

# Skin-lightening practices among shoppers in select markets in Kumasi, Ghana: A cross-sectional survey



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**Background:** Despite warnings about its harmful adverse effects and the implementation of regulatory bans, anecdotal reports suggest high use of skin-lightening agents in Kumasi, Ghana.

**Objective:** To estimate the prevalence and motivation for skin-lightening agent use and nonuse among shoppers in Kumasi, Ghana.

**Methods:** This is a cross-sectional survey of a convenience sample of shoppers in 3 of Kumasi's largest markets.

**Results:** Of the 350 shoppers who were approached, 334 consented, for a response rate of 95%. Data were analyzed on 331 completed surveys. A total of 40.4% of individuals reported current or past use of skin-lightening products, and 26.6% of men reported history of product use compared with 56.5% of women. Female sex was significantly associated with skin-lightening product use (odds ratio 3.59; 95% confidence interval 2.26-5.70). Users of skin-lightening agents were more likely to agree with statements that associated lighter skin with beauty, self-esteem, attractiveness, and wealth.

**Limitations:** Using a nonrandomized convenience sampling method on a single city limits the generalizability of the results. Response, recall, and social desirability biases may have skewed the results, especially given the stigma associated with skin-lightening agent use.

**Conclusion:** The practice of skin lightening among all participants is high and is associated with perceptions of increased beauty, attractiveness, self-esteem, and wealth. (JAAD Int 2020;1:104-10.)

**Key words:** African health; black skin; dark skin; skin bleaching; skin lightening; skin of color.

## BACKGROUND

Skin-lightening agent use has been reported in North America, Europe, Asia, and Africa. It is considered one of the fastest-growing segments of the global beauty industry, with projections that it will be worth an estimated \$12.3 billion by 2027.<sup>1</sup> Because of the harmful adverse

effects and the potential for promoting and reinforcing racial and social inequalities, these practices have been characterized as public health, environmental justice, and social justice issues.<sup>2-4</sup>

Skin-lightening agents have been associated with both systemic and cutaneous complications.

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Currently, the active ingredients in skin-lightening products are hydroquinone, mercury, and corticosteroids.<sup>5</sup> Most products on the market include 1 or all of these ingredients at concentrations that exceed the recommended value.<sup>6-8</sup> These ingredients have been linked to systemic complications such as hypertension, diabetes, adrenal insufficiency, membranous nephropathy, nephrotic syndrome, insomnia, and memory loss.<sup>9-11</sup> Cutaneous complications include leukomelanoderma, exogenous ochronosis, squamous cell carcinoma, dermatitis, fungal and bacterial infections, patchy pigmentation, elastosis, extensive striae, telangiectasia, and body odor (Figs 1-4).<sup>9,10</sup>

The harmful adverse effects and the regulatory bans have not deterred most people in low- and middle-income countries from using skin-lightening products. One study found that the prevalence of skin-lightening product use among male university students in 26 countries in Asia, Africa, and the Americas was 16.7%.<sup>12</sup> In some countries in Africa, several studies estimate that 25% to 96% of Africans continue to use chemical compounds to lighten their skin.<sup>13,14</sup> A recent study of female health science students in Somaliland found that 25.6% of subjects reported past or present use of skin-lightening products and 52.2% admitted to current use.<sup>15</sup> In Ghana, 1 study found that mercurial soaps and hydroquinone were more commonly used than steroids and the most common cutaneous complications were exogenous ochronosis and colloid milia.<sup>16</sup> In another study, squamous cell carcinoma developed in a patient after prolonged skin lightening with hydroquinone.<sup>17</sup> Two recent studies found the prevalence of skin-lightening agent use to be 65.5% among female high school students in the Brong Ahafo Region and 50.3% among inhabitants of fishing communities in the Greater Accra Region.<sup>9,10</sup>

In August 2017, the Food and Drug Administration in Ghana banned the importation of all products with hydroquinone.<sup>18</sup> Despite these actions, there have been anecdotal reports of continued skin-lightening agent use in Kumasi, Ghana. To our knowledge, there have been no studies published on the use of skin-lightening products in Kumasi. Therefore, this study was undertaken to determine the prevalence and motivation for skin-lightening agent use and nonuse among both men and women in Kumasi, Ghana.

## CAPSULE SUMMARY

- Although women have mainly been the subject of studies evaluating skin-lightening product use, this study suggests that the practice is common among men as well.
- Clinicians should familiarize themselves with this practice and counsel patients against unregulated skin-lightening product use.

## METHODS

### Study design and site

A cross-sectional study questionnaire was administered between December 2018 and May 2019 to shoppers in Kumasi Central Market, Adum, and Asafo Market. These study sites were selected because of their high daily volume of shoppers.

Kumasi Central Market is the largest open-air market in West Africa and hosts more than 45,000 stores and stalls.<sup>19</sup> Based on anecdotal reports, Adum and Asafo Market are the second and third largest markets in Kumasi, respectively. Participants were selected with a nonrandomized convenience sampling method. No predetermined scheme was used to ensure randomization, and shoppers were

approached and invited to participate in the study.

### Study population

Male and female Ghanaian citizens aged 18 years or older who visited Kumasi central Market, Adum, and Asafo Market were included in the study. Informed written consent was obtained in either English or the native Twi language.

### Questionnaire

An interviewer-administered survey was used to collect data on skin-lightening practices and entered into Research Electronic Data Capture (version 10.0.1, Vanderbilt University, Nashville, TN). Participants were asked to provide demographic data, information on the history of skin-lightening agent use, duration of use, frequency of product application, areas of the body involved, adverse effects experienced, and monthly costs associated with product purchase. A Likert scale was used to determine motivating factors associated with product use.

The questionnaire was developed in accordance with information obtained from literature review. To ensure that the content and validity of the questions were culturally sensitive and appropriate for the participants in Ghana, the survey was reviewed by a dermatologist at Komfo Anokye Teaching Hospital, which is affiliated with Kwame Nkrumah University of Science and Technology. Similarly, the content and validity of the questions were reviewed by a dermatologist at the University of Pennsylvania.



**Fig 1.** Striae.



**Fig 2.** Tinea.

Additionally, 5 laypersons from Ghana also reviewed the survey to ensure its validity and to test the Research Electronic Data Capture interface.

### Ethical considerations

Ethical approval was obtained from the institutional review boards of both the University of Pennsylvania and Kwame Nkrumah University of Science and Technology.

### Statistical analysis

Descriptive statistics were used to summarize the demographic data.  $\chi^2$  Tests and Fisher's exact tests, as appropriate, were used to evaluate baseline differences between users and nonusers of skin-lightening products. Detailed analysis was conducted with a logistic regression model to assess factors

associated with skin-lightening product use, using  $P < .05$  as the cutoff. Factor analysis was performed and determined unidimensionality of the questionnaire on beliefs, using a Kaiser rule of eigenvalue greater than 1.0.

## RESULTS

### Study population

Of the 350 shoppers who were approached to participate in the study, 334 consented, for a response rate of 95%. Data were analyzed on 331 completed surveys. As shown in [Table I](#), the majority of participants were men (53.5%), single (59.2%), and aged between 18 and 34 years (64.4%). One-third of participants reported obtaining a college diploma or higher compared with 12.4% who had no formal education. Many participants were employed (78.9%), with most earning between 0 and 500 GH¢ (\$0-\$100) per month. Among employed participants, most identified themselves as small business owners (19.9%).

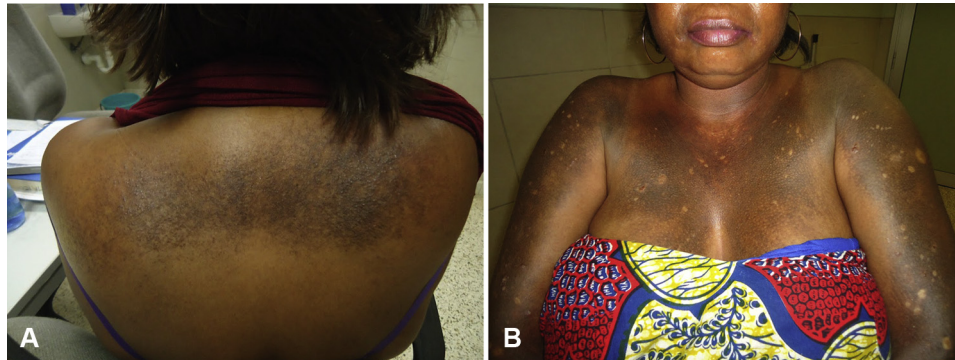
### Prevalence of skin-lightening product use

Of 331 participants, 40.4% reported current or past use of skin-lightening products; 26.6% of men reported history of product use compared with 56.5% of women. Among current users, 58.2% reported using products for more than 1 year. Most participants reported use of a single cream (95.0%) over their entire body (82.0%).

Significant associations were found between some sociodemographic characteristics and the use of skin-lightening agents, as indicated in [Table I](#). Specifically, female sex and college education were found to be associated with skin-lightening agent use. Women were almost 4 times more likely to use skin-lightening products compared with men (odds ratio 3.59; 95% confidence interval 2.26-5.70). Subjects with college degrees were less likely to use skin-lightening products (odds ratio 0.28; 95% confidence interval 0.11-0.71). Other sociodemographic factors such as age and marital status were not associated with skin-lightening agent use.

### Adverse effects

The most commonly reported skin effect among subjects with a history of skin-lightening product use was lightening of their skin (45.5%). As shown in [Table II](#), more than a quarter of subjects reported no adverse skin events. When asked about risks associated with skin-lightening product use, nonusers were more knowledgeable. A total of 27.6% of users compared with 7.1% of nonusers reported no risks associated with skin-lightening products. [Table III](#) reveals that among both groups, most subjects knew



**Fig 3.** A and B, Exogenous ochronosis.



**Fig 4.** Hyperpigmentation of fingers.

of darkening of skin (ie, exogenous ochronosis) as an adverse effect associated with skin-lightening product use.

#### **Motivators of use**

Fewer users reported satisfaction with their skin. Only 44.8% of users rated their natural skin color 10 of 10 compared with 77.7% of nonusers. As shown in [Table IV](#), most users reported that they use skin lighteners to increase their attractiveness (58.2%). Some reported external pressures from

social media (17.2%) and friends and family (27.6%). Few participants reported using products to increase marriageability (3.0%) or job opportunities (2.2%). Among nonusers, most reported that they refrained from skin lighteners because they were comfortable with their skin tone (73.1%); 48.7% reported that the practice was dangerous, with too many adverse effects, and 5.1% complained about the costs.

Among users, lighter skin was associated with beauty, self-esteem, attractiveness, and wealth. Users were significantly more likely to agree with the statements “Lighter-skinned people are more beautiful,” “Lighter-skinned people have more self-esteem,” “Lighter-skinned people are more attractive,” and “Lighter-skinned people are wealthier.” There was no association between skin-lightening agent use and the statements “Lighter-skinned people have more job opportunities” and “Lighter-skinned people hold more powerful positions.”

#### **DISCUSSION**

This study aimed to estimate the prevalence and motivation for skin-lightening agent use in Kumasi, Ghana. Among 331 participants, 40.4% reported history of skin-lightening agent use. The findings of this study are unique in that unlike most studies that have been conducted in sub-Saharan Africa, our study includes a majority of male participants (53.5%) and thus offers insight into the prevalence of the practice among men from different socio-demographic backgrounds. Other studies in sub-Saharan Africa that have included information about male skin-lightening users have found rates of use from 18% to 37%.<sup>12,20</sup> Our study found similar rates, with 26.6% of men reporting history of skin-lightening product use. Most male users were aged 18 to 34 years (61.7%), were single (63.8%), and had at most a high school degree (72.3%). The prevalence among female participants (56.5%) is

**Table I.** Correlations between patient sociodemographic characteristics and use of skin-lightening agents

	Total, n = 331	Users, n = 134	Nonusers, n = 197	Odds ratio	95% CI	P value
Age, y						
18–24	93	43	50	Ref	Ref	Ref
25–34	120	42	78	0.63	0.36-1.09	.098
35–44	76	34	42	0.94	0.51-1.73	.85
45–64	34	14	20	0.81	0.37-1.80	.61
≥65	8	1	7	0.17	0.20-1.40	.099
Sex						
Men	177	47	130	Ref	Ref	Ref
Women	154	87	67	3.59	2.26-5.70	<.001
Marital status						
Single	196	74	122	Ref	Ref	Ref
Married	135	60	75	1.31	0.84-2.06	.22
Education						
None	41	16	25	Ref	Ref	Ref
Elementary	20	9	11	1.28	0.43-3.77	.66
JHS	64	33	31	1.66	0.75-3.69	.21
SHS	92	45	47	1.50	0.71-3.16	.29
College diploma	41	20	21	1.49	0.62-3.58	.37
College degree	60	9	51	0.28	0.11-0.71	<.008
Master's, PhD	12	2	10	0.31	0.06-1.62	.17

**Table II.** Skin complications among users

	No. (%)
No changes	35 (26.1)
Darkening of skin	22 (16.4)
Increased skin infections	26 (19.4)
Skin redness	28 (20.9)
Thinning of skin	14 (10.4)
Increased stretch marks	14 (10.4)
More sensitive skin	14 (10.4)

consistent with the findings of other studies of women in sub-Saharan Africa; namely, in Senegal (52.7%)<sup>21</sup> and Togo (58.9%).<sup>22</sup> It is also consistent with the findings of studies in Ghana (65.5% among female high school students and 50.3% among inhabitants of fishing communities in Accra).<sup>9,10</sup>

In studies of female students in Ghana and Somaliland, more skin-lightening product users agreed that a lighter complexion gives a woman more confidence and increases the number of job opportunities and her chances of getting married.<sup>9,15</sup> These students were also influenced by relatives and advertisements on television. We had similar findings, and the majority of women in this study reported that they engaged in this practice to increase their attractiveness (60.9%).

The motivations for skin-lightening product use in men have not been well documented in the

**Table III.** Perceived risks among product users and nonusers

	Users, No. (%)	Nonusers, No. (%)
No risks	37 (27.6)	14 (7.1)
Lightening of skin	38 (28.4)	84 (42.6)
Darkening of skin	61 (45.5)	98 (49.7)
Increased skin infections	25 (18.7)	72 (36.5)
Skin redness	26 (19.4)	64 (32.5)
Thinning of skin	28 (20.9)	60 (30.5)
Increased stretch marks	37 (27.6)	79 (40.1)
More sensitive skin	16 (11.9)	50 (25.4)
Fishy body odor	21 (15.7)	71 (36.0)
Skin cancer	5 (3.7)	12 (6.1)

literature. In a study by Blay<sup>23</sup> on skin lightening and the function of beauty, Ghanaian women questioned found light-skinned men attractive and it is thought that this might be driving the practice among men. In our study, we discovered that unlike most women who engage in this practice because of pressure from relatives and social media or to increase self-esteem, job opportunities, and marriageability, the majority of men were more concerned about attractiveness (53.2%). Approximately one-third of male users (34.0%) reported that they engaged in this practice because friends and family were also doing it, and few (12.8%) claimed that their

**Table IV.** Reasons for skin-lightening agent use

	Total, No. (%)	Men, No. (%), N = 47	Women, No. (%), N = 87
Increase attractiveness	78 (58.2)	25 (53.2)	53 (61.0)
Because my friends and family are doing it	37 (27.6)	16 (34.0)	21 (24.1)
Popular on social media	23 (17.2)	6 (12.8)	17 (19.5)
Increase self-esteem	12 (9.0)	4 (8.5)	8 (9.2)
Increase marriageability	4 (3.0)	0	4 (4.6)
Job opportunities	3 (2.2)	1 (2.1)	2 (2.3)

main motivator was social media. No participants reported engaging in the practice to increase marriageability and few reported that they used these products to increase their self-esteem (8.5%) or attain jobs (2.1%).

Both male and female users were more likely to associate lighter skin with beauty, self-esteem, attractiveness, and wealth. A study by Blay<sup>23</sup> found that many Ghanaian women considered lighter skin a surrogate for beauty. Lighter-skinned women also have higher self-esteem and perception of marriageability.<sup>24,25</sup> Regarding wealth, in 2011, a government survey of 2084 legal immigrants to the United States found that those with the lightest skin earned an average of 8% to 15% more than similar immigrants with much darker skin. This discrepancy remained when English-language proficiency, education, occupation, race, or country of origin was factored in. The author thus concluded that “on average, being one shade lighter has about the same effect as having an additional year of education.”<sup>26</sup> It has been argued that colonialism in most of sub-Saharan Africa, apartheid in South Africa, and slavery in the United States have reinforced the superiority notion associated with lighter skin.<sup>27,28</sup>

Furthermore, the findings of this study reveal the need for more public education and greater effort from regulatory bodies. In Ghana, there are laws in place that prohibit the importation and sale of lightening creams and toiletries; however, enforcement is weak.<sup>10</sup> The Food and Drug Administration has banned hydroquinone, steroids, and mercury as active ingredients in cosmetics.<sup>18,29</sup> It is believed that unmanned border crossings and poor law enforcement at custom ports allow these products to freely enter Ghana from neighboring countries. The products are readily available in pharmacies, beauty shops, and general markets and can be easily and affordably purchased over the counter. In our study, cost was not a barrier to use. Only 5.1% of nonusers reported cost as a deterrent. Many users reported that the products cost them between 0 and 20 GH¢ (\$0-\$4) a month, less than 4% of their total monthly income.

Last, globalization and increased migration may allow many immigrants from countries where skin lightening is common to import their practice to high-income countries.<sup>30</sup> This raises concern that what was once considered a public health problem localized to low- and middle-income countries may affect many immigrant communities in high-income countries, thus potentially contributing to the health care burden. There are few studies that describe the prevalence of skin-lightening product use among immigrants. One such study was conducted in Sweden and found that among pregnant women, significantly more foreign-born women were using skin-lightening products.<sup>31</sup> One recently published study in the United States that explored the predictors of skin-bleaching practice intensity among African and Afro-Caribbean women found that most women begin these practices in their late teens or early twenties and continue for more than 10 years.<sup>32</sup> However, given the paucity of data, it is unclear how many immigrants are actually continuing these unsafe practices, which thus warrants further investigation.

#### LIMITATIONS

This study is not without limitations. Cross-sectional studies are susceptible to bias because of low response rates and to misclassification because of recall bias. Although our study had a high response rate (95%), participants offered self-reported data, which lends to both response and recall biases. The study is also limited by social desirability bias, given the stigma associated with skin-lightening agent use. Thus, participants may have underreported their current or past use, which may have produced an underestimation of the prevalence of skin-lightening product use and could have skewed other data from the survey. The generalizability of the results is limited because we used a nonrandomized convenience sample method by recruiting participants from a single city in a single country.

**CONCLUSION**

In conclusion, skin-lightening agent use is a common practice among both men and women in low- and middle-income countries. Although most studies in sub-Saharan Africa have focused on the practice among women, our study offers insight into the prevalence among men across different socio-economic classes. The results highlight the need for continued efforts to educate the public and for lawmakers to limit the availability of these products. Given increased migration to high-income countries, additional studies need to be conducted to determine the prevalence of these practices in immigrant communities and the total health care burden.

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