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Rethinking the Link Between Hair Relaxers and Uterine Cancer

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To the Editor,

Chemical hair relaxers, primarily used in the Black community to straighten kinky or coily hair, have come under scrutiny due to potential links to uterine cancer.[1] Two major studies, the *2022 Sister Study* and the *2023 Black Women's Health Study*, examined this association.[2,3] While these studies contribute valuable data, several limitations challenge the strength and applicability of their conclusions, including self-reported data collection, lack of information on specific product brands and chemical ingredients, lack of generalizability, and potential confounding variables.

First, both studies rely on self-reported data, which is vulnerable to recall bias and misclassification. In the *Sister Study*, participants were asked about hair product use over the previous 12 months, potentially leading to inaccurate information. Similarly, the *Black Women's Health Study* collected data every two years starting in 1997, increasing the likelihood that participants misremembered or miscategorized their product use. The differences in how participants interpreted product categories—such as relaxers versus pressing products—could also distort exposure classifications. Furthermore, participants may have changed their hair care routines over time, complicating the assessment of long-term exposure.

Another major limitation is the lack of detailed information on the specific brands or chemical ingredients used. Without knowing which ingredients were present in the products, it's impossible to determine which chemicals, if any, are responsible for increased cancer risks. Product formulations also vary across regions and time, further complicating exposure assessments. Notably, both studies inaccurately claim that relaxers contain formaldehyde, a known carcinogen, though formaldehyde is not found in chemical relaxers.

The generalizability of both studies is also limited. The *Sister Study* focused on women with a family history of breast cancer, who may already be predisposed to hormone-related cancers, making it hard to generalize the results to the broader population. Despite including a large sample, only 7.4% of participants were Black. On the other hand, the *Black Women's Health Study* exclusively studied Black women. While this focus helps examine specific risks within an underrepresented group, it limits the ability to compare outcomes across different populations.

Confounding variables also pose a challenge. Although both studies adjusted for several lifestyle factors, they did not fully account for others such as diet, occupational exposures, genetic predispositions, or use of other personal care products. These unmeasured variables could influence the observed associations.

Despite these limitations, both studies found statistically significant associations between frequent, long-term relaxer use and increased uterine cancer risk. In the *Sister Study*, frequent use was linked to a 2.55 hazard ratio for uterine cancer.[2] The *Black Women's Health Study* found statistically significant increased risks among postmenopausal women with moderate or heavy relaxer use.[3]

While these findings are concerning, they do not prove causation. Future research must use more precise exposure assessments, track product ingredients, and include broader and more diverse populations. Improved study designs, such as longitudinal or experimental approaches, are needed to better understand the potential public health risks of chemical hair relaxers; if any do exist. Until then, clinicians and consumers must interpret current findings with caution and advocate for greater transparency in cosmetic product safety.

DISCLOSURES

The authors have no relevant conflicts to disclose.

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