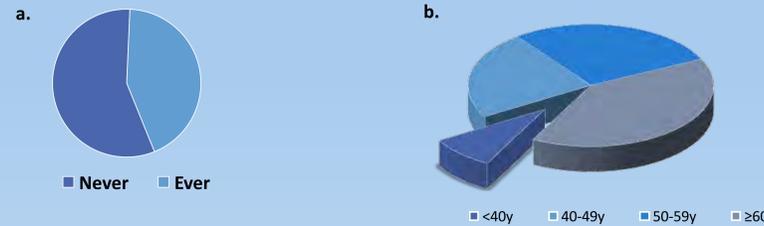


Figure 2. a | Lactation Among Parous Women b | Age at Diagnosis
Palmer, J. R. (2014, September 15). Parity, Lactation, and Breast Cancer Subtypes in African American Women: Results from the AMBER Consortium | JNCI: Journal of the National Cancer Institute | Oxford Academic.

Methods and Materials

TNBC has the highest prevalence lowest survivability among AA women (Figure 3). Late diagnosis could be a reason for this. The AMBER study revealed that only 8.7% of the participants were diagnosed before the age of 40 (Figure 2). However, AA participation in clinical trials is very low. A similar study also tested the association between reproductive factors and TNBC.⁵ There were 2,658 patients with breast cancer with 2,448 controls who were between the ages of 20-64 years. Each patient was a participant of one of three population based control studies. Multivariable polychotomous unconditional logistic regression methods were used to do case control comparisons between breast cancer subtypes. The study found that Parous women who breastfed for at least one year had a 31% lower risk of TNBC than parous women who had never breastfed. AA women ages 20-44 who breastfed for 6 months or longer had an 82% lower risk of TNBC than AA women who had never breastfed. This study came to the same conclusion as the AMBER study. However, this study only had 26.3% AA participation as opposed to 73.7% white participants (Figure 4). A Genetic connection between AA women and TNBC has been investigated. However, it was found that less than 20-25% of African American women with TNBC have a germline BRCA1 mutation.³ These few studies have been done with small groups and not tested in a large scale.

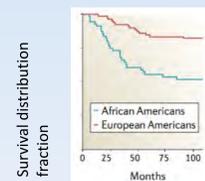


Figure 3: TNBC survival rate based on race. Dietze, E. (2015, February 12). Triple-negative breast cancer in African-American women: disparities versus biology.

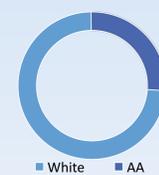
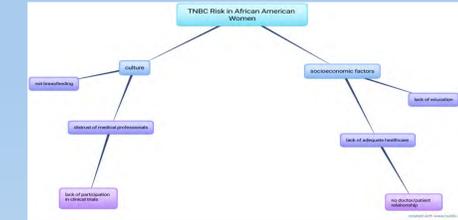


Figure 4. Case Participants by Race. Ma, H. (2017, January 13). Reproductive factors and the risk of triple-negative breast cancer in white women and African-American women: a pooled analysis.

Results

Due to late diagnosis, a lack of adequate healthcare, and lack of participation in clinical trials, AA women are at a disadvantage as far as TNBC survivorship. This may be due to lack of adequate healthcare in predominately AA and lower income areas. In the U.S., 60% of low-income women are screened for breast cancer while 80 percent of high-income women are screened. This directly effects the AA community because they account for 24% of Americans living below the poverty line. Many researchers have asked the question as to why TNBC is prevalent in AA women and have conducted studies. According to epidemiologist Sam Oh of the University of California, San Francisco Center for Genes, Environment and Health, only 2% of cancer studies have included enough minorities.¹ Thus, an even smaller fraction of studies have included African American women in breast cancer research. Cultural and socioeconomic factors have proven to be just as damaging as genetic or biological factors. These disparities within the AA community have become the downfall of many women. African American women are dying from the disease of economic and racial inequality.



Application to Biotechnology

Due to improvements in breast imaging technology, low income areas should participate in trials that test this technology. These new techniques should be equally available to all women, no matter one’s socioeconomic status or racial identification.

Conclusions

The Tuskegee project is only one example of how African Americans have been misled and used for medical purposes. The black men who participated were taken advantage of due to their lack of education. For these reasons, AA have been wary of participating in medical studies. A level of trust must be built between medical professionals and the AA community in order to establish better doctor-patient relationships. With this improved relationship, more African Americans are likely to participate in research studies. Many studies base their finding off of Black vs. White data which has failed to distinguish the class differences within the AA community. Areas such as Washington D.C., where prominent African Americans live in the same area as low income AAs, would be an ideal location for research. A way to execute this research would be to create a mobile app that can be accessed by AA women all over the country. The app would allow them to track their doctors visits or annual breast screenings. Special focus on data compiled from locations like D.C can be analyzed and used to track the medical patterns of African Americans within that community.



*photo via Centers for Disease Control and Prevention



*photo via Unological Sciences Research Foundation

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