

## Breastfeeding and Breast Cancer Risk Reduction: Implications for Black Mothers



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Breast cancer is the most commonly diagnosed cancer and a leading cause of death from cancer among U.S. women. Studies have suggested that breastfeeding reduces breast cancer risk among parous women, and there is mounting evidence that this association may differ by subtype such that breastfeeding may be more protective of some invasive breast cancer types. The purpose of this review is to discuss breast cancer disparities in the context of breastfeeding and the implications for black mothers. Black women in the U.S. have lower rates of breastfeeding and nearly twice the rates of triple-negative breast cancer (an aggressive subtype) compared with white women. In addition to individual challenges to breastfeeding, black women may also differentially face contextual barriers such as a lack of social and cultural acceptance in their communities, inadequate support from the healthcare community, and unsupportive work environments. More work is needed to improve the social factors and policies that influence breastfeeding rates at a population level. Such efforts should give special consideration to the needs of black mothers to adequately address disparities in breastfeeding among this group and possibly help reduce breast cancer risk. Interventions such as peer counseling, hospital policy changes, breastfeeding-specific clinic appointments, group prenatal education, and enhanced breastfeeding programs have been shown to be effective in communities of color. A comprehensive approach that integrates interventions across multiple levels and settings may be most successful in helping mothers reach their breastfeeding goals and reducing disparities in breastfeeding and potentially breast cancer incidence.

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### INTRODUCTION

Female breast cancer is the most commonly diagnosed cancer and a leading cause of death from cancer among U.S. women. In 2013, the most recent year data are available, 230,815 women were diagnosed with breast cancer and the annual age-adjusted incidence rate was 123.7 per 100,000 women (incidence counts based on cancer registry data from 99% of the U.S. population).<sup>1</sup> Although overall breast cancer incidence is similar between black women (122.0 per 100,000) and white women in the U.S. (124.4 per 100,000), mortality is higher among black women, in part due to differences in the severity, course, and treatment of breast cancer.<sup>1–3</sup> In 2013, the age-adjusted mortality rates were 28.2 per 100,000 among black women and 20.3 per 100,000 among white women.<sup>1</sup>

Breast cancer is a heterogeneous disease with multiple tumor subtypes, each of which are differentially associated with various risk factors. Tumors that express

hormone receptors (estrogen receptor [ER] or progesterone receptor) are classified as Luminal A or Luminal B subtypes. Tumors that express human epidermal growth factor receptor 2 (HER2) and basal-like tumors are primarily classified as hormone receptor negative. Basal-like tumors that lack expression of ER, progesterone receptor, and HER2 are classified as triple-negative breast cancers.<sup>4,5</sup> Luminal A breast cancers have the best

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prognosis and are the most common subtype among women of all races and ethnicities (86.5 per 100,000 women).<sup>6</sup> Compared with other subtypes, triple-negative breast cancer has the poorest prognosis and disproportionately affects younger, premenopausal women and non-Hispanic black women.<sup>6,7</sup> Non-Hispanic black women have almost twice the incidence of triple-negative breast cancer than that of non-Hispanic white women (27.2 per 100,000 non-Hispanic black women; 14.4 per 100,000 non-Hispanic white women).<sup>6</sup>

## BREASTFEEDING AND REDUCED RISK OF BREAST CANCER

Reproductive risk factors associated with breast cancer risk include age of menarche, number of pregnancies, age at first birth, lifetime duration of breastfeeding, age at menopause, and use of menopausal hormone therapy; however, research has found that these factors are differentially associated with each subtype.<sup>5</sup> Breastfeeding is of particular interest for breast cancer prevention because it is a modifiable risk factor. Breastfeeding not only reduces breast cancer risk but also confers other health benefits to the mother including reduced risk for endometrial and ovarian cancers<sup>8</sup> and reduced risk for chronic conditions that are also risk factors for cancer, such as hypertension and diabetes.<sup>9,10</sup> Additionally, breastfeeding provides many benefits to the infant, including fewer episodes of diarrhea, ear infections, and lower respiratory infections and a lower risk of sudden infant death, diabetes, asthma, and childhood obesity.<sup>11</sup>

The literature linking breastfeeding to reduced breast cancer risk is growing. A 2002 landmark study that pooled approximately 50,000 breast cancer cases from 47 epidemiologic studies in 30 countries found that the relative risk for breast cancer in parous women is reduced by 4.3% for every 12 months a woman breastfeeds and is reduced by 7% for each birth independently.<sup>12</sup> Similarly, a 2013 review of 32 studies concluded that the risk of having breast cancer was 14% lower among parous women who had ever breastfed compared with parous women who never breastfed. The protective effect of breastfeeding persisted regardless of the number of births and was even greater for women who had cumulatively breastfed for 12 months or longer; they had a 28% lower risk of breast cancer.<sup>13</sup> Victora and colleagues<sup>14</sup> estimated that existing global breastfeeding rates prevent almost 20,000 annual deaths from breast cancer and that an additional 20,000 could be prevented by increasing breastfeeding duration to 12 months per child in high-income countries such as the U.S. and to 2 years per child in low- and middle-income countries.

Although it was previously thought that parous women were less at risk for breast cancer, newer research suggests

that this protective effect may be limited to hormone receptor-positive subtypes, and that parity may actually increase a woman's risk for some subtypes such as ER- and triple-negative breast cancer.<sup>15–18</sup> In a case series study, parous women who never breastfed were 2.18 times more likely than nulliparous women to be diagnosed with triple-negative breast cancer (OR=2.18, 95% CI=1.52, 3.12).<sup>15</sup> However, the increased risk of ER- and triple-negative breast cancers associated with parity may be reduced by breastfeeding, with longer durations of breastfeeding further decreasing the risk.<sup>15,16</sup> Compelling evidence from several studies indicates that the relationship between breastfeeding and risk of breast cancer likely differs by breast cancer subtype as defined by receptor status.<sup>5,19,20</sup> A recent meta-analysis found that ever breastfeeding was significantly associated with a reduced odds of developing both luminal (pooled OR=0.77,  $p=0.003$ ) and triple-negative (pooled OR=0.79,  $p=0.01$ ) breast cancer subtypes, but there was no significant difference in the odds of developing the HER2 breast cancer subtype.<sup>19</sup> Two of the 11 studies included in this meta-analysis did include nulliparous women in their never-breastfed group. In another meta-analysis, results from several case-control studies found an inverse dose-response between breastfeeding and risk for triple-negative and other hormone receptor-negative breast cancers that could not be explained by parity, suggesting an independent effect of breastfeeding on breast cancer risk for these subtypes. No significant association between breastfeeding and the risk of ER+ and progesterone receptor-positive breast cancer subtypes in cohort studies was found.<sup>20</sup>

Because young women and black women experience a disproportionate incidence of triple-negative and ER-breast cancers, identifying modifiable risk factors for this population is an important public health effort. Studies have examined the association between breastfeeding and breast cancer subtypes among specific racial groups. Data from the African American Breast Cancer Epidemiology and Risk Consortium, which included data from two cohort and two case-control studies, showed that in a pooled analysis of three of the four studies, among black women with children, ever breastfeeding was associated with a reduced risk of ER- breast cancer (OR=0.81, 95% CI=0.69, 0.95) (but not ER+ cancer), suggesting that breastfeeding may ameliorate the effects of parity for the ER- breast cancer subtype. Ever breastfeeding was also associated with a reduced risk of triple-negative breast cancer subtype in parous black women, but the OR was not significant (OR=0.81, 95% CI=0.65, 1.02).<sup>17</sup> Further research is needed to understand the potential ameliorating effect of lactation on the increased risk of triple-negative breast cancer associated with parity. Palmer et al.<sup>17</sup> conjecture that black women may be disproportionately

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