



My Sister's Keeper: Examining Chemicals of Concern in Personal Care Products Used by Women of Color

Nicole L. Crowell, MS, Doctoral Candidate
University of Bridgeport
Department of Health Sciences

Introduction

Multiple studies have found that women of color are disproportionately exposed to chemicals of concern (CoC). CoCs have been used in personal care products for the following purposes (Johnson et al., 2022):

- Absorbents
- Anti-dandruff
- Antimicrobial
- Antioxidant
- Bleaching
- Buffer
- Bulking agent
- Colorant
- Conditioner
- Contaminant
- Denaturant
- Emollient
- Emulsifier/surfactant
- Fragrance
- Hair dye
- Plasticizer
- Preservative
- Solvent
- UV absorber

Pathogenesis of Disease

Exposure to CoCs in personal care products can occur directly through dermal absorption, inhalation, and ingestion. Exposure can also happen indirectly through an indoor environment that is contaminated. Personal care products have been linked to the following adverse health outcomes (Collins et al., 2023; Johnson et al., 2022):

- ❖ Cancer.
- ❖ Disruption of the endocrine system.
- ❖ Disruption of reproductive systems.
 - Higher incidence of hormone-mediated health outcomes such as preterm birth have been evidenced in Black women (see Figure 2).
- Racial/ethnic differences in the prevalence of early puberty have been noted and are a risk factor for breast cancer.
- In the United States, Black women have higher rates of premenopausal breast cancer and more aggressive types of cancer. They are also 40% more likely to die of breast cancer than White women (see Figure 1) (Collins et al., 2023; Johnson et al., 2022; Manuck, 2017; Yedjou et al., 2019).
- Black women in the United States report higher use of scented intimate care products. These products are linked to higher urinary metabolites of diethyl phthalate and higher blood levels of 1,4-dichlorobenzene and ethylbenzene which are chemicals that can be added to fragrances.
- The use of hair oil and hair relaxers in childhood is associated with earlier age of menarche. The use of these products is higher among African Americans.
- Hair dye and relaxer/straightener use is associated with incidence of breast cancer, particularly in Black women (Collins et al., 2023; Johnson et al., 2022; Manuck, 2017; Yedjou et al., 2019).

Trends in Breast Cancer Mortality among Black Women and White Women in the United States – 1970 through 2018

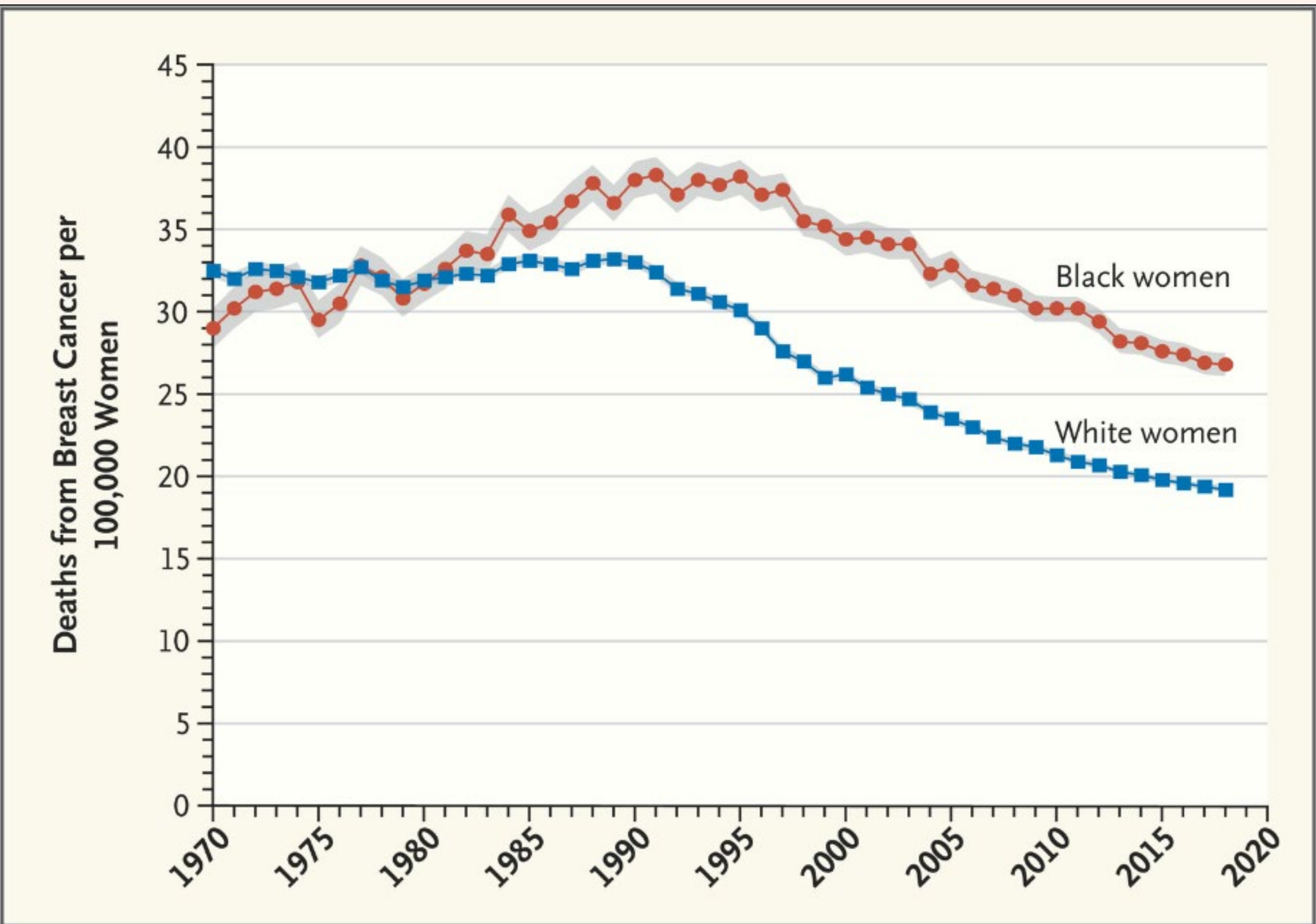


Figure 1. Trends in breast cancer mortality among Black women and White women in the United States from 1970 through 2018 (Jatoi et al., 2022).

Table – Examples of disproportionate beauty product exposures among vulnerable populations

External factors	Vulnerable populations	Product use	Chemical exposures	Potential adverse outcomes
Colorism	Dark skinned women (globally)	Skin-lightening creams	Mercury	Mercury poisoning, neurotoxicity, kidney damage
Hair texture preferences	African American women (United States)	Hair relaxers and other hair care products	Parabens and estrogenic chemicals from placenta	Uterine fibroid tumors, premature puberty, and endocrine disruption
Odor discrimination	African American women (United States)	Vaginal douches and other feminine care products	Phthalates and talc powder	Gynecologic cancers and endocrine disruption

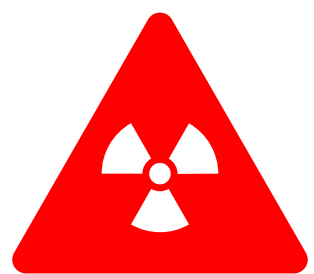
(Zota & Shamasunder, 2017)

Study Outcomes

- Results from a survey of women in the United States showed that African Americans and African Caribbeans had the highest use of hair products and that the products they used were more likely to contain endocrine disrupting chemicals (EDCs) (Johnson et al., 2022).

Frequency of use of personal care products is associated with a higher burden of chemicals in the body that are commonly found in personal care products. For example:

- Use of a greater number of personal care products was associated with higher urine concentrations of phthalates, parabens, and their metabolites.
- The metabolite diethyl phthalate was found to be three times higher in the urine of women who reportedly use perfume.
- The presence of urinary parabens and metabolites of phthalates was found to be higher in the urine based on more frequent use of makeup, sunscreen, and benzophenone-3 (BP-3).
- A positive link was found between lotion and parabens and between liquid soap and triclosan (John et al., 2022).



A Black woman undergoing hair straightening with a chemical hair relaxer. – Credit - Shutterstock

- Helm et al. measured EDCs and asthma-associated chemicals in 18 hair products and results revealed that most of the chemicals were not listed on the product label (Helm et al., 2018).
- An analysis of 25 personal care products revealed the presence of carcinogens, EDCs, respiratory toxicants, and developmental toxicants. Almost 80% of those chemicals were fragrance ingredients that did not require labeling.

- Study findings show that Black/African American women use fragrances and certain hair products or styles most frequently. Latino women have the most frequent use of makeup, and Vietnamese women were shown to use facial cleansing products more often than other women (Johnson et al., 2022).

- The use of comprehensive two-dimensional gas chromatography-time of flight mass spectrometry (GCxGC-TOFMS) revealed the presence of 4,000 unique chemical signatures across 100 products (including personal care products). Thus, this highlights the large quantity of uncharacterized and unknown chemicals in consumer goods.

- Results from a study that reviewed the ingredient list of 546 unique personal care products found 30 unique CoCs that appeared only on product labels. Upon lab analysis of 31 products, 29 additional unique CoCs were identified, 7 of which also appeared on product labels in some instances (Johnson et al., 2022).

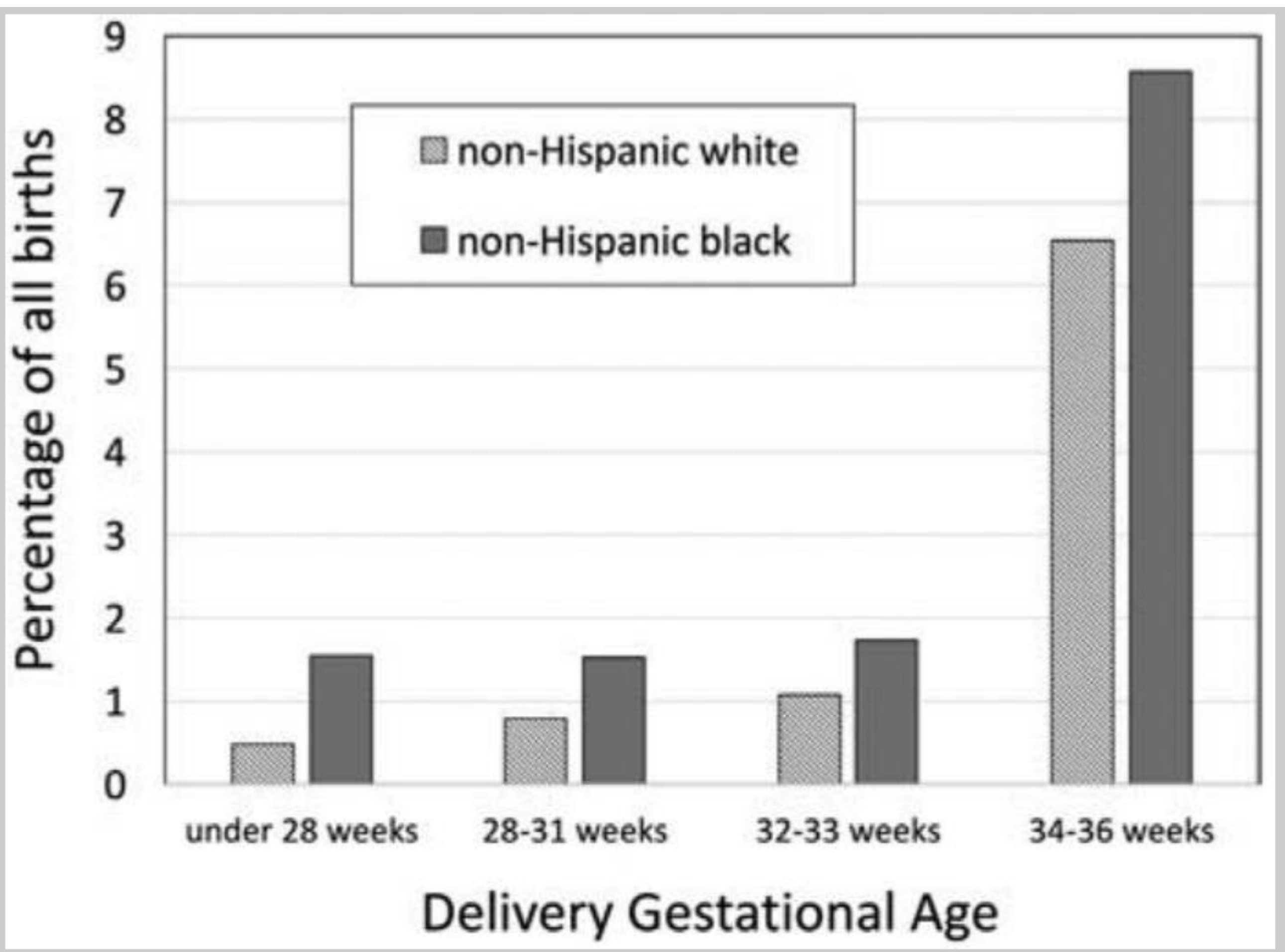


Figure 2. Proportion of preterm births, stratified by gestational age at delivery and maternal race, 2015. Sources: Martin et al. Final birth data 2015 (Manuck, 2017).

Study Outcomes

- Results from a study of CoCs in personal care products revealed that hair products had the greatest quantity of unique CoCs or groups of CoCs, followed by skin products (203 and 238 respectively).
- Parabens were identified most frequently on product labels and various parabens were often in the same product (49 of 81 products tested).
- Butylated hydroxyanisole (BHA), a carcinogen on California's Proposition 65 (Prop 65) list, was found in five hair products used by Black women. Cocamide diethanolamine (cocamide DEA) and selenium sulfide were found on labels of shampoos used by Latino women (Johnson et al., 2022).
- Results from a large cohort study showed that the long-term use of chemical hair relaxers was linked to increased risk of uterine cancer among postmenopausal women, but not among premenopausal women (Bertrand et al., 2023).

Prevention Strategies

- Using personal care products that are labeled as being free of CoCs such as phthalates, parabens, triclosan, and BP-3 can help to limit exposure (Johnson et al., 2022).
- Legislation that requires all ingredients to be listed on a product label or product website should be implemented. Furthermore, financial penalties and legal implications should occur if companies do not comply with laws.
- If CoCs are included in a product that is linked to serious illness such as cancer, birth defects, etc., a warning emblem should also be placed on the product.
- Public health campaigns and education regarding beauty standards and cultural ideals should be implemented into public health programs along with education on the dangers of CoCs in personal care items and how to identify these CoCs on product labels (Helm et al., 2018).

Conclusions

Overall, results from various studies indicate that women need to take precautions when selecting and using personal care products. Thus, consumer education is needed in this area. Also, producers of personal care products need to be held accountable for clearly disclosing all potential CoCs that are contained in their products (Helm et al., 2018).

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