

# Prevalence of skin bleaching and its associated factors among young adults in Ghana

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## KEYWORDS

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## ABSTRACT

**INTRODUCTION** Skin bleaching is a common practice among people of all ages and genders and constitutes a major public health challenge because of the associated dermatological effects, including skin cancer. The study determined the prevalence of skin bleaching and the type of products used for bleaching and associated factors among young adults in Ghana.

**METHODS** A community-based cross-sectional study design with quantitative approach was used to study 319 respondents using the consecutive sampling method. The data was analyzed descriptively and inferentially using chi-squared test and logistic regression. A conventional  $p < 0.05$  was considered statistically significant.

**RESULTS** The respondents were aged 17–30 years with mean age of 23.1 (SD: 3.4) years. Females had the highest representation (50.2%). The prevalence of skin bleaching was 26.3%. Reasons attributed to skin bleaching included: enhance beauty and healthy skin (97.6%), boost self-esteem (78.6%), and treatment of skin disorders (77.4%). There

were significant differences between skin bleaching and gender ( $p=0.006$ ), marital status ( $p < 0.001$ ), skin complexion ( $p=0.04$ ), where someone grew up ( $p < 0.001$ ), education level ( $p=0.002$ ), average monthly income ( $p < 0.001$ ), and occupation ( $p < 0.001$ ). The study found being single (adjusted odds ratios, AOR=10.4; 95% CI: 3.30–33.00), fair in complexion (AOR=4.9; 95% CI: 2.22–10.72), rural settling (AOR=0.14; 95% CI: 0.07–0.29), unemployed (AOR=3.15; 95% CI: 1.27–7.63) and no formal education (AOR=3.2; 95% CI: 1.25–8.29) to be the most significant predictors for skin bleaching.

**CONCLUSIONS** The use of skin bleaching products was fairly high among respondents with marital status, complexion, location, employment and education level as the most important predictors. The study findings highlight the need for continued enforcement of the ban on the use of skin bleaching products and public health educational interventions on the harmful effects of skin bleaching.

## INTRODUCTION

Skin bleaching is now a common practice among people of all ages, genders, and religious affiliations, in black communities and valued at \$12.3 billion by 2027<sup>1,2</sup>. The cosmetic use of tropical ointments, gels, soaps, creams and household chemicals to de-pigment or lighten (bleach) the skin

complexion, is known as skin bleaching<sup>3</sup>. People who desire lighter skin, fashion or appearance enhancement, patronize bleaching products such as automotive battery acid, bleach, laundry detergent, and toothpaste which are often marketed as skin lighteners, skin whiteners, and skin toners<sup>4-6</sup>. There are varying proportions of skin bleaching product use. For example,

in Nigeria 77% of women bleach their skin thus making it the greatest rate of bleaching product usage in Africa<sup>7</sup>. Also, 52–67% of women in Dakar, and Senegal, used skin bleaching products<sup>6,8,9</sup>. In Cameroon, majority of young adults practiced skin bleaching<sup>10</sup>. Though skin bleaching is often associated with women, some studies have reported usage among men<sup>11</sup>. For instance, in Nigeria, 72% of ladies use some form of skin bleaching products compared to 28% of men<sup>12</sup>.

Most Ghanaian women believe that beauty is incomplete if their skin remains black; they would go to great lengths to transform their natural dark skin color to a lighter one by bleaching it with chemicals, soaps, lotions, and other products<sup>13</sup>. The popular Ghanaian saying ‘ahoofe kasa’ (beauty talks) lends credence to the active use of skin lightening agents by Ghanaians<sup>14</sup>. This growing misconception about skin bleaching has pushed most women into patronizing cosmetic agents such as kojic acid, corticosteroids, and hydroquinone-based products<sup>15,16</sup>. In Ghana, the prevalence of skin bleaching is reported to range 30.0–65.6%<sup>14,17</sup>, predominantly among females<sup>18</sup>. Studies on skin bleaching in Ghana are limited, especially in Northern Ghana, despite the increasing rate of skin bleaching products usage in Ghana. This study therefore assessed the prevalence of skin bleaching and associated factors among young adults in the North Gonja District of the Savannah Region, Ghana.

## METHODS

### Study design and setting

The study design used was a community based cross-sectional study with quantitative approach. The study was conducted in the North Gonja District of the Savannah Region of Ghana with Daboya as the district capital. The North Gonja District Assembly was established by legislative instrument (LI) 2065 (2012). It shares boundaries with West Gonja and Wa East districts to the West, Tolon District to the East, Mamprugu-Moagduri and Kumbungu districts to the North and Central Gonja to the South. According to Ghana’s Population and Housing Census (2010) the district’s population was 55169<sup>19</sup>.

### Inclusion and exclusion criteria

The study included both males and females aged 17–30 years who resided in North Gonja, who are of sound mind, and agreed voluntarily to participate in the study. All members outside these criteria were excluded from this study.

### Sample size and sampling techniques

In this research, the sample size was computed using the Snedecor and Cochran<sup>20</sup> formula with  $N$ =sample size,  $z$  score of a 95% confidence level equivalent to 1.96,  $p$ =30% (prevalence of skin bleaching use in Ghana)<sup>14</sup>,  $q$ =estimated proportion who did not use bleaching products ( $1-p = 0.7$ ), and margin of error of the study  $m=0.05$ . From the above, the sample minimum sample size required to be representative was 323 young adults. These young adults were recruited

into the study using the consecutive sampling techniques (also known as total enumerative sampling). In every community visited, every subject who presented himself/herself over a given period who satisfy the inclusion criteria was recruited for the study. The process was repeated in each community until the sample size was reached.

### Data collection tools and procedures

A structured questionnaire was used to gather data for this study. The questionnaire was designed by the authors after reviewing relevant literature on skin bleaching<sup>13,15,18,21</sup>. To ensure the reliability of the data collection tool, the questionnaire was piloted among 30 young adults in the West Gonja Municipality. The piloting allowed the researchers to modify the questionnaire to solicit the right responses from the respondents. The questionnaire was then digitized, using Google Forms, and subsequently shared among respondents in the North Gonja District who consented to participate. Respondents who were available were given the access to the questionnaire via e-mail or WhatsApp contact number. For those who could not read or write, the researchers assisted them by explaining each item on the questionnaire via phone or one-on-one approach to data collection COVID-19 protocols.

### Data analysis and presentation

All 323 respondents returned filled questionnaires, representing 100% response rate. However, after all questionnaires were checked for completeness and signing of the consent form, 319 questionnaires were considered for analysis. The data were subsequently exported to Stata version 14 and analyzed. Descriptive statistics such as frequencies and percentages were generated using tables and graphs for categorical variables and means and standard deviations for continuous variables. Chi-squared analysis was performed to determine the association between sociodemographic characteristics and use of skin bleaching products. Similarly, a binary logistic regression was performed to assess the predictors of skin bleaching usage. A  $p<0.05$  was considered statistically significant in this study.

To control for confounding variables, only variables that were significant ( $p<0.05$ ) at the bivariate analysis (chi-squared analysis was performed to determine the association between sociodemographic characteristics and use of skin bleaching products) were used to estimate the multiple logistic regression model (adjusted model) to determine the predictors. The  $p$ -value less than 0.05 was selected because of its closeness to zero (0), thus would reveal the most desire effect and improved model<sup>22</sup>.

### Ethical Considerations

Administrative approval for the study was sought from the North Gonja District Assembly. For the community entry, the researchers sought permissions from the Assembly Members (Representatives of the community members at the district)

after explaining the aim and scope of the study. Respondents provided both verbal and written consent. Consenting to participate in the study did not bond respondents and they had the liberty to withdraw at any point of the data collection process. The researchers observed the ethical principles for medical research involving human subjects<sup>23</sup>.

## RESULTS

### Sociodemographic characteristics of respondents

Participants' age ranged 17–30 years with mean age of 23.1 (SD: 3.4) years. Most of the respondents were aged 21–25 years (48.6%) with females having the highest representation (50.2%). Majority of the respondents were single (72.4%), dark skin complexion (77.1%), urban dweller (51.1%) and most with tertiary education (n=75; 23.5%). Majority of the participants on the average earned ≤1000 GHS monthly (n=200; 62.7%). The Gonjas were the majority ethnic group (52.4%). Majority of the respondents were employed (66.1%). However, 37% worked in the private sector (Table 1).

### Awareness and knowledge of skin bleaching among respondents

All respondents were aware of skin bleaching with the source of first information on skin bleaching from teachers or literature (34.5%). The majority of respondents were knowledgeable in skin bleaching (71.8%). About 84.3% of respondents said that skin bleaching involved making the skin smooth. A higher proportion of the respondents (93.4%) indicated that stretch marks and skin cancer (93.4%) are largely caused by skin bleaching (Table 2).

### Prevalence and use of skin bleaching products

Self-reported use of skin bleaching products was 26.3% with majority (67.9%) using less than two skin bleaching products. Users of skin bleaching products preferred locally made skin toning products (46.4%). Major factors users of skin bleaching products consider in the selection of the skin products comprised effectiveness of product (85.7%), affordability (82.1%), ingredients and brand of the product (77.4%).

Majority of the respondents (76.5%) had knowledge of the dangers of skin bleaching or toning products. The common dangers identified by respondents include skin cancer (40.1%) and wrinkled skins in old age (17.6%). Most of the respondents had knowledge of the ingredients used in the bleaching products (37.6%), and checked the expiry date before buying (49.5%). Reasons attributed to skin bleaching included enhance beauty and healthy skin (97.6%), boost self-esteem (78.6%), and treatment of skin disorders (77.4%). Majority of the respondents (94.0% and 97.5%) said the skin bleaching products are obtained from cosmetic shops and open market, respectively (Table 3).

### Association between sociodemographic characteristics and skin bleaching

A significant difference was observed between gender

**Table 1. Sociodemographic characteristics of respondents in Ghana, 2021 (N=319)**

Characteristics	n (%)
<b>Age (years)</b>	
≤20	86 (27)
21–25	155 (48.6)
26–30	78 (24.5)
<b>Gender</b>	
Female	160 (50.2)
Male	159 (49.8)
<b>Marital status</b>	
Married	88 (27.6)
Single	231 (72.4)
<b>Skin complexion</b>	
Dark	246 (77.1)
Fair	73 (22.9)
<b>Where did you grow up?</b>	
Rural	156 (48.9)
Urban	163 (51.1)
<b>Education level</b>	
No formal education	51 (16)
Primary	54 (16.9)
Junior high school/middle school	66 (20.7)
Senior high school/vocational	73 (22.9)
Tertiary	75 (23.5)
<b>Average monthly income (GHS)</b>	
≤1000	200 (62.7)
1000–2000	51 (16)
≥2000	68 (21.3)
<b>Ethnicity</b>	
Gonja	167 (52.4)
Kamara	53 (16.6)
Akan	23 (7.2)
Dagomba	11 (3.4)
Mamprusi	41 (12.9)
Waala	8 (2.5)
Others	16 (5)
<b>Occupational status</b>	
Public sector employment	36 (11.2)
Private sector employment	118 (37.0)
Self-employed	57 (17.9)
Unemployed	108 (33.9)

GHS: 1000 Ghana Cedis about 141 US\$.

**Table 2. Awareness and knowledge of skin bleaching among young adults in Ghana, 2021 (N=319)**

Variables	n (%)
<b>Heard about skin bleaching</b>	
Yes	319 (100)
No	0
<b>First source of information on bleaching</b>	
Family member	54 (16.9)
Friends	93 (29.2)
Media (TV/radio)	62 (19.4)
Teacher/literature	110 (34.5)
<b>Knowledge about skin bleaching</b>	
Yes	229 (71.8)
No	90 (28.2)
<b>What is skin bleaching about*</b>	
Changing human color	124 (54.1)
Using chemicals on the skin	99 (43.2)
Making the skin smooth	193 (84.3)
<b>Skin bleaching causes stretch marks</b>	
Yes	298 (93.4)
No	21 (6.6)
<b>Skin bleaching causes cancer</b>	
Yes	298 (93.4)
No	21 (6.6)

\*Multiple responses.

**Table 3. Prevalence and use of skin bleaching products among young adults, 2021 (N=319)**

Variables	n (%)
<b>Have you used skin bleaching products?</b>	
Yes	84 (26.3)
No	235 (73.7)
<b>Number of skin toning products used in the last 12 months<sup>a</sup></b>	
<2	57 (67.9)
≥2	27 (32.1)
<b>Preferred skin toning products<sup>a</sup></b>	
Local	39 (46.4)
International	21 (25)
Both	24 (28.6)

**Table 3. Continued**

Variables	n (%)
<b>Factors you consider in choosing bleaching product<sup>b</sup></b>	
Brand of the product	65 (77.4)
Affordability	69 (82.1)
Effectiveness of product	72 (85.7)
Ingredients	65 (77.3)
Advertisement	60 (71.4)
Friends' recommendation	45 (53.6)
<b>Knows danger of using skin bleaching/toning products</b>	
Yes	244 (76.5)
No	75 (23.5)
<b>Dangers of skin bleaching<sup>b</sup></b>	
Skin cancer	128 (40.1)
Wrinkled skins in old age	56 (17.6)
Easy cuts	12 (3.8)
Loss of life	9 (2.8)
Multicolored skin	45 (14.1)
<b>Know ingredients in cosmetic products</b>	
Yes	120 (37.6)
No	199 (62.4)
<b>Examine cosmetic before purchase</b>	
Yes	195 (61.1)
No	124 (38.9)
<b>Check expiry date before buying cosmetics</b>	
Yes	158 (49.5)
No	161 (50.5)
<b>Know safety requirement in using cosmetics</b>	
Yes	114 (35.7)
No	205 (64.3)
<b>What makes people bleach their skin<sup>b</sup></b>	
Enhance beauty and healthy skin	82 (97.6)
Boost self-esteem	66 (78.6)
Get better jobs	8 (9.5)
Shows higher social class	8 (9.5)
Treats skin disorders	65 (77.4)
<b>Where to get skin bleaching/toning products<sup>b</sup></b>	
Cosmetic shops	300 (94.0)
Online portal	227 (71.2)
Pharmaceutical shops	162 (50.8)
Open market	311 (97.5)
Traditional medical practitioners	93 (29.2)

a n=84. b Multiple responses.

Continued

**Table 4. Association between sociodemographic characteristics and skin bleaching use among young adults in Ghana, 2021 (N=319)**

Variables	Used skin bleaching products		p ( $\chi^2$ )
	Yes n (%)	No n (%)	
<b>Age (years)</b>			0.750 (0.50)
≤20	21 (24.4)	65 (75.6)	
21–25	40 (25.8)	115 (74.2)	
26–30	23 (29.5)	55 (70.5)	
<b>Gender</b>			0.006 (7.60)*
Female	53 (33.1)	107 (66.9)	
Male	31 (19.5)	128 (80.5)	
<b>Marital status</b>			<0.001 (29.70)***
Married	4 (4.5)	84 (95.5)	
Single	80 (34.6)	151 (65.4)	
<b>Skin complexion</b>			0.040 (4.20)*
Dark	58 (23.6)	188 (76.4)	
Fair	26 (35.6)	47 (64.4)	
<b>Where did you grow up</b>			<0.001 (23.50)***
Rural	22 (14.1)	134 (85.9)	
Urban	62 (38.0)	101 (62.0)	
<b>Education level</b>			0.002 (16.80)**
No formal education	24 (47.1)	27 (52.9)	
Primary	17 (31.5)	37 (68.5)	
Junior high school/middle school	15 (22.7)	51 (77.3)	
Senior high school/vocational	13 (15.8)	60 (82.2)	
Tertiary	15 (20.0)	60 (80.0)	
<b>Average monthly income (GHS)</b>			<0.001 (21.70)***
≤1000	63 (31.5)	137 (68.5)	
1000–2000	0	51 (100.0)	
≥2000	21 (30.9)	47 (69.1)	
<b>Occupational status</b>			<0.001 (37.00)***
Public sector employment	22 (18.6)	96 (81.4)	
Private sector employment	0	36 (100.0)	
Self-employed	13 (22.8)	44 (77.2)	
Unemployed	49 (45.4)	59 (54.6)	

GHS: 1000 Ghana Cedis about 141 US\$. \*p<0.05. \*\*p<0.01. \*\*\*p<0.001.

(p=0.006,  $\chi^2=7.60$ ), marital status (p<0.001,  $\chi^2=29.70$ ), skin complexion (p=0.04,  $\chi^2=4.20$ ), where someone grew up (p<0.001,  $\chi^2=23.50$ ), level of education (p=0.002,  $\chi^2=16.80$ ), average monthly income (p<0.001,  $\chi^2=21.70$ ) and occupation (p<0.001,  $\chi^2=37.00$ ) and skin bleaching (Table 4).

**Predictors of skin bleaching among study respondents**

The study found that young adults who were single (never married) were 10.4 times more likely to bleach their skin compared to those who were married (AOR=10.4; 95% CI: 3.30–33.00, p<0.001). Also, those who were fair in

**Table 5. Predictors of skin bleaching usage among young adults in Ghana, 2021 (N=319)**

Variable	AOR (95%CI)	p
<b>Marital status</b>		
Married (Ref.)	1	
Single	10.4 (3.30–33.00)	<0.001***
<b>Skin complexion</b>		
Dark (Ref.)	1	
Fair	4.9 (2.22–10.72)	<0.001***
<b>Where did you grow up?</b>		
Urban (Ref.)	1	
Rural	0.14 (0.07–0.29)	<0.001***
<b>Education level</b>		
Tertiary (Ref.)	1	
No formal education	3.2 (1.25–8.29)	0.015*
Primary	2.1 (0.79–5.60)	0.14
Junior high school/middle school	1.4 (0.57–3.83)	0.42
Senior high school/vocational	1.2 (0.6–3.83)	0.70
<b>Occupational status</b>		
Self-employed (Ref.)	1	
Unemployed	3.15 (1.27–7.63)	0.013*
Employed	0.72 (0.28–1.88)	0.51

\*p<0.05. \*\*p<0.01. \*\*\*p<0.001. AOR: adjusted odds ratio.

complexion were 4.9 times more likely to use skin bleaching products compared to those who had dark skin (AOR=4.9; 95% CI: 2.22–10.72, p<0.001). Young adult residents in rural areas were 86% less likely to patronized bleaching products compared with those in urban settlements (AOR=0.14; 95% CI: 0.07–0.29, p<0.001). Unemployed young adults were 3.15 times more likely to bleach their skin compared to those who were self-employed (AOR=3.15; 95% CI: 1.27–7.63, p=0.013). Finally, young adults with no formal education were 3.2 times more likely to use bleaching products compared to those who had tertiary education (AOR=3.2; 95% CI: 1.25–8.29, p=0.015) (Table 5).

## DISCUSSION

Despite the ban on skin bleaching creams and products, our study recorded relatively higher usage among respondents. Other studies reported higher prevalence in Ghana<sup>17,24,25</sup>. For example, the use of skin bleaching creams and products varies between 40.4% in Kumasi, Ashanti Region, 50.3% in the Greater Accra Region and 65.0% in the Bono-Ahafo Region<sup>17,24,25</sup>. These findings suggest a weak regulatory

system on the use of skin bleaching creams and products in Ghana. Universally, the use of skin bleaching products is pervasive in African Countries. With inter-African trade agreements, Ghana may continue to witness influx of skin bleaching products and agents due to the nature of our porous inland borders. It is therefore important to strengthen Ghana's borders against importation of skin bleaching products.

Important in this study is the recognition of awareness and knowledge of skin bleaching among respondents. However, these are not enough to achieve zero skin bleaching product use. Ghana's Food and Drug Authority should be adequately resourced to carry out its role effectively in relation to the enforcement of the ban on the use of skin bleaching products. Consistent with other studies<sup>17,25-27</sup> our respondents indicated knowledge on the risk of using skin bleaching products, including skin cancer and wrinkled skins in old age. Considering the young age structure of our respondents and Ghana in general<sup>28</sup>, the use of skin bleaching products among them could have long-term effects. It is recommended that, one needs to carefully read the contents label of creams before using or buying them<sup>29</sup>. Most of our respondents indicated examining the content of cosmetic products, including expiry date and safety requirements. This finding is particularly important as reading the content label of creams allows individuals to know creams that are likely to cause bleaching and avoid them.

Equally, important insights from the present study included significant differences between gender, marital status, skin complexion, location of respondents (rural/urban), level of education, average monthly income, occupation and skin bleaching products use. The use of skin bleaching products is associated with gender (33.1% vs 18.5% : females and males, respectively) as observed in the current study, corroborating the findings of Owusu-agyei et al.<sup>24</sup> with a 26.6% and 56.5% use among males and females, respectively. A meta-analysis study reported higher prevalence among males (28%)<sup>30</sup>, in contrast to our study finding and that of Owusu-agyei et al.<sup>24</sup>, demonstrating varying proportions among populations of different settings. According to Owusu-agyei et al.<sup>24</sup> females were more likely to use skin bleaching products compared to males. Nonetheless, targeted public health interventions including education should be directed at both sexes. Marital status was significantly associated with the use of skin bleaching products, however being single had higher odds and positively associated with the use of skin bleaching products. This might partly explain a reason for the use of skin bleaching products such as beautification. Multiple studies have asserted that most individuals use skin bleaching products to look more beautiful and attractive<sup>24,31</sup>. Skin complexion, especially fair-colored individuals were more likely to use skin bleaching. This might be because fair-colored individuals may want to preserve their complexion. This is contrary to other studies that reported that dark-

colored individuals were more likely to use skin bleaching products<sup>32,33</sup>. Nevertheless, it is important to know that the skin is an essential protective covering of the body, liable to external threats and irritations. It is therefore important not to disturb the integrity of the skin so it is able to perform its protective function.

The level of education was equally noted to be associated with the use of bleaching products, consistent with the finding of Lartey et al.<sup>25</sup>, especially among persons with no education. According to Sagoe et al.<sup>30</sup>, persons without education reported 17.8% use, primary school education 31.6%, and 22.8% among persons with tertiary education. Irrespective of one's educational background, the associated side effects of the use of skin bleaching products should be communicated well to the population. Occupation and average monthly income were associated with the use of skin bleaching products. Being unemployed was positively associated with the use of skin bleaching products. According to Owusu-agyei et al.<sup>24</sup> users of skin bleaching products spend almost 4% of their total monthly income on skin bleaching products.

### Limitations

As with self-reported surveys, our study is subject to information biases coupled with our inability to confirm responses given, although conscious effort was made to minimize this bias. Nevertheless, the study provides population-based data on skin bleaching. This can inform agencies including the Ghana's Food and Drugs Authority and other stakeholders for targeted public health interventions.

### CONCLUSIONS

The use of skin bleaching products was fairly high among respondents and was mainly predictable by some sociodemographic factors. The study findings highlight the need for continued enforcement of the law on the use of skin bleaching products and public health educational interventions on the harmful effects of skin bleaching.

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This research was approved by the North Gonja District Assembly (Date: 21 July 2021). All participants have provided informed consent.

**DATA AVAILABILITY**

The data supporting this research can be found in the Supplementary file.

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