

# **The Enabling of Skin Bleaching in Sub-Saharan Africa by Harnessing Socioeconomic Disparities**

A Research Paper submitted to the Department of Engineering and Society

Presented to the Faculty of the School of Engineering and Applied Science  
University of Virginia • Charlottesville, Virginia

In Partial Fulfillment of the Requirements for the Degree  
Bachelor of Science, School of Engineering

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Spring 2025

On my honor as a University Student, I have neither given nor received unauthorized aid on this assignment as defined by the Honor Guidelines for Thesis-Related Assignments

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## **Introduction**

The cosmetic industry is filled with products that can be used to enhance beauty, and talented makeup artists can create the illusion of a different face shape with the additions of highlights and shadows brought on by various makeup products. However, none of these effects are permanent, unlike another practice within the beauty industry – skin bleaching. Skin bleaching is a worldwide epidemic that has appealed to women struggling with their complexion, with the desire to have lighter skin. Although skin bleaching with cosmetic products only became popular over the past few decades, it is well recognized the cause and effects of these products. Specifically, the overuse and misuse of products containing agents such as mercury, hydroquinone, or corticosteroids not only lighten the skin but also cause severe adverse effects, including skin damage, immunodeficiencies, cognitive impairments, birth defects, and more.

There is also an understanding that there needs to be preventative measures in place to reduce the number of women using these products to protect the welfare of the people, specifically Sub-Saharan African women, who are among the top global users. But this understanding is very narrow and fails to take into account the greater roles of the socio-economic implications of skin bleaching and its deeply rooted cause in the start of the slave trade. If we continue to look at the effects of skin bleaching and only recognize the problem from a public health impact, then we miss the greater psychological understanding of why this problem began, and how we can better address it. To further this understanding, we must assess the design choices that contribute to the use of this technology, such as marketing, and how there is an inherent racial bias which disproportionately marginalizes darker skinned women.

I argue that that skin bleaching artifacts harness the historical power and authority structure from racism. Additionally, marketing schemes for these products cater to the vulnerabilities of users and the desire for lighter skin to achieve higher social status, highlighting the explicit bias of the technology, deeming it as a political artifact. Finally, after having a better understanding of why the practice is so common, I will emphasize why current preventative strategies are not working, and seek other alternatives. To support my argument, I will use Technological Politics, which claims that the unintentional or intentional design of a technological artifact make it political in nature, upholding distinct power and authority structures in human associations. I will use several peer-reviewed publications by scholars who conduct research in the field to support my analysis.

## **Background**

Skin bleaching is practiced most commonly by women in Sub-Saharan Africa and in Southeast Asia. Skin lightening has been gaining popularity over the past several decades, but was first documented in 200 BC, where Egyptians, Greeks, and Romans, used oils and honey to achieve lighter complexions. Come the Middle Ages, women began using white mask coverings that were composed of lead, arsenic, and mercury to appear fairer (Khan & Khan, 2022). Now, the desire for lighter skin has grown to an industry worth \$31.2 billion (Adetoogun et al., 2023), appealing to the socio-economic disparities women in various cultures face to try and improve social status, privilege, and attractiveness.

In Sub-Saharan African countries, around 40% of women partake in skin bleaching, with highest percentages in Nigeria, Togo, and South Africa, at 77%, 59%, and 35% respectively (Adetoogun et al., 2023). Creams, lotions, pills, and injections that are composed of certain chemicals, such as hydroquinone, corticosteroids, and mercury are all used. They

function by suppressing the production of melanin, which causes pigmentation in the skin.

However, these skin-lightening agents have severe adverse effects.

## **Literature Review**

Several scholars have examined the direct cause and effect of skin lightening across several regions of the world, specifically Sub-Saharan Africa. These analyses highlight the misuse of skin bleaching agents and define their adverse consequences. Scholars also suggest means of intervention to prevent the use of these agents from growing even further. While these reports have provided more concrete evidence of the hazards of depigmenting agents, a field lacking substantial research, they do not adequately consider why this problem arose in the first place, an important understanding necessary to approaching the problem. Additionally, scholars do not provide much assessment as to how these technologies came to be.

One study sampled findings across several other publications, to define the documented health impacts of skin bleaching, if the risks cause injury, and what researchers suggest can prevent these injuries. The first assessment was determining “harm to the skin” ( $n=15$ ), which was a collection of results from various research. Numerous conditions were reported: chemical burns, dermatitis, infections, thinning of the skin, and most severely, exogenous ochronosis – the onset of chronic hyperpigmentation caused by sun exposure because of skin bleaching (Street et al., 2014). Secondly, other risks in the form of “cell and organ abnormalities” ( $n=11$ ) were found across various reports. Findings show renal and neurological damage from mercury poisoning as a depigmenting agent, as well as hydroquinone and clobetasol. Researchers determined that these consequences met the definition from the Center for Disease Control and Prevention for causing injury. From the conducted sampling, all but two researchers suggested intervention by the government and individual awareness of the hazards (Street et al., 2014).

The second study focused on prevalence of skin bleaching across various regions, the type of agents used, the duration, and the adverse reactions. Focusing specifically on Sub-Saharan Africa, this study found that from the first reported case of exogenous ochronosis due to skin bleaching in 1975, sales of skin bleaching products boomed to 30 million pounds by 1986 alone. The prevalence rates are between 26-67% across many communities (Dadzie & Petit, 2009). The report found that the use of hydroquinone, corticosteroids, and mercury-based agents were used to perform skin lightening and results aligned with the first study, reporting cases of infections, burns, discoloration, dermatitis, and renal and neurological effects (Dadzie & Petit, 2009). This study recognized the adverse effects of skin bleaching, and understood the need to reduce the global burden, but failed to address how.

While both sources highlight the adverse effects of skin bleaching, both fail to quantify why skin bleaching has been so prevalent over the past several decades, with minimal to no suggestion of prevention. Additionally, both analyses are incomplete since neither try to define how the market for skin bleaching products came to be. It is necessary to understand the socioeconomical impacts that resulted in the desire for skin bleaching, as well as the design choices made when developing these products. In my analysis, I will expand upon existing discussion to include the elements of why skin bleaching artifacts exist and the system that makes it marketable in Sub-Saharan African cultures. This will answer how skin lightening technology harness existing socioeconomic disparities to favor lighter skinned people and continue to marginalize people with darker complexions, improving limitations in existing scholarly discourse that fail to recognize the greater implications of skin bleaching aside from health concerns. Once these insights are unearthed, it will allow scholars to be able to more

effectively understand that skin lightening is not only physical, but has deeper psychological implications, which will help lead to better prevention strategies with a more holistic approach.

### **Conceptual Framework**

My analysis of skin lightening technology used in Sub-Saharan African communities draws on the framework of Technological Politics. This framework allows me to determine how these depigmenting agents further marginalize and exclude those of deeper complexions. Technological Politics also reveals how skin bleaching artifacts perpetuate existing notions of power for those with lighter complexions, further exacerbating racial and socioeconomic disparities experienced by those with darker skin. Technological Politics, proposed by Langdon Winner in 1980, looks to relate power, social order, and governance to technical artifact design and implementation. The main argument of Technological Politics is that artifacts themselves have politics, through either unintentional or intentional designs, leading to a systemic arrangement of authority. Additionally, this framework focuses on not treating technology as neutral in its design, rather understanding that implicit or explicit biases can lead to design choices having significant socioeconomic and hierarchal impacts on users and groups of people (Winner, 1980). Winner critiques the concept that technology alone is neutral, and that the use of the artifact determines whether it is deemed “good” or “bad,” like most perspectives based on social determination of technology. He focuses on artifacts being technological phenomena in themselves, and how design choices regarding the development of these technologies can influence society towards particular political arrangements.

Drawing on Technological Politics, in the analysis that follows, I begin by identifying the root cause of skin bleaching and how the practice is politicized with greater social implications. Next, I examine how the intentional design of skin lightening products express explicit bias, by

catering to the insecurities and vulnerabilities of the users to achieve lighter complexions.

Finally, I will assess the lack of effective prevention and mitigation strategies and provide insight by addressing the political nature of the technology to strengthen aversion to skin bleaching.

## **Analysis**

### *Root Causes of Skin Bleaching and the Social Implications*

The prevalence of skin bleaching among Sub-Saharan African women is a result of the long term-effects of colonizing and the transatlantic slave trade, leaving lingering implications on beauty standards. This in turn has established greater social implications of the technological system, with a desire to achieve better socioeconomic status upon the practice of skin bleaching.

The emergence of skin bleaching was seen in Africa between three and four decades ago. This practice grew rapidly as a means for women to achieve lighter skin, which is considered the ideal beauty standard, opening greater opportunities for these women to have better social status, likelihood of finding a partner, and economic growth (De Souza, 2008). With overtones connected to the slave trade, colonization, and racial discrimination, these beliefs are instilled in socioeconomic, political, and hierarchal structures within Sub-Saharan African communities. This technological system privileges those with lighter complexions, further marginalizing darker-skinned women, making it more difficult to achieve the same levels of status and power as the former.

Sociologists say that this racial order observed today was not founded until British migrants began colonization. Then, the concept of “racial consciousness” was devised, in which racial hierarchies were developed, where lighter skinned individuals experienced higher privileges than those with darker skin (Ellis & Destine, 2023). For example, enslaved women with lighter skin were often house workers while enslaved women with darker skin were

demoted to harsh labor outdoors. From this point onward, the marginalization of darker skinned women only continued in the beauty industry, limiting the opportunity for success.

In contemporary Sub-Saharan Africa, the skin bleaching market reinforces these beauty standards that are rooted in gendered colorism. Although it is unknown whether the growth is a result of psychological pathology or influence from mass media, it is known that skin bleaching leverages the concept that skin tone is directly proportional to capital. Several studies have been conducted to assess the prevalence and reasoning of Sub-Saharan African women for practicing skin lightening.

A study surveyed 76 African women who were using skin bleaching products for over a year found that frustration with their skin color (26.4%), embarrassment of their skin color (24%), and a lack of freedom (24%) were common reasons for use among users. Additionally, duration of use was significantly correlated with education. Women who only achieved a primary education were found to have a median use of 24 years, while only 10.5 years and 8 years of use for high school graduates and women with post-secondary education respectively (Benn et al., 2019). This suggests that although education does not prevent the practice of skin lightening, women with less education engage in the practice for longer durations. This is another example of socio-economic achievement associated with skin bleaching. Women with higher education have greater opportunities for success, but dark-skinned women with lesser education attempt to circumvent the discrimination and marginalization by trying to fit into the beauty standard of lighter complexion, rooted in the historical overtones of racism and slavery.

Another study from Zimbabwe surveyed 260 women about their use of skin bleaching agents further highlighted the pervasive nature of the technological system. Among the participants of the survey, 31% of respondents engage in skin bleaching, while 36% are



considering. Alarming, of the 31% who practice skin bleaching, 50% know of the adverse and damaging health effects, yet continue to partake (Nyoni-Kachambwa et al., 2021). This suggests that the results experienced by the participants outweigh their concerns for any health impacts, further implying the severity of the practice and how impactful the beauty standards and social gains achieved by lighter complexion truly are. 31% of the participants said their main motivation is to appear more beautiful, as well as seeking marriage, employment, and higher social status (Nyoni-Kachambwa et al., 2021).

With a better understanding of the political and historical nature of the practice, and how skin bleaching further reinforces racial hierarchies, we can further examine explicit racial biases that appear with advertisement of the technology. The technology plays on the vulnerability of Sub-Saharan African women to escape the racial discrimination they face in their daily lives seen in political and socio-economic frameworks.

#### *Design Choices in Media of Skin Bleaching Products Express Explicit Bias*

The media has played a crucial role in the immersion of skin bleaching products in Sub-Saharan African communities. The media highlights the explicit racial bias in skin bleaching technologies, with several means of advertising showcasing the benefits of having a lighter



**Figure 1:** Typical advertisement to promote skin bleaching (Apuke, 2018).

complexion. For example, Figure 1 is an advertisement for skin bleaching that centralizes the focus on a light skinned black women, desired by two men in frame. Additionally, Figure 2 shows a women's complexion lightened after using the product "Fair & Lovely," implying that fairness is more appealing than having darker skin. Sociologists claim that the media has perpetuated lower self-esteem among

women with darker complexions, encouraging skin bleaching to align with the socially constructed ideals of beauty, as evident by the examples aforementioned. As the practice became normalized, skin bleaching has been adopted by various classes of people, affecting professionals such as teachers, police officers, nurses, civil servants, and even media personalities (Apuke, 2018).

Evidence suggests that on major media platforms, like Facebook and X, users often see advertisements for cosmetics that market towards physical appearance. Not only are these advertisements makeup, moisturizers, and hair care, but they are also skin-lightening products that are targeted towards women to reinforce Eurocentric derived beauty standards (Apuke, 2018). The media has harnessed the success of lighter skinned women to be the face of skin lightening products. In Ghana, products such as Pro-Claire, Carotone, Bronze-Stone, and Skin Light, all products containing mercury content of 0.010 to 0.549 $\mu\text{g/g}$  (Adu-Gyamfi et al., 2018), have spread rapidly in use due to television and endorsements by lighter skinned celebrities. Additionally, women recognized for their beauty, like the winner of Ghana's Most Beautiful pageant in 2009, are on record talking about their successful journey with skin bleaching (Adu-Gyamfi et al., 2018). As a result, more women are quick to adopt skin lightening as a part of their daily routine, amidst the hazards that come alongside the practice.

Other than the media, the entertainment industry, specifically music, has influenced the acceptance and



**Figure 2:** Promotion of skin bleaching via a billboard advertisement (Apuke, 2018).

perpetuation of skin lightening. A study found that the media reinforced that women with lighter complexions gain high status, receiving respect, recognition, a comfortable lifestyle and confidence. Several contain lyrics adjacent of desiring the Ghanaian "me broni" (my white lady) (Fokuo, 2009).

Advertisements of skin bleaching products are explicitly bias, highlighting the successes of lighter skinned women and the achievement of beauty. The entertainment and media industries make the notions of success around being lighter in complexion inescapable. Marketing targets this vulnerability and low self-esteem to sell their products and continue to grow.

#### *Lack of Effective Prevention*

Current means of reducing skin bleaching in Sub-Saharan Africa rely heavily on education and regulatory infrastructure. For example, previously mentioned by the survey conducted by Nyoni-Kachambwa et al., 50% of participants who bleach their skin are aware of the hazards that the products pose yet still use the technology as part of their routine. This evidence suggests that education is not enough to prevent skin bleaching. Regarding regulation, South Africa was the first country to ban skin lightening products, setting precedent for other countries to follow. Most recently, Rwanda, Cote d'Ivoire, Tanzania, Kenya, and Ghana have also banned these products. Despite bans and restrictions, users still obtain the products from cosmetic shops and street vendors, emphasizing the inadequacies of preventative measures currently in place (Pollock et al., 2021). One research paper found that although in 2003, when the Tanzanian Food and Drug Authority banned the "manufacture, sale, supply, and distribution" of over 100 skin bleaching products, there was little effect on use and availability of these technologies (Lewis et al., 2012). There was severe resistance that led to the products being

shifted to the black market, making them more dangerous since the ingredients are unknown. Additionally, products were being smuggled by neighboring countries, ultimately keeping the problem alive.

While I have argued that there is inadequate prevention and mitigation, some may believe that products approved by regulatory agencies contain safe levels of hydroquinone, mercury, or other skin-lightening chemicals. This perspective suggests that safer alternatives do exist for users. For example, the World Health Organization emphasizes that skin bleaching is a public health problem but highlights the promising impacts of product bans and regulations across various countries in Sub-Saharan Africa (World Health Organization, 2023). However, this fails to consider other evidence that has emerged suggesting the caveats and workarounds that manufacturers follow to still get their hazardous products on to the market, despite it being approved as safe for users.

In a paper published by Adu-Gyamfi et al., they discuss how manufacturers still get their hazardous products on to the market, despite regulations and bans in place. Firstly, manufacturers must go through a succinct process of approval before their products can be sold by the Food and Drug Authority (FDA) and the Ghana Standard Authority (GSA). Once they are approved, manufacturers will change their ingredients in their products to include higher concentrations of skin lightening agents and then release them to the market where they can be acquired by users, despite the health impacts. Additionally, in places where hydroquinone is banned over the counter or at higher concentrations, manufacturers use a synonymous chemical called kojic acid. Kojic acid is still responsible for bleaching the skin with the same adverse effects as hydroquinone, but without the stern regulatory requirements and restrictions. Despite the current efforts to prevent and mitigate the widespread use of skin bleaching agents in Sub-

Saharan Africa, research as identified above suggests a lack of improvement. The inadequacy of the current prevention measures by regulation and education emphasizes the importance of reevaluating the approach to prevention of skin bleaching. Likely better prevention would come from a deviation for Eurocentric beauty standards that pollute the socio-economic and construction of power in Sub-Saharan Africa. Researchers suggest a psychoanalytical approach to prevention, focusing on the insecurities and power system in place, and advertising embrace and self-confidence to direct younger women away from skin bleaching. Additionally, agencies can monitor the media. Rather than marketing skin bleaching products, agencies can release educational commercials highlighting the dangers of skin bleaching and hold emphasis on self-worth. Finally, many main-stream media influencers are lighter in complexion, but by providing opportunities for darker skinned women in the public-eye, this can be encouraging for younger women who also have darker skin. Each of these strategies bridge gaps in existing literature that focus on a regulatory approach. Due to the psychological nature of skin bleaching and its influence on the beauty industry, regulation will not be effective without the implementation of other strategies aforementioned since regulations and bans on skin bleaching products are currently circumvented.

## **Conclusion**

By revealing the root cause of skin bleaching, how the market further marginalizes darker-skinned women, and why current means of prevention fail, this study offers a holistic perspective on the politics embedded within this technological system. It also provides insight into how the issue should be addressed to reduce its public health impact. Previous studies failed to address these insights in their research, consequently resulting in superficial recommendations for prevention that are already implemented yet failing to make a difference. Rather than existing

strategies of mitigation, like regulation and bans, more effective methods may come from implementing inclusivity in the media, to deter women from skin bleaching by proving that opportunities can still arise for the marginalized population. Recognizing the greater implications of skin bleaching and the systemic impacts of Eurocentric beauty standards, it becomes paramount to foster a more supportive environment that prevents the marginalization of dark-skinned women. In the future, engineers designing any skin care or cosmetic based product must consider the racial inclusivity of their design. If their design diminishes any group by skin tone, they are only furthering the impacts of racial discrimination in the beauty industry.

## References

- Adetoogun, J. I., Aderinto, N., Ashimi, A. A., Akano, D. F., Ogundipe, T. O., & Fikayomi, P. B. (2023). Practice and motivations for skin bleaching among Africans. *International Journal of Surgery (London, England)*, 109(2), 218–219. <https://doi.org/10.1097/JS9.0000000000000141>
- Adu-Gyamfi, S., Gyasi, R. M., Oware, R., & Adu-Agyeman, G. (2018). Skin bleaching narratives responses from women bleaches and stakeholders in Ghana (1950s – 2015). *Ethnologia Actualis*, 18(2), 100–117. <https://doi.org/10.2478/eas-2019-0005>
- Apuke, O. D. (2018). Why do women bleach? Understanding the rationale behind skin bleaching and the influence of media in promoting skin bleaching: A narrative review. *Global Journal of Economics and Finance*, 2(1). Research Institute for Progression of Knowledge. <https://gjef.net/images/Vol2No1/4.pdf>
- Benn, E. K. T., Deshpande, R., Dotson-Newman, O., Gordon, S., Scott, M., Amarasiriwardena, C., Khan, I. A., Wang, Y.-H., Alexis, A., Kaufman, B., Moran, H., Wen, C., Charles, C. A. D., Younger, N. O. M., Mohamed, N., & Liu, B. (2019). Skin bleaching among African and Afro-Caribbean women in New York City: Primary findings from a P30 pilot study. *Dermatology and Therapy*, 9(2), 355–367. <https://doi.org/10.1007/s13555-019-0297-y>
- Dadzie, O., & Petit, A. (2009). Skin bleaching: Highlighting the misuse of cutaneous depigmenting agents. *Journal of the European Academy of Dermatology and Venereology*, 23(7), 741–750. <https://doi.org/10.1111/j.1468-3083.2009.03150.x>

- De Souza, M. M. (2008). The concept of skin bleaching in Africa and its devastating health implications. *Clinics in Dermatology*, 26(1), 27–29.  
<https://doi.org/10.1016/j.clindermatol.2007.10.005>
- Ellis, N. P., & Destine, S. (2023). Color capital: Examining the racialized nature of beauty via colorism and skin bleaching. *Sociology Compass*, 17(8), e13049.  
<https://doi.org/10.1111/soc4.13049>
- Fokuo, K. (2009). The lighter side of marriage: Skin bleaching in post-colonial Ghana. *African and Asian Studies*, 8(1–2), 125–146. <https://doi.org/10.1163/156921009X413180>
- Khan, Y. & Khan, S. (2022) H16: The complex history of the motivations behind skin lightening: an intersection of sex, class, race and colonialism. *British Journal of Dermatology*, 187(S1), 191–191. <https://doi.org/10.1111/bjd.21507>
- Lewis, K. M., Gaska, K., Robkin, N., Martin, A., Andrews, E., & Williams, J. (2012). The need for interventions to prevent skin bleaching: A look at Tanzania. *Journal of Black Studies*, 43(7), 787–805. <https://doi.org/10.1177/0021934712446701>
- Nyoni-Kachambwa, P., Naravage, W., James, N. F., & Van der Putten, M. (2021). A preliminary study of skin bleaching and factors associated with skin bleaching among women living in Zimbabwe. *African Health Sciences*, 21(1), 132–139.  
<https://doi.org/10.4314/ahs.v21i1.18>
- Pollock, S., Taylor, S., Oyerinde, O., Nurmohamed, S., Dlova, N., Sarkar, R., Galadari, H., Manela-Azulay, M., Chung, H. S., Handog, E., & Kourosh, A. S. (2021). The dark side of skin lightening: An international collaboration and review of a public health issue affecting dermatology. *International Journal of Women's Dermatology*, 7(2), 158–164.  
<https://doi.org/10.1016/j.ijwd.2020.09.006>



Street, J. C., Gaska, K., Lewis, K. M., & Wilson, M. L. (2014). Skin bleaching: A neglected form of injury and threat to global skin. *African Safety Promotion: A Journal of Injury and Violence Prevention*, 12(1), 52–71.

<https://www.ajol.info/index.php/asp/article/view/118310>

Winner, L. (1980). Do artifacts have politics? *Daedalus*, 109(1), 121–136.

<http://www.jstor.org/stable/20024652>

World Health Organization. (2023, February 14). *Countries unite to remove mercury from hazardous skin lightening products*. <https://www.who.int/news/item/14-02-2023-countries-unite-to-remove-mercury-from-hazardous-skin-lightening-products>