

# Knowledge, Attitude and Practice of Skin Bleaching among Adolescents in Keffi, North-central Nigeria

Okoro OE FMCP<sup>1</sup>, Barminas R FMCFM<sup>2</sup>, Olarinoye G FMCP<sup>1</sup>, Magaji DMWACP<sup>1</sup>, Oseze H MWACP<sup>1</sup>

<sup>1</sup>Dermatology unit, Federal Medical Centre, Keffi, Nasarawa State,

<sup>2</sup>Department of Family Medicine, Federal Medical Centre, Keffi, Nasarawa State

**Corresponding author:** Dr Emeka Okoro, Dermatology unit, Federal Medical Centre, Keffi, Nasarawa State

**Email address:** emybum@yahoo.com; **Phone number:** +234 8138353294

## ABSTRACT

**Background:** Skin bleaching (SB) is a common dermatological practice among Nigerian women. It is associated with skin damage and systemic disorders especially when agents containing ingredients such as mercury and steroids are used. It is important to curb the practice of skin bleaching to reduce the associated morbidity.

**Objective:** The aim of this study is to determine the knowledge, attitude and practice of SB among female adolescents in Keffi, Nasarawa State, Nigeria

**Method:** This was a cross-sectional descriptive study among female adolescents in secondary schools in Keffi between October and December 2021. Students who were attending the Traction Alopecia Prevention (TAP) training programme were interviewed using a self-administered questionnaire. The questionnaire sought information on the knowledge, attitude and practice of skin bleaching. Data was analyzed using IBM SPSS 25.

**Result:** A total of 247 adolescents with a mean age of  $15.39 \pm 1.22$  years completed the survey. The awareness of SB was high with 189 (76.5%) being aware of SB. A significant number (39.7%) believe that SB makes one look fashionable while 91 (36.8%) believe that it makes one look more beautiful. The practice of SB was reported by 27 (10.7%) students. The earliest age of onset of SB was 11 years.

**Conclusion:** The awareness of SB was high among the students. A significant number of adolescents believe that SB is fashionable. The practice of SB starts in early adolescence. Educational programmes targeted at adolescents will reduce the dangers associated with the practice of SB.

**Keywords:** Skin bleaching, adolescents

## Connaissance, Attitude et Pratique du Blanchiment de la Peau chez les Adolescents à Keffi, dans le Centre-nord du Nigéria

**Contexte:** Le blanchiment de la peau (SB) est une pratique dermatologique courante chez les femmes nigérianes. Il est associé à des lésions cutanées et à des troubles systémiques, en particulier lorsque des agents contenant des ingrédients tels que le mercure et les stéroïdes sont utilisés. Il est important de freiner la pratique du blanchiment cutané pour réduire la morbidité associée.

**Objectif:** Le but de cette étude est de déterminer les connaissances, l'attitude et la pratique du SB chez les adolescentes de Keffi, dans l'État de Nasarawa, au Nigeria.

**Méthode:** Il s'agit d'une étude descriptive transversale auprès d'adolescentes des écoles secondaires de Keffi entre octobre et décembre 2021. Les étudiantes qui suivaient le programme de formation Traction Alopecia Prevention (TAP) ont été interrogées à l'aide d'un questionnaire auto-administré. Le questionnaire cherchait des informations sur les connaissances, l'attitude et la pratique du blanchiment de la peau. Les données ont été analysées à l'aide d'IBM SPSS 25.

**Résultat:** Un total de 247 adolescents âgés en moyenne de  $15,39 \pm 1,22$  ans ont répondu à l'enquête. La sensibilisation au SB était élevée avec 189 (76,5 %) personnes au courant du SB. Un nombre important (39,7%) pense que SB rend à la mode tandis que 91 (36,8%) pensent qu'il rend plus belle. La pratique du SB a été rapportée par 27 (10,7%) étudiants. L'âge le plus précoce d'apparition du SB était de 11 ans.

Conclusion: La sensibilisation au SB était élevée parmi les étudiants. Un nombre important d'adolescents pensent que le SB est à la mode. La pratique du SB commence au début de l'adolescence. Les programmes éducatifs destinés aux adolescents réduiront les dangers associés à la pratique du SB.

**Mots-clés:** Blanchiment de la peau, adolescents

## Introduction

Skin bleaching (SB) or whitening or lightening or toning is the act of brightening the skin colour (complexion) by reducing the amount of melanin in the skin using substances, mixtures or physical treatments.<sup>1</sup> It is a global skincare practice but particularly common among Africans and Asians.<sup>2</sup> Among Africans, the practice of SB varies (32.7% - 52.2%) with a high prevalence reported among Nigerians.<sup>3-6</sup> The practice of SB is high among young people with up to 55.9% of those less than 30 years engaging in the practice of SB.<sup>2</sup> Among young female adults (students of tertiary institutions) the use of bleaching cream is as high as 48.1% while among adolescents (high school students) it is about 36.6%.<sup>6,7</sup>

The practice of skin bleaching is associated with various problems. These result from the main ingredients in most bleaching agents such as hydroquinone, mercury and steroids.<sup>8</sup> Hydroquinone is associated with dermatitis, exogenous ochronosis, fish-odour syndrome, nail discolouration and patchy skin pigmentation.<sup>9,10</sup> Mercury is a known cause of nephrotic syndrome and can also cause hyperpigmentation due to the deposit of mercury granules in the skin in chronic bleachers.<sup>8,11</sup> Topical steroids damage the skin causing large multiple stretch marks, skin atrophy, skin infections, folliculitis and systemic disorders such as Cushing's syndrome and diabetes mellitus.<sup>12,13</sup> Despite the risk of these complications, the practice of skin bleaching is still rampant in most African societies.

The awareness of SB is high among young women. More than 80% of students of tertiary institutions are aware of SB in Nigeria.<sup>6</sup> The knowledge of SB varies among the age groups. While the knowledge of the ingredients in bleaching agents is low, the knowledge of the complications and skin features of SB are common among university students.<sup>6,14</sup> There is limited information about such knowledge among female adolescents.

The motivating factors for skin bleaching among

Africans run deeply across society beginning from the impact of colonialism which enthroned colourism; promoting the superiority of white skin over black skin.<sup>15</sup> Other factors stemming from this include the need to look more fashionable and more attractive and gain more opportunities in society.<sup>16-18</sup> Fair skin appears to be more acceptable in society. Users of skin bleaching agents believe that fair skin attracts more male partners and makes them more acceptable to their peers.<sup>17</sup>

The practice of skin bleaching has changed over the years with SB being practised among younger age groups.<sup>19</sup> The use of various creams containing ingredients such as hydroquinone, mercury, and steroids has been the usual practice but more recently, kojic acid, arbutin and other newer agents are in use.<sup>7,8</sup> In addition, the use of other forms in combination with topical agents has been observed. The use of intravenous or oral forms of glutathione and vitamin C is common in Asia and most African countries.<sup>6,20</sup> Skin-lightening bathing bars or body washes are now common in cosmetic shops in Africa.<sup>21</sup> The use of various natural or herbal products generally referred to as "organics" appears to be the emerging trend.<sup>6</sup>

There is a need to control the practice of skin bleaching because of the associated dangers. The adolescent age represents an active and explorative stage of human development. Life lessons imbibed at this stage significantly shape the emerging adult.<sup>22</sup> A good understanding of the knowledge, attitude and practice of skin bleaching among adolescents will be required to formulate programmes to reduce the menace of skin bleaching. This study aims to study the knowledge, attitude and practice of skin bleaching among female adolescents in Keffi, North-central Nigeria.

## Materials and Methods

This was a cross-sectional survey carried out among female adolescents from four senior secondary schools in Keffi, Nasarawa state, Nigeria, from October 4 to December 16, 2021. Keffi is the

headquarters of Keffi Local Government Council in Nasarawa State. It is a town located 50km east of Abuja the capital territory of Nigeria. The Nasarawa State University and the Federal Medical Centre (a tertiary health institution) are located in keffi. There are four public senior secondary public schools and about 67 private secondary schools in Keffi town. Ethical approval (NHREC/20/12/2012) was obtained from the Health Ethics Research Committee of the Federal Medical Centre, Keffi, Nasarawa state while permission was obtained from the Keffi Zonal Inspectorate of Education and the principals of the schools before the study was carried out. Students from private schools were not recruited for the study because their principals declined participation in the study. Informed consent was obtained from both parents or guardians and students assented to the study. The sample size for the study was calculated using the formula for estimating a single proportion ( $n = Z\alpha^2pq/d^2$ ). Using the prevalence of skin bleaching of 24.6% among 12th-grade high school students in Benin reported by Atadokpédé et al.<sup>7</sup> the estimated sample size was 285 students. There are only four public senior secondary schools (SSS1 – SSS3) in Keffi town. Female students from these classes were invited to the traction alopecia prevention (TAP) training programme. Every student attending the training that assented to the study was recruited for the interview until the sample size was completed. A total of 296 female adolescents out of about 1,516 female students from the four public senior secondary schools were recruited for the study. The students were interviewed using a structured questionnaire adapted from a previous study.<sup>6</sup> The questionnaire which sought information regarding their knowledge, attitude and practice of skin bleaching was self-administered.

### Data analysis

Data sorting, cleaning and analysis were done using the IBM Statistical Software for Social Sciences, SPSS version 25. Continuous variables were represented as mean with standard deviation while categorical variables were represented as proportions.

### Results

A total of 247 female adolescents completed the survey out of 296 students. The mean age of the participants was  $15.39 \pm 1.22$  years with an age range of 12 – 19 years. The other demographic features are shown in Table 1.

**Table 1: Demographic characteristics of the participants**

Variables	Frequency	Percentage
<b>Age (years)</b>		
12 -14	42	17.0
15-17	195	78.9
≥18	10	4.1
<b>Tribe</b>		
Eggon	25	10.1
Hausa/Fulani	50	20.2
Igbo	48	19.4
Yoruba	36	14.6
Others (Tiv, Gwandara, Idoma, Egede, Birom etc)	88	35.6
<b>Religion</b>		
Christianity	166	67.2
Islam	74	29.9
Traditional	7	2.8
<b>Family type</b>		
Nuclear	215	87.0
Polygamous	32	13.0
<b>Parents</b>		
Divorced	11	4.5
Single parent	45	18.2
Widow	29	11.7
Widower	5	2.0
Couple	157	63.6

### Knowledge of skin bleaching

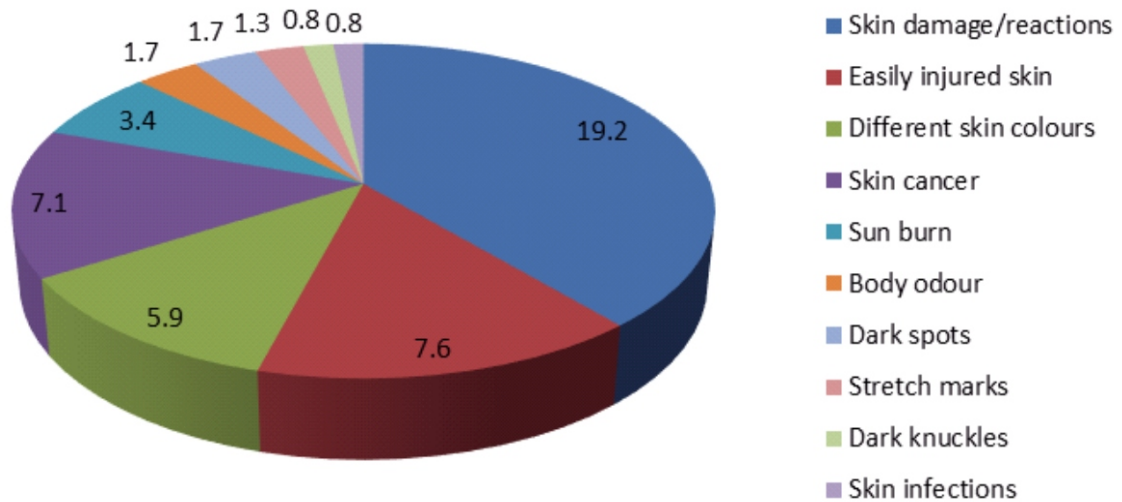
The awareness of SB was reported by 189 (76.5%) participants. The majority received information about SB through their friends (45.3%), media (18.2%) and family members (17.0%). Only 30 (12.2%) participants knew the active ingredients in bleaching products. Carrot oil was the commonest ingredient identified by 11 (4.5%) while hydroquinone was identified by 7 (2.8%). Other ingredients were papaya, cucumber, lemon, acids, turmeric, vitamin E and egg. The forms of bleaching products known by the participants were creams (76.9%), soaps (7.7%), injections (5.7%) and tablets

(1.6%). Overall, 28 different brands of bleaching creams were known by the participants. The leading brands were Caro white 65 (27.5%), White secret 44 (18.6%), Caro tone 28 (11.9%), Perfect white 14 (5.9%) and Funbact-A 9 (3.8%). One hundred and ninety-three (78.1%) could recognize individuals using bleaching agents. Identifying features were different shades of skin colour (49%), dark knuckles (28.7%), stretch marks (10.5%), and prominent veins (2.0%). One hundred and fifty-six (63.2%) knew about the problems associated with SB. Some of the common problems listed by the participants are represented in Figure 1.

**Table 2: Knowledge of skin bleaching among female adolescents in Keffi**

Variables	Frequency	Percentage (%)
<b>Awareness of skin bleaching</b>		
Yes	189	76.5
No	58	23.5
<b>Knowledge of active ingredients in bleaching products</b>		
Yes	30	12.2
No	217	87.8
<b>Identified active ingredients</b>		
Carrot oil	11	4.5
Hydroquinone	7	2.8
Papaya	2	0.8
Others (turmeric, vitamin E, lemon, cucumber, egg Aloe vera, lime, Vitamin C)	10	4.1
<b>Forms of skin bleaching products</b>		
Creams	190	76.9
Soaps	19	7.7
Injections	14	5.7
Tablets	4	1.6
Body wash	3	1.2
No response	17	6.9
<b>Brands of bleaching creams</b>		
Caro white	65	27.5
White secret	44	18.6
Caro tone	28	11.9
Perfect white	14	5.9
Funbact-A	9	3.8

**The Complications of Skin Bleaching**



**Figure 1:** Knowledge of the complications of skin bleaching

**Attitude towards skin bleaching**

The attitude of the participants towards the practice of SB is shown in table 3 below.

**Table 3: Attitude of participants towards the practice of SB**

Attitude	Agree	Neither agree nor disagree	Disagree
Skin bleaching makes one look trendy and fashionable	98 (39.7%)	24 (9.7%)	125 (50.6%)
Skin bleaching makes one look more beautiful with smooth skin	91 (36.8%)	26 (10.5%)	130 (52.6%)
I like friends who use bleaching cream	33 (13.4%)	17 (6.9%)	197 (79.8%)
Skin bleaching products should be used only for medical purposes?	143 (57.9%)	25 (10.1%)	79 (31.9%)
Skin bleaching helps one to have a successful carrier (better job opportunities)	32 (12.9%)	22 (8.9%)	192 (77.7%)
Use of skin bleaching products would make you have more suitors/admirers?	52 (21.1%)	22 (8.9%)	173 (70.0%)
Skin bleaching helps one to attain a higher social class/rank	30 (12.2%)	14 (5.7%)	203 (82.2%)

**Practice of skin bleaching**

Among the study participants, 27 (10.7%) students were using SB agents. About half of them (51.8%) have been using them for more than one year with the earliest age of onset being 11 years. The majority, 19 (70.4%) applied bleaching creams more than once

daily. Few of them (18.5%) used a combination of bleaching creams for skin lightening. Besides bleaching creams, 10 (37.0%) students also use other forms of bleaching agents {bleaching soaps (50%), tablets (20%) and herbs (10%)}. Twenty (75%) applied the cream to the whole body while the rest

limited application to the face and neck areas. Overall, 21 different brands of bleaching creams were used by these students. The common bleaching creams were “Caro white”, “White secret”, “Perfect

white”, “egg milk” and “skin clear”. The choice of bleaching agent used was influenced by friends 11 (40.8%), family members 11 (40.8%) and media 3 (11.1%) among the participants.

**Table 4:** Practice of skin bleaching among female adolescents in Keffi

Variables	Frequency	Percentage (%)
<b>Current use of skin bleaching agents</b>		
Yes	27	10.7
No	220	89.3
<b>Duration of using bleaching agents</b>		
Less than one year	13	48.2
More than one year	14	51.8
<b>Application of bleaching cream</b>		
Once daily	8	29.6
More than once daily	19	70.4
<b>Combination of bleaching creams</b>		
Yes	5	18.5
No	22	81.5
<b>Brands of bleaching creams</b>		
White secret	6	22.3
Caro white	5	18.5
Perfect white	3	11.1
Egg milk	3	11.1
Skin clear	2	7.4
Others (Coco butter, Fresh glow, Skineal, Nature magic Looking good, Caro tone, Precious perfect, Bio skin)	8	29.6
<b>Choice of bleaching agent was influenced by</b>		
Friends	11	40.8
Family members	11	40.8
Media	3	11.1
Type of cream	2	7.3

## Discussion

Skin bleaching is a common practice in Nigeria and most African communities. Our study is the first to

assess the knowledge, attitude and practice of SB among adolescents in Nigeria and among the few studies to do so in Africa. The awareness of SB was high among adolescents in Keffi. This is similar to

other studies that had reported high awareness of SB among various groups.<sup>6,7</sup> A small number (12.7%) of the participants knew about the ingredients found in bleaching agents. This is lower than the report among university students who are more knowledgeable by reading the leaflets in bleaching agents.<sup>6</sup>

Carrot oil and hydroquinone were the common ingredients identified by the participants. Hydroquinone, steroids and mercury are known ingredients in bleaching agents.<sup>3, 7, 23</sup> Interestingly, mercury and steroids are not known to our participants while only very few (2.8%) knew about hydroquinone. Besides bleaching creams, few participants knew about other forms of bleaching agents such as soaps (7.7%), injections (5.7%) and tablets (1.4%). This is unlike the knowledge of various forms of bleaching agents reported among undergraduates.<sup>6,21</sup> More than half (63.7%) of the participants knew about the possible complications of SB. The common ones were skin damage/reactions, soft and easily injured skin, different skin colours, skin cancer, sunburn, body odour, dark spots, stretch marks, dark knuckles and skin infections. This is similar to the findings of Amodu et al among university students but differs from the report among high school students in Ghana where more than 90% of the students were not aware of the dangers of SB.<sup>6,7</sup>

Participants knew about different brands of bleaching agents. The notable ones were 'Caro white', 'White secret', 'Caro tone', 'Perfect white' and 'Funbact-A'. These are commonly used SB creams among African women.<sup>6,24</sup> The knowledge of cutaneous features that are suggestive of skin bleaching was high among the participants. Features such as different shades of skin colour, dark knuckles, stretch marks and prominent veins were identified as evidence of the practice of SB. Generally, individuals who practice SB in most Nigerian communities are referred to as persons with 'Fanta' face and 'Coca cola' legs; describing the different shades of skin colour.

The attitude of adolescents towards SB was comparable with that of other age groups. About a third of the respondents agreed that SB makes one more trendy, fashionable and beautiful with smooth skin. The quest for beauty is a major motivational factor for persons practising SB.<sup>6,15</sup> However, more

than half of the participants do not like friends who use bleaching creams and disagreed with the idea that SB helps one to have a successful carrier with better job opportunities, make you have more suitors/admirers and helps one to attain a higher social class/rank. This contrasts with the various motivational factors for SB such as the quest for more admirers, better opportunities and low self-esteem reported among older women.<sup>5,15,16</sup> This may be related to different interests of the female adolescents, unlike the older women. Also, a majority of the respondents (51.8%) agreed that SB should be used for medical purposes only. Reports from university students by Amodu et al reported similar views among the participants.<sup>6</sup>

At the time of the study, only 27 (10.7%) participants were practising SB. This is much lower than the prevalence of SB among older females in Nigeria and other African countries.<sup>3,6,7</sup> Most adolescents are financially dependent and generally rely on their parents or guardians for the provision of body care products like soaps, creams and toiletries. Atadokpédé et al in 2015 reported the mean monthly cost of bleaching creams in 2015 was \$2.7 in Benin. This is high for most adolescents in Nigeria. They may not be able to buy bleaching creams or sustain their use despite a belief by about a third of them that SB makes one fashionable.

Also, the different views and interests of our respondents may contribute to the lower prevalence of SB. Their attitude towards SB revealed that majority of them do not like friends who use bleaching creams and disagreed with the idea that SB confers any extra advantage with regard to better opportunities in life. About half of those that practice SB had done so for more than one year with the earliest age of onset of SB being 11 years. There are no reports of the age of onset in previous reports. The practice of SB at this early age obviously involves the support and admiration of parents/guardians. An encouraging attitude of parents towards skin bleaching was reported among secondary school students in Benin.<sup>7</sup> This is important, especially in developing intervention programmes to curb SB. Few of them (18.5%) used a combination of bleaching creams. This practice is more common among older females.<sup>6,21</sup>

Adolescents who practice SB need more experience to be able to use a combination of bleaching creams which is common among older women. Besides bleaching creams, other bleaching products such as soaps, tablets and herbs were used alone or in combination with the creams. It is important to note that injections were not used by any of the respondents. The use of these other forms of bleaching products is a recent trend among older women.<sup>6,21</sup> The efficacy and tolerability of these products are not well established. The common brands of bleaching creams used by the respondents were “Caro white”, “White secret”, “Perfect white”, “egg milk” and “Skin clear”. These are similar to the brands reported among high school students in Ghana.<sup>24</sup>

In conclusion, the knowledge of SB is low among the respondents despite a high awareness of SB. A significant number of adolescents believe that SB is fashionable. The practice of SB is still low among adolescents in Keffi despite the high prevalence of SB among older Nigerian women. Adolescents begin the practice of SB as early as 11 years indicating a possible point of intervention for control programmes. Therefore, the adolescent age represents a ripe period for proper health programmes to reduce the burden of SB. Such programmes should breach the knowledge gap, modify attitudes towards SB and reduce the practice of SB among young women.

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**Conflicts of interest:** None

**Sponsorship:** None

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