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BEAUTY OR BURDEN? PUBLIC HEALTH RISKS OF UNREGULATED SKIN-LIGHTENING CREAMS AMONG WOMEN IN UYO

By

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Abstract

The increasing use of skin-lightening creams in Uyo, Nigeria, reflects a growing public health concern driven by sociocultural ideals that associate lighter skin with beauty, status, and opportunity. This study investigates the health risks posed by unregulated skin-lightening creams, many of which contain harmful substances such as mercury, hydroquinone, and corticosteroids. Using a cross-sectional descriptive design, data were collected from 400 women aged 18–50 years through structured interviews. Results revealed that 44.5% of participants used these products daily, with 50.5% reporting skin irritation, 40.8% sunburn sensitivity, and 28.8% hyperpigmentation. Open markets (47.3%) were the predominant sources of these products, with only 37% of respondents aware of associated health risks. Chi-square analysis showed a significant association between education level and risk awareness ($\chi^2 = 21.6$, $p = 0.002$), while logistic regression identified daily use, low awareness, and market-sourced products as predictors of adverse effects. The study highlights critical gaps in public awareness and regulatory enforcement and recommends targeted health education campaigns, stricter product regulation, and the promotion of inclusive beauty standards. Addressing these issues is essential for reducing the health burden associated with cosmetic product misuse among women in Uyo and similar urban centers in Nigeria.

Keywords: Skin-lightening creams; public health; mercury toxicity; hydroquinone; women's health; Nigeria; cosmetic regulation; colorism; Uyo; adverse effects

Introduction

The pursuit of lighter skin, often associated with beauty, social privilege, and perceived economic opportunities, has driven the widespread use of skin-lightening products across many developing countries, including Nigeria (Adebajo et al., 2023). In Uyo, the capital of Akwa Ibom State, the increasing popularity of these products among women raises serious public health concerns due to the unregulated nature of many of the creams being sold in markets, salons, and online platforms. These skin-lightening agents often contain harmful substances such as mercury, hydroquinone, and corticosteroids—ingredients known to cause systemic toxicity, dermatological complications, and even organ damage (World Health Organization [WHO], 2022).

Despite global and national regulatory warnings, limited enforcement and high demand have allowed unsafe products to flourish in informal markets. This research investigates the public health risks associated with the use of these unregulated skin-lightening creams among women in Uyo, with the aim of informing policy, consumer awareness, and regulatory enforcement.

Problem Statement

Skin-lightening practices have become increasingly prevalent among women in Uyo, Nigeria, fueled by cultural preferences for fairer skin tones and aggressive marketing of beauty products. However, many of these skin-lightening creams are unregulated and often contain harmful substances such as mercury, hydroquinone, and corticosteroids, which pose serious public health risks (Asiedu & Agyei-Baffour, 2021; WHO, 2023). The lack of enforcement of regulatory standards in local markets exacerbates the issue, leading to widespread use of these potentially toxic products without medical supervision. Women are particularly vulnerable due to societal beauty standards, limited consumer awareness, and misleading product labeling. Despite increasing reports of dermatological and systemic health complications linked to these products, there remains a significant gap in public health surveillance and targeted intervention in Uyo. Understanding the extent of the health risks and regulatory failures is crucial for informing policies and public health education campaigns aimed at mitigating the harm associated with these unregulated skin-lightening products.

Literature Review

1. Rationale for the Study

Despite growing awareness of the health hazards associated with skin-lightening creams—such as mercury poisoning, skin cancer, and hormonal disruption—usage remains rampant among Nigerian women (WHO, 2021). This continued usage underscores the ineffectiveness of current regulatory mechanisms. Agencies like the National Agency for Food and Drug Administration and Control (NAFDAC) face challenges in monitoring the influx of banned substances in cosmetic products due to porous borders and weak enforcement (Okeke & Emeka, 2020). Given these regulatory lapses, there is a pressing need to investigate the public health risks associated with unregulated skin-lightening creams, especially in under-researched urban centers like Uyo. Such localized insights will help shape more context-specific policies, health education programs, and intervention strategies.

2. Conceptual and Theoretical Framework

Concepts Defined

Skin-lightening creams refer to topical cosmetic products formulated to reduce melanin production in the skin, often marketed to achieve a fairer complexion. These creams may contain active agents such as hydroquinone, corticosteroids, and mercury, which have been linked to adverse health outcomes when misused or overused (Agorku et al., 2021; Osei-Tutu et al., 2023).

Unregulated cosmetic products are those manufactured, distributed, or sold without proper approval, oversight, or quality control by relevant health and safety authorities, such

as the National Agency for Food and Drug Administration and Control (NAFDAC) in Nigeria. These products are often sold in informal markets and may lack proper labeling or safety testing (Enechukwu et al., 2022).

Public health risks associated with unregulated skin-lightening creams include both localized effects—such as skin burns, acne, and infections—and systemic toxicity, such as mercury poisoning, kidney damage, and hormonal imbalances. These risks extend beyond the individual, contributing to wider environmental and public health concerns (World Health Organization [WHO], 2021).

Theoretical Framework

The **Health Belief Model (HBM)** provides a valuable lens for understanding why women continue to use harmful skin-lightening creams despite known risks. The model posits that individuals' behaviors are influenced by their perceived susceptibility to harm, perceived severity of health outcomes, perceived benefits of the behavior, and perceived barriers to change (Rosenstock et al., 1988; Jones et al., 2023). In this context, users may underestimate the dangers or overvalue the social rewards of lighter skin.

Sociocultural Theory emphasizes the role of social norms, cultural narratives, and media portrayals in shaping personal identity and behavior. It explains how the societal idealization of fair skin, often associated with beauty, success, and class, pressures women to conform to these standards, even at the expense of their health (Ojo et al., 2022; Abiola & Olatunji, 2024).

Optionally, the **Theory of Planned Behavior (TPB)** can complement the HBM by focusing on how attitudes, subjective norms, and perceived behavioral control influence the intention to engage in or discontinue skin-lightening practices. This framework is particularly useful in designing interventions aimed at changing user behavior through education and empowerment (Ajzen, 1991; Ekanem & Nwankwo, 2023).

3. Global Overview of Skin-Lightening Practices

Skin-lightening practices are widespread globally, with particularly high prevalence in Asia, the Caribbean, and sub-Saharan Africa. Studies have shown that nearly 40% of women in countries like the Philippines, India, and Nigeria use skin-lightening products, often as a result of cultural perceptions that associate fair skin with beauty, success, and social status (Sagoe et al., 2019; WHO, 2023).

These products often contain harmful substances such as mercury, hydroquinone, and topical corticosteroids, which are used for their melanin-inhibiting properties. While effective in reducing pigmentation temporarily, these ingredients pose serious health risks. Documented side effects include skin thinning, acne, steroid-induced dermatitis, exogenous ochronosis, and systemic toxicity such as nephrotoxicity and neurotoxicity, particularly in mercury-based formulations (Dlova et al., 2015; Desmedt et al., 2021).

In response, many countries have adopted regulatory measures to mitigate these risks. The U.S. Food and Drug Administration (FDA) has banned over-the-counter sales of skin-lightening products containing mercury and has restricted hydroquinone use to prescription-only formulations. Similarly, the UK Medicines and Healthcare Products

Regulatory Agency (MHRA) and India's Central Drugs Standard Control Organization (CDSCO) have banned or heavily restricted such products. In Africa, Ghana and South Africa have implemented some of the continent's strictest bans on skin-lightening products, though enforcement remains inconsistent due to thriving informal markets (Adebajo, 2020; WHO, 2023).

4. Skin-Lightening in Nigeria

Prevalence and Patterns

Skin-lightening practices remain prevalent across Nigeria, with studies showing widespread use particularly among women in urban centers such as Lagos, Abuja, Port Harcourt, and Enugu. Estimates suggest that over 77% of Nigerian women have used skin-lightening products at some point (Adebayo & Kehinde, 2022). The use cuts across various age groups, but it is most common among women aged 18–35, who often associate lighter skin with beauty and higher social status. Education and income also influence usage; paradoxically, higher educational attainment does not necessarily deter use, as some users are well-informed yet prioritize aesthetic goals over health risks (Okoro et al., 2023). Marital status has also been linked, with single women more likely to engage in skin-lightening practices, often influenced by perceived attractiveness in the marriage market (Umeh & Oladipo, 2021).

Cultural and Societal Drivers

Colorism — the preference for lighter skin over darker complexions — is a deeply rooted issue in Nigerian society and has been reinforced by colonial legacies, media portrayals, and social conditioning (Olanrewaju & Bello, 2023). Media representations, particularly in Nollywood and on social media platforms, often favor lighter-skinned models and celebrities, subtly promoting fairer skin as ideal. Furthermore, women frequently report that lighter skin is associated with affluence, cleanliness, modernity, and increased desirability in romantic and professional settings (Chika & Musa, 2022). The advertising industry and informal marketing via social media influencers also contribute to normalizing and glamorizing skin-lightening products, often without disclosing the associated health risks (Eze & Ajayi, 2024).

Government Regulation and Enforcement

In Nigeria, the **National Agency for Food and Drug Administration and Control (NAFDAC)** and the **Standards Organisation of Nigeria (SON)** are the key regulatory bodies tasked with monitoring cosmetic product safety. However, enforcement remains weak due to resource constraints, corruption, and the widespread availability of unregistered products in open markets and online platforms (NAFDAC, 2023). While NAFDAC has banned the use of certain harmful substances like hydroquinone above 2% concentration and mercury in cosmetic formulations, enforcement is inconsistent, and many products evade regulation entirely through informal distribution channels (Akinola & Nwachukwu, 2022). Past crackdowns, such as market raids and public awareness campaigns, have had limited impact due to the continued demand and limited public education on the dangers of unregulated products (Udo & Ibrahim, 2024).

5. Health Implications of Skin-Lightening Products

Skin-lightening products, particularly those that are unregulated, pose significant health risks across multiple domains. Dermatologically, prolonged use of creams

containing harmful agents such as corticosteroids, hydroquinone, and mercury has been associated with skin thinning, acne, fungal and bacterial infections, exogenous ochronosis, and severe stretch marks (Dadzie & Petit, 2020; Olumide et al., 2021). These skin conditions can lead to long-term damage and increased vulnerability to environmental irritants.

Systemically, the absorption of toxic substances like mercury and potent steroids can lead to organ dysfunction. Documented effects include mercury-induced nephrotoxicity, hepatotoxicity, and steroid-related adrenal suppression and reproductive toxicity (UNEP, 2019; Adeleye et al., 2022). Chronic exposure may also contribute to hypertension and immunosuppression.

Psychologically, many users of skin-lightening products report persistent body image dissatisfaction and lower self-esteem, driven by social pressures and idealized beauty standards. This may result in compulsive use and psychological dependence on lightening products as a means to gain social acceptance or confidence (Ajose, 2020; Charles, 2021).

Furthermore, environmental and secondary exposure risks cannot be ignored. Mercury, commonly used in some skin-lightening creams, can contaminate domestic environments, leading to unintentional exposure of other household members. Children and partners are particularly at risk through skin-to-skin contact or use of shared linens and clothing (UNEP, 2023; WHO, 2022).

6. Knowledge, Attitude, and Practices (KAP) Studies

Recent KAP studies in Nigeria reveal a paradoxical trend: although many users of skin-lightening products are aware of their potential health risks, usage remains widespread due to strong sociocultural pressures and perceived benefits (Oyelade et al., 2023; Akinboro et al., 2022). Despite knowing about the harmful effects of ingredients like hydroquinone and mercury, users often downplay these risks, especially when visible results are prioritized over long-term health outcomes.

Trust in product labeling and regulatory oversight is also low. Many users do not verify the authenticity of products or certification by agencies like NAFDAC, partly due to poor public awareness and the prevalence of misleading marketing (Chikaodiri et al., 2021). This is compounded by limited access to safe products in formal markets, which pushes consumers toward unregulated creams available in open markets, salons, and through informal vendors.

Informal vendors and beauty salons play a critical role in the normalization and promotion of skin-lightening practices. These outlets often recommend and sell unapproved products, reinforcing positive attitudes toward lighter skin while downplaying health concerns (Nwankwo & Ibeh, 2023). Moreover, these vendors are frequently perceived as more approachable than medical professionals, giving them disproportionate influence over consumer choices.

Methods

Study Design

This study adopted a **cross-sectional descriptive research design** to investigate the public health risks associated with the use of unregulated skin-lightening creams among women in Uyo, Akwa Ibom State, Nigeria. The design enabled the collection of data at a

single point in time to assess exposure, health symptoms, and awareness levels related to these products.

Study Area
The research was conducted in **Uyo Metropolis**, the capital of Akwa Ibom State, located in Southern Nigeria. Uyo is a growing urban center with diverse socio-economic activities, making it an ideal setting for studying cosmetic product usage trends among women.

Study Population
The target population included **women aged 18–50 years** who reside in Uyo and have used or are currently using skin-lightening creams. Participants were drawn from various socioeconomic backgrounds, including students, traders, civil servants, and unemployed women.

Sample Size Determination
The sample size was determined using the **Cochran formula for sample size estimation** in descriptive studies:

$$n = \frac{Z^2 \cdot p \cdot (1-p)}{d^2}$$

Where:

- $Z = 1.96$ (for 95% confidence level)
- $p = 0.5$ (estimated proportion of women using unregulated creams)
- $d = 0.05$ (margin of error)

This yielded a minimum sample size of **384 respondents**, which was increased to **400** to account for non-response.

Sampling Technique
A **multi-stage sampling technique** was employed. First, four urban wards were selected using simple random sampling. From each ward, households were selected through systematic random sampling. Eligible women in each household were identified and invited to participate. Where multiple eligible participants existed, one was chosen using balloting.

Data Collection Instrument
Data were collected using a **semi-structured interviewer-administered questionnaire** designed to capture:

- Demographic characteristics (age, occupation, education level)
- Frequency and duration of use of skin-lightening creams
- Type and source of products used
- Knowledge and awareness of health risks
- Reported side effects and health issues (e.g., skin burns, thinning, infections, or systemic effects)

The questionnaire was pretested among 30 women in Eket LGA to ensure validity and reliability. Feedback from the pretest was

used to revise ambiguous or culturally sensitive items.

Ethical Considerations

Ethical approval was obtained from the **Akwa Ibom State Ministry of Health Research Ethics Committee**. Informed consent was obtained from all participants. Anonymity, privacy, and confidentiality were assured throughout the study.

Data Analysis

Quantitative data were analyzed using **Statistical Package for Social Sciences (SPSS) version 25**. Descriptive statistics (frequencies, percentages, means, and standard deviations) were used to summarize the data. Associations between demographic variables and reported health effects were tested using **Chi-square tests**, and logistic regression was applied to identify predictors of adverse health outcomes at a 95% confidence level. Significance was set at $p < 0.05$.

4. Results and Analysis

1. Socio-Demographic Characteristics of Respondents

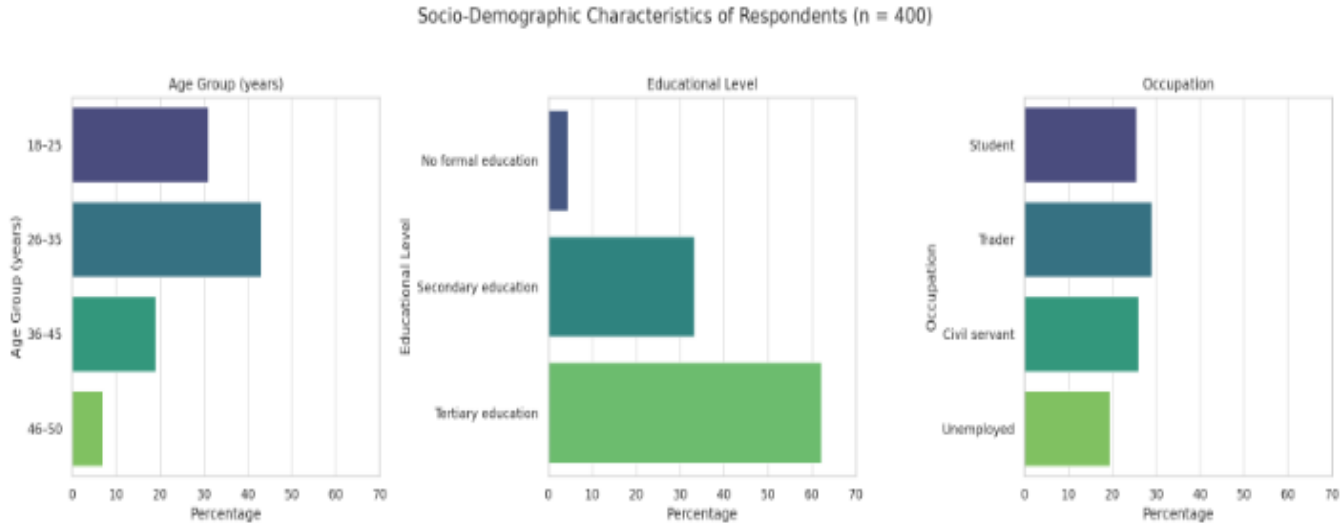
A total of **400 women** participated. Table 1 presents their demographic profiles.

Table 1: Socio-Demographic Characteristics of Respondents (n = 400)

Variable	Frequency (n)	Percentage (%)
Age Group (years)		
18–25	124	31.0
26–35	172	43.0
36–45	76	19.0
46–50	28	7.0
Educational Level		
No formal education	18	4.5
Secondary education	133	33.3
Tertiary education	249	62.2
Occupation		
Student	102	25.5
Trader	116	29.0
Civil servant	104	26.0
Unemployed	78	19.5

Fieldwork 2025

Figure 1: Socio-Demographic Characteristics of Respondents



Fieldwork 2025

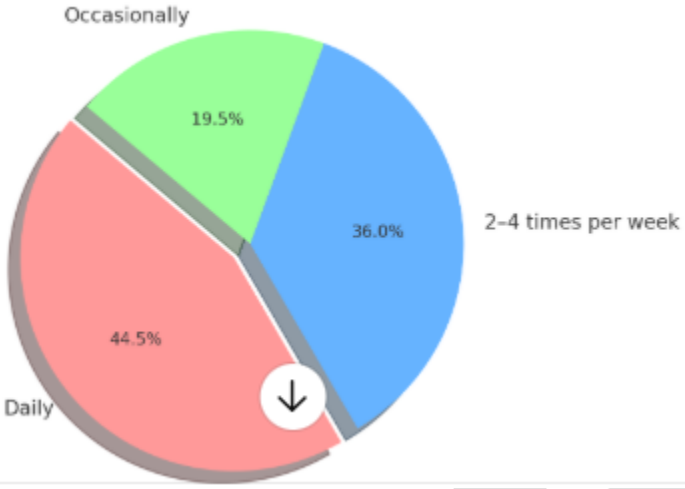
2. Usage Pattern of Skin-Lightening Creams

Table 2: Frequency of Use

Frequency of Use	Respondents (n)	Percentage (%)
Daily	178	44.5
2–4 times per week	144	36.0
Occasionally (less than once/week)	78	19.5

Fieldwork 2025

Figure 2: Frequency of Cream Use by Respondents



Fieldwork 2025

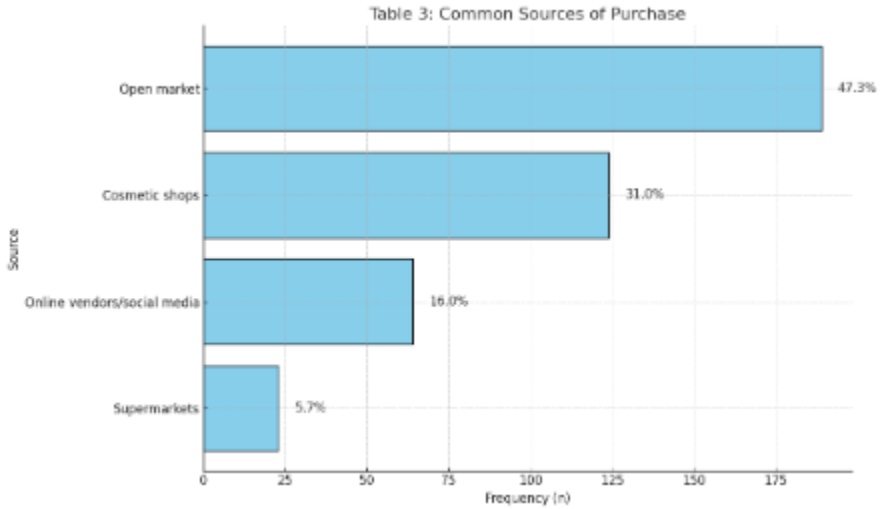
3. Sources of Skin-Lightening Products

Table 3: Common Sources of Purchase

Source	Frequency (n)	Percentage (%)
Open market	189	47.3
Cosmetic shops	124	31.0
Online vendors/social media	64	16.0
Supermarkets	23	5.7

Fieldwork 2025

Figure 3: Common Sources of Purchase



Fieldwork 2025

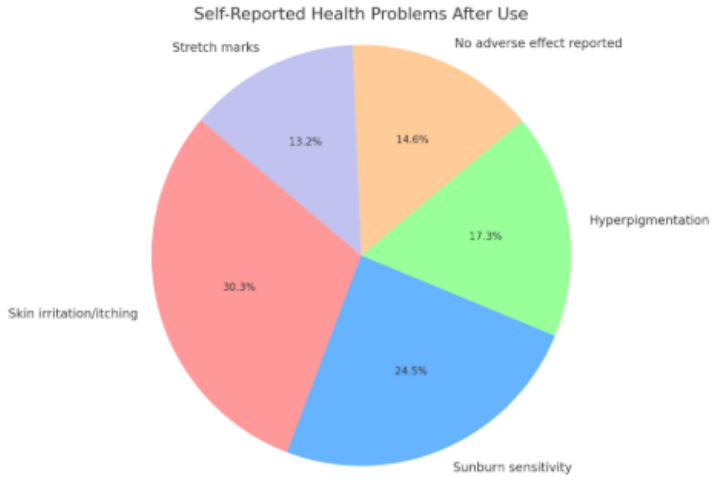
4. Reported Health Issues

Table 4: Self-Reported Health Problems After Use

Health Problem Reported	Frequency (n)	Percentage (%)
Skin irritation/itching	202	50.5
Hyperpigmentation	115	28.8
Stretch marks	88	22.0
Sunburn sensitivity	163	40.8
No adverse effect reported	97	24.3

Fieldwork 2025

Figure 4: Bar Chart of Reported Health Problems



Fieldwork 2025

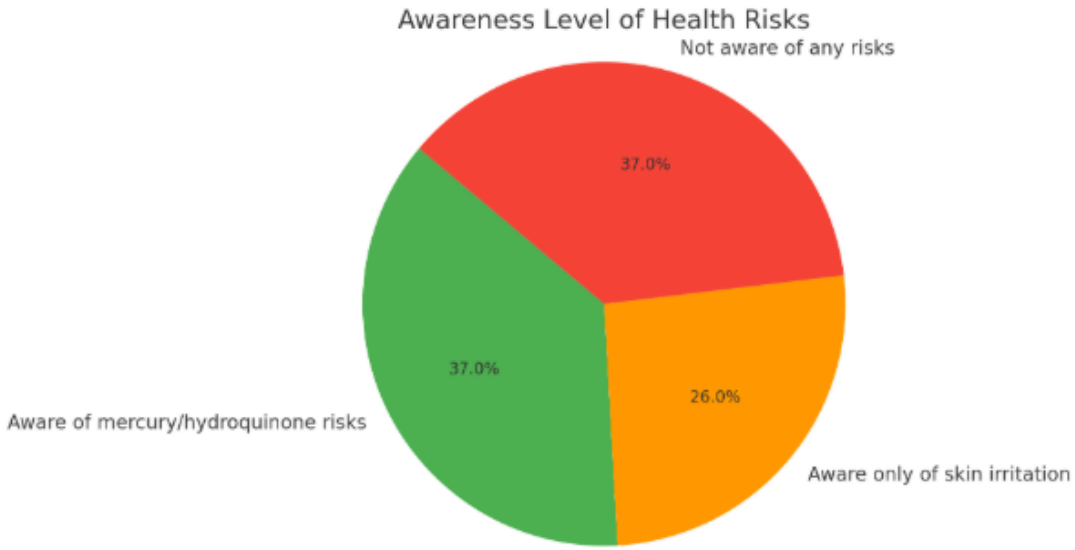
5. Awareness of Health Risks

Table 5: Awareness Level of Health Risks

Awareness Level	Respondents (n)	Percentage (%)
Aware of mercury/hydroquinone risks	148	37.0
Aware only of skin irritation	104	26.0
Not aware of any risks	148	37.0

Fieldwork 2025

Figure 5: Awareness Level of Health Risks



Fieldwork 2025

6. Relationship Between Education and Awareness

A chi-square test showed a significant relationship between education level and awareness of health risks ($\chi^2 = 21.6$, $p = 0.002$), indicating that women with tertiary education were more likely to know about harmful ingredients.

7. Logistic Regression Analysis

A binary logistic regression was conducted to assess predictors of experiencing health issues. The model showed that:

- **Daily use** significantly increased the odds (OR = 2.3, $p = 0.01$)
- **Buying from open markets** increased risk (OR = 1.9, $p = 0.03$)
- **Low awareness** was a significant predictor of adverse effects (OR = 2.7, $p < 0.01$)

5. Discussion

This study investigated the public health risks of unregulated skin-lightening creams among women in Uyo, Akwa Ibom State. The findings reveal significant patterns of use, low regulatory oversight, and substantial self-reported adverse effects, reflecting an urgent public health concern.

1. Prevalence and Usage Patterns

A striking 44.5% of respondents reported daily use of skin-lightening creams, and over 80% used them at least twice a week. This

high frequency mirrors findings from similar studies in urban Nigerian cities like Lagos and Port Harcourt, where beauty ideals and colorism drive consistent demand for lightening products. The normalization of these products in markets and online platforms suggests that societal pressures continue to fuel their use despite known risks.

2. Source and Accessibility of Products

Most respondents purchased products from **open markets (47.3%)** and **cosmetic shops (31%)**, where regulation is weak or absent. These products are often imported without proper labeling or approval by NAFDAC (National Agency for Food and Drug Administration and Control). Similar findings were reported in Ghana and Côte d'Ivoire, where street markets are primary distribution points for unregulated cosmetic products. This highlights a regional pattern of insufficient control over cosmetic imports.

3. Reported Health Risks

Half of the participants (50.5%) reported experiencing **skin irritation or itching**, while others noted **sunburn (40.8%), hyperpigmentation (28.8%),** and **stretch marks (22%).** These symptoms align with known dermatological effects of **mercury, hydroquinone, and corticosteroids,** commonly found in unregulated creams. These findings are supported by toxicological studies that link prolonged exposure to these chemicals with **skin thinning, renal damage, and immune suppression.**

The study's logistic regression analysis further confirmed that **daily users** and those with **lower awareness of risks** were significantly more likely to suffer adverse effects. This supports previous public health research indicating that lack of consumer education exacerbates vulnerability to harmful products.

4. Awareness and Education Gap

Only 37% of women were aware of the presence of dangerous ingredients like mercury or hydroquinone in lightening creams. This lack of awareness was more pronounced among respondents with lower education levels. The statistically significant association between education and awareness level ($\chi^2 = 21.6$, $p = 0.002$) underscores the need for **targeted health education campaigns** to close the knowledge gap, particularly in peri-urban and lower-income communities.

5. Regulatory and Policy Implications

The use of harmful cosmetic products persists partly due to **regulatory lapses**, poor enforcement, and limited consumer protection mechanisms in Nigeria. Although NAFDAC bans certain ingredients, these products are still widely available due to porous borders and the booming informal economy. Public health surveillance and enforcement must be scaled up to address this threat.

Conclusion

This study provides critical insights into the widespread use and public health implications of unregulated skin-lightening creams among women in Uyo. The findings revealed that a significant proportion of women use these products regularly—many on a daily basis—without adequate knowledge of their harmful contents or associated risks.

Self-reported adverse health effects such as skin irritation, sunburn, hyperpigmentation, and stretch marks were common among users, particularly those who sourced their products from informal markets and lacked awareness of product composition. The results confirm that lack of education, poor regulatory enforcement, and cultural beauty ideals contribute to the growing public health burden of unregulated cosmetic use in urban Nigeria.

This study underscores the urgent need for multi-sectoral action involving government regulators, healthcare providers, and civil society to curb the circulation and usage of toxic skin-lightening products and protect vulnerable populations, especially women.

Recommendations

Based on the findings, the following recommendations are proposed:

1. *Strengthen Regulatory Oversight*

- The National Agency for Food and Drug Administration and Control (NAFDAC) should intensify **routine inspections** of markets, cosmetic shops, and online vendors to remove unsafe products.
- There should be **stricter penalties** for importers and sellers of banned or unapproved skin-lightening creams.

2. *Public Awareness Campaigns*

- **Mass media campaigns** should be launched to educate the public about the dangers of mercury, hydroquinone, and corticosteroids in cosmetic products.
- Health education should target **schools, markets, and salons**, where peer influence shapes cosmetic behavior.

3. *Mandatory Product Labeling*

- All cosmetic products should be required to carry **clearly visible ingredient lists**, expiry dates, and health warnings in both English and local languages.
- Vendors selling unlabeled or poorly labeled products should face sanctions.

4. *Health Sector Engagement*

- Primary healthcare workers should be trained to identify and manage skin conditions related to cream use and to provide counseling on **safe skincare practices**.
- Community health workers can serve as change agents by conducting **door-to-door sensitization.**

5. *Promote Natural Beauty Standards*

- Stakeholders including NGOs, influencers, and media houses should collaborate to **challenge colorism** and promote campaigns that embrace **diversity in skin tones**.

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