

The environmental injustice of beauty: framing chemical exposures from beauty products as a health disparities concern



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The American Congress of Obstetrics and Gynecology (ACOG) committee opinion¹ emphasizes that toxic environmental chemicals are a threat to human reproduction and that there may be differential vulnerability by life stage or social position. More recently, doctors around the world echoed these concerns through the International Federation for Obstetrics and Gynecology (FIGO) committee opinion. FIGO recommended that reproductive health professionals recognize disproportionate burdens to toxic chemical exposures in certain patient populations and champion policies that secure environmental justice.² Environmental justice integrates concepts of environmental racism and inequality and is defined as the unequal distribution of environmental benefits and pollution burdens based on race.³ An understanding of how both social and environmental factors jointly may influence health is necessary for the elimination of health disparities.⁴ The Environmental Protection Agency definition, adopted by FIGO, elaborates on this principle for regulatory purposes and defines environmental justice as “the fair treatment and meaningful involvement of all people regardless of race, color, national origin, or income.”^{2,5}

Beauty product use is an understudied source of environmental chemical exposures and may be 1 avenue for health professionals to intervene among vulnerable populations such as women of color. Consumer products, and personal care products specifically, are a source of exposure to toxic chemicals for all women.⁶⁻⁸ Beauty products (1 category of personal care products) have limited and inconsistent disclosure of chemical

ingredients, and most lack adequate data on health and safety.^{6,9}

Racial/ethnic differences in beauty product use are documented across multiple categories including skin care, hair care, and feminine hygiene (Table). However, evidence points to the limits of the examination of these exposures in isolation. Rather, we argue that health practitioners should consider an “environmental injustice of beauty” approach that incorporates the social factors that influence beauty product use and the potential for cumulative impacts that may arise because of co-occurring environmental exposures. This approach provides a more comprehensive picture of how environmental factors may shape reproductive health disparities.

Preexisting vulnerabilities and cumulative impacts

Beauty products contain multiple chemicals, such as formaldehyde, phthalates, parabens, lead, mercury, triclosan, and benzophenone, that can adversely impact health.^{6,9,10} Exposure to ≥ 1 of these chemicals has been linked to endocrine disruption, cancer, reproductive harm, and impaired neurodevelopment in children.¹¹⁻¹⁴ Women 18–34 years old are more likely to be “heavy buyers” who purchase >10 types of products per year.¹⁵ These women and their offspring may experience heightened vulnerability to toxic environmental chemicals if products are used during sensitive periods of development such as preconception or pregnancy.² Low-income and racial/ethnic minority groups may be further susceptible because they are exposed more frequently to multiple environmental and social risk factors and face poorer health outcomes.¹⁶ Nationally representative data of US reproductive-aged women suggest that women of color have higher levels of certain endocrine-disrupting chemicals, such as phthalates and parabens, in their bodies compared with white women and that these racial/ethnic differences are not explained by socioeconomic status.¹⁷⁻²⁰

Workers in the beauty industry, who are predominantly women of color and immigrant women, can also face occupational health hazards from chemicals in professional cosmetic products and ad-hoc workplace safety standards.²¹⁻²³ Cumulative assessments of environmental risk factors among socially marginalized groups historically have prioritized place-based pollution sources, such as polluting industries or high traffic density^{24,25}; however, beauty product exposures may be elevated in some of the same communities that encounter disproportionate exposures to place-based pollution.^{26,27}

Social and economic dimensions of product use

The beauty product industry is estimated at \$400 billion globally.²⁸ According to market analyses and consumer

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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

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profiles, multicultural beauty products have outpaced the overall cosmetics market.²⁹ African American consumers purchase 9 times more ethnic hair and beauty products than other groups^{30,31} and disproportionately purchase hair relaxers and straighteners. Latinos are the fastest growing ethnic beauty market segment,³² and Asian Americans spend 70% more than the national average on skin care products.³³

Mass distribution of images that idealize whiteness can influence sales of hair straighteners, skin lighteners, and odor-masking products.^{34,35} Racial discrimination based on European beauty norms can lead to internalized racism, body shame, and skin tone dissatisfaction, factors that can influence product use to achieve straighter hair or lighter skin. Thus, beauty product use may be 1 way that structural discrimination becomes biologically embedded.^{36,37}

Targeted racial/ethnic marketing can influence product use and related health inequities by taking advantage of mainstream beauty norms.^{38,39} In a well-described example of the influences of marketing practices on health disparities, highly targeted menthol cigarette marketing in low-income inner city African American neighborhoods^{38,39} created a racialized geography of tobacco-related health disparities.⁴⁰ Targeted marketing of beauty products may similarly influence reproductive health disparities.

We document evidence of demographic differences in product use and chemical exposures in the beauty industry. We then describe how external factors, such as targeted advertising, can influence product use.

Skin-lightening face creams

Women in Africa, India, the Middle East, Southeast Asia, and the Americas regularly use skin-lightening cosmetics.^{41,42} Skin-lightening creams can contain hydroquinone, topical corticosteroids, or inorganic mercury.⁴³ Multiple cases of mercury poisoning, which is characterized by damage to the kidneys and the central nervous system, have been reported after use of skin-lightening products.⁴⁴ The US Food and Drug Administration set a maximum allowable level of 1 ppm of mercury in skin products.⁴⁵ However, skin products with mercury continue to be unregulated and available outside of the United States, and these products are still used by certain populations in the United States, including Dominican and Mexican American women.⁴⁵⁻⁴⁷ In a population-based study

of New York City residents, those with the highest urine mercury levels were foreign-born Dominican women of reproductive age, and skin-lightening creams were identified as a source of exposure among highly exposed populations.⁴⁵ Similarly, a medical case study reported that a pregnant Mexican American woman's elevated blood mercury level of 15 $\mu\text{g/L}$ (nearly 3 times the Centers for Disease Control and Prevention early reporting threshold) was linked to face creams that contained >20,000 ppm of mercury.⁴⁶

Skin-lightening creams are sold globally, marketed to darker skinned women. Scholars point to the success of the global skin-lightening industry as evidence for the global preference for white/light skin^{42,48} and colorism, a social hierarchy based on gradations of skin color that discriminates against darker skin.⁴² A study of 45 skin-bleaching products that were sold in Harlem, NY, found product marketing of skin lighteners traffics in derogatory images that devalue African American skin to sell these products.⁴⁹ Lighter skin tone is an important predictor of higher self-esteem for African American women and is associated with higher educational attainment and earnings among women of color.^{50,51}

Hair relaxers and straighteners

Compared with white women, African American and African Caribbean women are more likely to use a greater number and variety of hair products⁵² and to have their hair chemically or professionally treated.³¹ Use of these products often begins at an early age; in a survey of 201 African American girls, almost one-half of the parents/guardians reported the first application of chemical relaxers to their child's hair between the ages of 4 and 8 years.⁵³ Hair products used by African American women are more likely to contain placenta (a potential source of estrogen hormones)^{54,55} and industrial chemicals, such as parabens,⁵² that affect estrogenic pathways.⁵⁶ Premature reproductive development, such as breast budding, was documented in African American girls exposed to estrogen- or placenta-containing hair products.⁵⁷ Use of ethnic hair products among African American women has been associated with increased risk of earlier menarche⁵⁸ and uterine fibroid tumors.⁵⁹ It has also been proposed as a plausible risk factor for excess premenopausal breast cancer risk that has been observed among African American women.⁶⁰

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