

Research Article

Voluntary Skin Depigmentation in Abidjan: Toxicological Implications of Skin Lightening Products

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Abstract

Voluntary skin depigmentation is a widespread social and cosmetic practice in sub-Saharan Africa. Although motivated by the pursuit of a lighter complexion, it exposes users to numerous dermatological and systemic complications. In Côte d'Ivoire, a survey conducted in Abidjan in 2008 reported a prevalence of 53%. This study aimed to assess voluntary depigmentation practices, the types of products employed, reported adverse effects, and the level of awareness of associated risks among users. A descriptive cross-sectional survey was carried out from January to March 2019 among 150 patients recruited from five private pharmacies in Abidjan. Data were collected using a structured questionnaire addressing sociodemographic characteristics, motivations, products used, adverse effects, and perception of risks. Results were analyzed using frequency and percentage distributions. The sample consisted predominantly of women (93%), aged 20-40 years. The main motivation was the desire for a beautiful complexion (78%). The most frequently used substances were corticosteroids (38%) and hydroquinone (33%). 94% of participants were unaware of the exact composition of the products applied. Although 35% vaguely acknowledged potential dangers, their overall knowledge of complications remained poor. Twenty-five percent of the study population reported adverse effects voluntary skin. An integrated strategy combining health education, stricter regulatory measures, and the active involvement of pharmacists is urgently required to mitigate the prevalence and consequences of this practice.

Keywords

Survey, Voluntary Depigmentation, Skin-lightening Products, Toxicology, Pharmacies, Abidjan

1. Introduction

Skin color constitutes a major cultural and social determinant in many societies. In sub-Saharan Africa, voluntary skin depigmentation has emerged as a significant social phenomenon. It is widely practiced by women, and to a lesser extent men, in pursuit of an aesthetic ideal associated with lighter skin tones.

The motivations are multifactorial, including aspirations for beauty, seduction, social pressure, peer influence, and perceptions of social success. This practice, defined as all processes aimed at lightening the skin for cosmetic purposes, is particularly widespread in sub-Saharan countries such as Senegal [1],

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Mali [2-4], Togo [5], Nigeria [6-8], and Congo [9], with reported prevalence rates of 52.7%, 49.4%, 58.9%, 77.3%, and 65%, respectively. In Côte d'Ivoire, a 2008 survey conducted in Abidjan and other studies reported a prevalence of 53% [10], underscoring the magnitude of this practice [11].

The substances used for depigmentation include hydroquinone, corticosteroids, mercury salts, caustic acids, and artisanal mixtures. Although they produce temporary skin lightening, these agents can induce a wide range of dermatological complications (such as steroid-induced acne, stretch marks, dyschromia, skin atrophy, infections) as well as systemic conditions (including hypertension, diabetes, renal failure, Cushing's syndrome, and even skin cancers). Many of these products are inherently toxic and often require medical care for related complications [3, 4]. Ignorance of these risks, coupled with the ease of access to such products in markets, beauty salons, and pharmacies, perpetuates their widespread use. Against this backdrop, the present study aims to assess the sociodemographic characteristics of users, the types of products employed, their motivations, the observed adverse effects, and their perception of risks, through a survey conducted among 150 patients in private pharmacies in Abidjan.

2. Materials

2.1. Study Design and Setting

This study was a descriptive cross-sectional study conducted over a three-month period, from January to March 2019, in five private pharmacies in Abidjan, Côte d'Ivoire. Pharmacies were selected based on high attendance and location in socioeconomically diverse districts, in order to capture a representative sample of practices.

2.2. Study Population

The study population consisted of patients attending the selected pharmacies who reported current or past use of voluntary skin depigmentation products. Inclusion criteria were adult participants who provided informed consent. Minors and those unwilling to participate were excluded.

2.3. Sample Size

A total of 150 patients were included based on the calculated sample size, which was deemed sufficient to provide a representative overview of depigmentation practices among pharmacy users in Abidjan.

3. Methods

3.1. Data Collection

Data were collected using a structured anonymous ques-

tionnaire comprising five sections:

- 1) Sociodemographic characteristics (sex, age, education, marital status, occupation),
- 2) Motivations for depigmentation,
- 3) Types of products used,
- 4) Knowledge of product composition and associated risks,
- 5) Reported adverse effects.

3.2. Statistical Analysis

Data were entered and analyzed using standard statistical software. Results were presented as absolute and relative frequencies (n, %). Tables and figures were used to summarize key findings.

3.3. Ethical Considerations

Verbal informed consent was obtained from all participants. Anonymity and confidentiality were ensured. The study was conducted within an academic framework and posed no direct risks to participants.

4. Results

4.1. Sociodemographic Characteristics

The sample comprised 140 women (93%) and 10 men (7%), yielding a male-to-female ratio of 0.07.

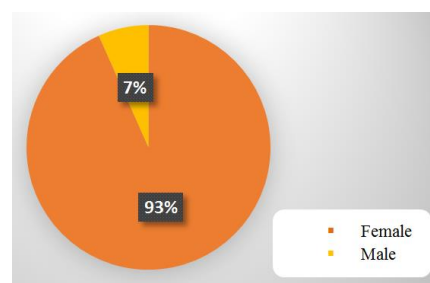


Figure 1. Distribution of study population according to sex.

Most respondents (85%) were between 20 and 40 years of age.

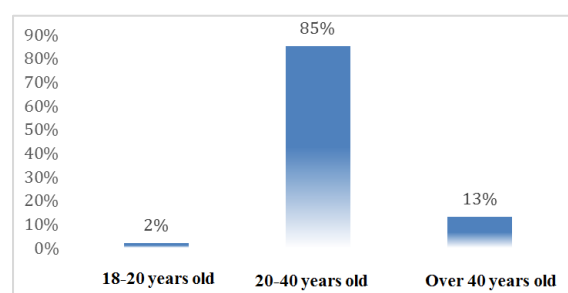


Figure 2. Distribution of study population according to age.

Regarding education, 74 persons (49%) had secondary level education, 45 persons, (30%) had higher education, 21 persons (14%) primary, and 10 persons (7%) were illiterate.

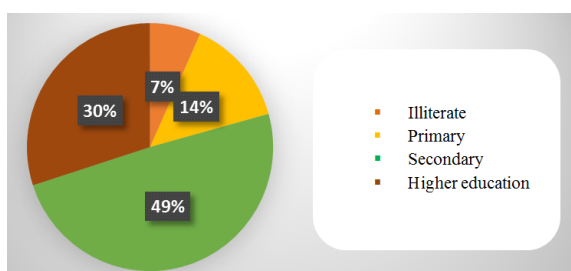


Figure 3. Distribution of study population according to level of education.

4.2. Motivations for Depigmentation

The main motivations cited were:

- * Desire for a beautiful complexion: 117 persons (78%),
- * Desire to become lighter-skinned: 29 persons (19%),
- * Influence of a partner: 4 persons (3%).

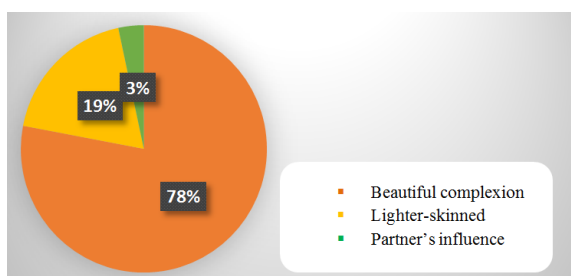


Figure 4. Motivations mentioned.

4.3. Products Used

The most commonly used products were:

- * Corticosteroids: 57 (38%),
- * Hydroquinone: 50 (33%),
- * Fruit acids: 23 (15%),
- * Mercury derivatives: 10 (7%),
- * Other artisanal products 10 (7%).

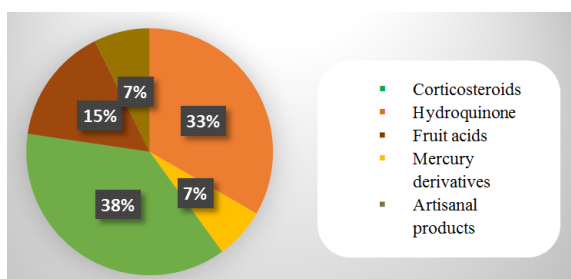


Figure 5. Substances used.

4.4. Knowledge and Perception of Risks

Ninety-eight percent of respondents had no knowledge of the origin of the products, and 94% were unaware of their exact composition.

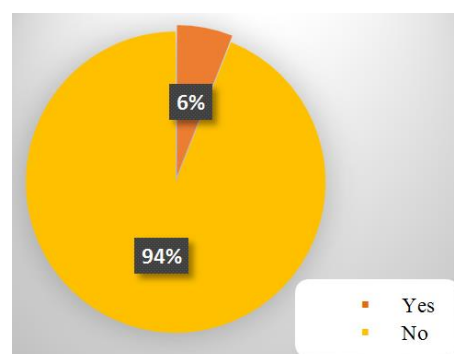
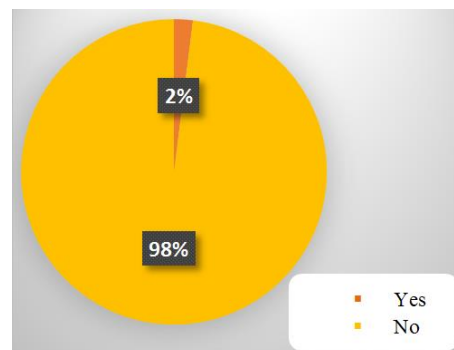


Figure 6. Knowledge of products origin and composition.

Although 52 persons, 35% vaguely recognized the potential danger of these products, they were unable to specify possible complications.

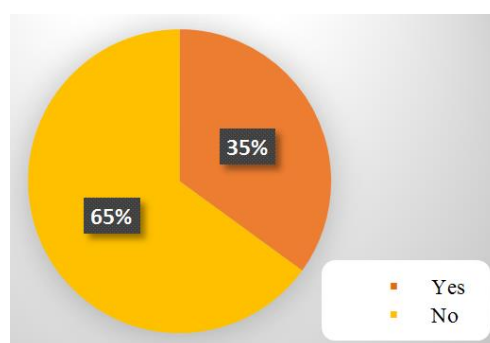


Figure 7. Knowledge of products toxicity.

4.5. Reported Adverse Effects

Twenty-five percent of participants described adverse effects.

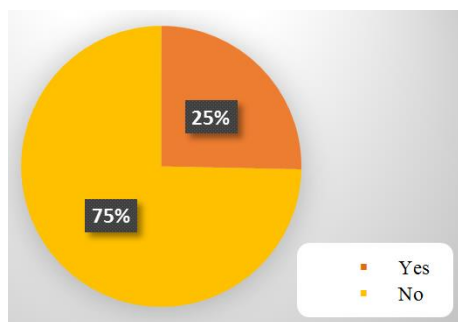


Figure 8. Adverse effects reported.

4.6. Duration of Use

Forty-one percent of participants reported using depigmenting products for 6-10 years.

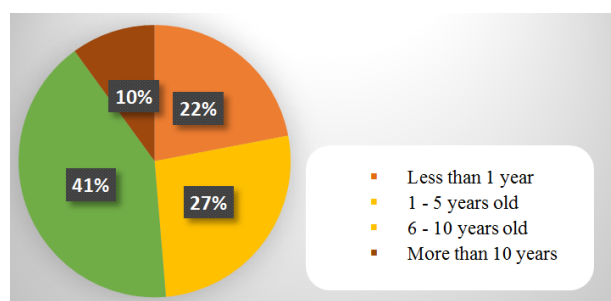


Figure 9. Duration of product use.

5. Discussion

This survey of 150 patients attending five private pharmacies in Abidjan highlighted the persistence of voluntary skin depigmentation as a predominantly female practice, in line with findings from Yaoundé where a sex ratio of 0.16 had been reported [12]. The practice is mainly observed among young adults and often undertaken without accurate knowledge of the substances applied. Our results confirmed the predominance of women aged 20-40 years among users, a profile that was consistent with previous African studies [1, 5, 13-16]. This age group's predominance was thought to reflect active partner-seeking behaviors during this life stage [4]. The relatively high level of education among participants contrasted with findings from Dakar, where the majority of users had only primary education [1, 17]. Nevertheless, the perception that lighter-skinned women are more attractive and desirable had been strongly expressed, echoing reports from Dakar [1] and Lagos [7]. The principal motivations were the desire for a beautiful complexion and for lighter skin, reflecting sociocultural and identity driven factors rather than medical needs. Moreover, the finding that 94% of users were unaware of product composition underscored a significant gap in health literacy regarding the toxic risks of these cosmetics. Corticosteroids were the most commonly used products,

corroborating findings from Senegal and Cameroon, where usage rates were 86.8% and 24%, respectively [18, 19]. Hydroquinone was also widely employed, alongside mercury derivatives and deceptive “cocktail” mixtures. These findings illustrated the hazardous nature of both pharmacy-sourced and illicitly marketed products. The sociodemographic profile and motivations observed in this study aligned with multiple West and Central African reports, reinforcing the conclusion that voluntary depigmentation is deeply rooted in regional sociocultural dynamics. Duration of use was mostly from 6-10 years, which was consistent with other sub-Saharan studies had reported durations between six months and 20 years [5, 7, 13, 16, 17, 20]. Adverse effects were reported by 25% of participants, a figure lower than other studies but still clinically significant [21, 22]. These dermatological complications are often irreversible, carried both aesthetic and psychological consequences [23].

6. Conclusion

This study provides insight into voluntary skin depigmentation practices among 150 patients attending private pharmacies in Abidjan, Côte d'Ivoire. It assessed knowledge of the practice, reported motivations, and their associated consequences. Voluntary depigmentation is predominantly practiced by women, especially those aged 20-40 years, with secondary-level education being most common among users. The main motivations were achieving a beautiful complexion and a lighter skin tone. Most participants demonstrated little to no knowledge of the toxic risks involved. Corticosteroids and hydroquinone were the most frequently used products. Known consequences include both physical and aesthetic complications, while systemic effects remain largely unrecognized by users. Manufacturers have met the demand for lighter skin by placing more depigmenting products on the market. Given the limited sample size, the findings cannot be generalized to the entire Abidjan population. Nonetheless, the practice appears deeply entrenched in societal norms, positioning Côte d'Ivoire within a broader African trend. What was initially perceived as a mere cosmetic trend has now evolved into a pressing social and public health issue. Voluntary skin depigmentation is a dangerous practice responsible for sometimes irreversible dermatological and systemic complications. Comprehensive interventions, including health education, regulation, and pharmacist engagement, are urgently needed.

Author Contributions

Beatrice Tigori-Sangare: Conceptualization, Methodology, Supervision, Validation

Awa Nakognon Tuo-Kouassi: Conceptualization, Methodology, Supervision, Validation

Dina Colombe Brissy-Ayekoue: Methodology

Sandia Kone-Bakayoko: Methodology

Myriam Kaba: Investigation, Writing – original draft

Apo Laurette Ingrid Anin: Writing – original draft

Conflicts of Interest

The authors declare no conflicts of interest.

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