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Original Research Article

Awareness of skin lightening products and motivators of their use among Makurdi residents attending Dermatology Clinic in North Central Nigeria

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ABSTRACT

Background: Skin lightening remains a common practice despite its documented risk. Most patients are unaware of their harmful effects, and even when they become aware the desire to lighten the skin supersedes. This behavior is driven by perceptions linking lighter skin with beauty, social status, or racial identity. This study assessed awareness and motivators for using skin lightening agents (SLAs) among Makurdi residents working or attending Federal Medical Centre, Benue State, Nigeria.
Methods: A cross-sectional study was conducted from June 21 to August 30, 2023, using a pretested self-administered questionnaire and convenience sampling. Participants included patients, relatives, secondary school pupils, and healthcare workers. Data were analyzed using SPSS version 25, with significance set at $p<0.05$.
Results: Of 421 targeted respondents, 399 participated. The mean age was 31.76±11.77 years; 58.9% were female. The prevalence of skin lightening practice was 50.1%. Common SLAs included creams and soaps with hydroquinone and corticosteroids. Self-reported adverse effects included skin irritation and discoloration. Significant associations existed between skin lightening practice and age, gender, education, occupation, hospital staff category, secondary school status, income below ₦50,000, skin color type, and adverse effects. Independent predictors of skin lightening included gender, marital status, occupation, satisfaction with skin color, perception of attractive skin, prior adverse effects, and a history of skin conditions.
Conclusions: High awareness of SLAs does not correlate with knowledge of their harmful effects. Continued use is driven by socio-cultural factors. Public health education and stricter regulation are essential to curb this practice.

Keywords: Awareness, Motivators, Skin lightening, Skin lightening agents

INTRODUCTION

Skin lightening is a de-pigmenting cosmetic practice to make the skin tone bright or to enhance the complexion. This is by reducing the melanin concentration in the skin thereby reducing the physiologic skin-coloring effect.[1] Skin lightening, also known as skin bleaching or skin whitening, is a serious, though still neglected, global health issue. It concerns a significant part of the worldwide population, regardless of age, sex or country of residence. It is widespread among both females and males, working in all kinds of occupation.[2]

Skin lightening products are substances used to lighten or bleach the skin; it may be a deliberate desire to lighten healthy skin or associated with a wish to erase pathological stains or even an incentive to start bleaching.[3]

These products are given different vernacular names in regional use especially in Sub-Saharan Africa like "makeup (Congo), stripping, Xhessal (Senegal), Pandalao (Comoros), Tcha-Tcho (Mali), Ambi, Akonti.[1] The SLAs are available in drug retail outlets as over-the-counter (OTC) agents. This destitute health practice coupled with the obsession with and wish for fair skin especially in the dark-skinned cultures may worsen and complicate safety concerns regarding the use of the products.[1]

SLAs use has been reported worldwide. Skin lightening has been practiced for centuries across the globe and it transcends socio-demographic strata, race, social statues, religion and gender. Skin lightening is a global dilemma that has gained little attention despite the threat it poses to general wellbeing of the public.[2,4,5]

Skin lightening is a popular cosmetic practice among women living in many African counties like Nigeria (75%), Senegal (60%), Mali (50%), and Ghana (30%). South Africa recorded lower rates after banning the use of hydroquinone-based products.[1] Skin lightening is practiced mainly in non-white communities around the world like Africa, Asia, the Middle East and the America with the believe that colorism places a higher value on the light-skinned than the dark-skinned individuals. These countries represent markets where demand for these products is high/strong.[6]

These SLA are available as creams, soaps, tablets, injections and homemade mixtures.[2,4,5,7] The global production and marketing of skin bleaching products has become a multi-billion-dollar industry, servicing all parts of the world, making it one of the most common forms of potentially harmful modification practices worldwide.[2,4,5]

Studies on people's awareness and perceptions of using skin-lightening products have been conducted. Research conducted in Lagos, Nigeria, showed that most participants (98.0%) had heard about skin whitening, and 63.1% said salespeople were their primary source of knowledge.[8] According to a Zimbabwean study, colleagues influence was reported at 27.16%.[9] They also found out that the majority of participants (72.84%) were first exposed to skin bleaching through commercials.[9] According to a study conducted in Sudan, 68.8% of participants had a family history of skin-whitening, and 40% of participants reported that they were encouraged to practice skin-whitening by family members.[10] This collaborated a South African study where 48% of participants concurred that friends and family have the greatest potential to influence behaviour.[11]

Skin lightening or bleaching has been found to be associated with profound negative impacts on well-being and adverse effects on the skin. Despite well-documented adverse effects, cosmetic skin lightening continues to be a popular practice among people of colour and in most African countries.[12] These untoward effects include skin cancer, liver damage, exogenous ochronosis, impaired wound healing, wound dehiscence, the fish odor syndrome, nephropathy among others.[12,13] One of such studies opined that dermatologists can provide counseling in a culturally sensitive approach to addressing skin tone concerns with their patients to prevent the untoward effects.[12,14] There is paucity of information in Makurdi, Benue State on skin lightening practice. Hence, this study was carried out to assess awareness and motivators for using SLAs among Makurdi residents working or attending Federal Medical Centre, Benue State, Nigeria.

METHODS

The study was a cross-sectional study conducted between 21st June and 30th August 2023. The study population included patients and their relatives attending general outpatient clinic, Dermatology clinic and National Health Insurance Authority clinic of Federal Medical Centre, Makurdi, senior secondary school students and staff of Federal Medical Centre, Makurdi (Doctors, nurses, pharmacists, community health extension workers, clinical psychologists, nutritionist, physiotherapists, administrative staff and maintenance staff).

A convenience sampling technique was used to select the participants. Inclusion criteria were those aged 15 years and who consented to the study. Patients that were very ill and those who did not give consent were excluded.

The Leshlie-Kish formula to determine the minimum sample size for studies with single proportion was used.[15]

$N=Z^2pq/\delta^2$

Where, N=Minimum sample size

Z=constant at 95% confidence level=1.96

p=Prevalence of characteristic of interest with prevalence of skin bleaching in a similar study, (52.7% in a study in Lagos, Nigeria).[8]

q=1- p (ie 1-0.527)=0.473

δ=desired precision at 5%=0.05

$N=(1.96)^2\times(0.527\times0.473)/ (0.05)^2$

N=383

Due to possibility of incompletely filled questionnaires, 10% (38) was added and it added up to 421.

A self-administered pre-tested questionnaire was used and data was collected on socio-demographic characteristics, relevant personal history, practice and pattern of use of SLAs and reasons for using SLAs. The names of the creams and soaps currently being used by the respondents were documented and the SLAs was checked from the ingredients on the labels.

Ethical approval was obtained from the Health Research Ethics Committee of Federal Medical Centre, Makurdi, Benue State. Parental consent was also sought for those less than 18 years. Consenting participants filled a written informed consent form.

Data analysis was done using SPSS version 25. Categorical variables were presented as frequencies and percentages, while continuous variables such as age were summarized using means and standard deviations. Chi-square tests were used to assess associations between categorical variables. Variables that showed significant associations ($p<0.05$) in the bivariate analysis were further entered into a binary logistic regression model to identify independent predictors of skin lightening practices. The adjusted odds ratios (AORs) with 95% confidence intervals (CIs) were reported to quantify the strength and direction of associations. Statistical significance was set at $p<0.05$ for all analyses.

RESULTS

The study participants were 399 out of the calculated sample size of 421, thus the response rate was 95%.

The age range of the respondents was 16-64 years and the mean age of respondents was 31.76±11.77 years. Respondents aged 39-48 years (n=98, 24.6%) and 29-38 years (n=93, 23.3%) and 19-28 (n=92, 23.1%) made up slightly more than 2/3rd of respondents. The age group with the least frequency were ≥59 years (n=4, 1%). Females made up 58.9% (235) and those who were married made up 50.6% (202). Majority were of the Tiv tribe (n=237, 59.4%) and were Christians (n=357, 89.5%). Over 4-5th of respondents had either secondary education (n=200, 50.1%)/tertiary education (n=178, 44.6%). Majority had managerial and professional jobs (n=109, 27.3%) and only 2 (0.5%) were unemployed. Majority did not earn monthly income (n=138, n=34.6) and those that earned >200,000 naira were 58 (14.5%). Fifty-six (48.7%) of participants from hospital staff were nurses/CHEWs. Among the participants from secondary school, 48 (51.6%) attended school in an urban location while the rest attended school at a semi-urban location (Table 1).

Among the 399 participants, all were aware of skin bleaching. Approximately half (49.9%) reported current use of SLAs, with most learning about them through family or friends (78.9%). Slightly more than half (50.6%) knew someone who used SLAs. A majority (75.7%) expressed satisfaction with their natural skin colour and 22.6% had previously used SLAs but discontinued, often due to adverse effects such as rashes, dark patches, and skin irritation. The average duration of use was approximately 28 months. Most users (42.7%) had used SLAs between 13-36 months. Monthly expenditure on SLAs averaged ₦2,496, with the majority (60.4%) spending between ₦1,000 and ₦4,999. Only a small proportion (6%) spent ₦10,000 or more monthly (Table 2).

Creams were the most common form of skin lightening agent used (69.1%), homemade mixtures (7.0%) and tablets was the least (0.9%). The homemade mixture(s) included lime, pawpaw, honey, rice water, tomatoes and milk. Hydraulic car fluid and toothpaste was also used. Some mixed soaps with the other products (Figure 1).

The most prevalent reason for using skin lightening agent was to become attractive (76.4%) followed by to clear spots (30.8%) (Figure 2).

Those aged 19-28 and 29-38 had the highest proportion of use of SLA. There were more females who used SLA. Those with secondary education, unskilled workers, nurses, SS3 students and those with average monthly income of <50,000 naira also had the highest proportion of use of SLA. There was statistically significant relationship between age group, gender, education, occupation, category of hospital staff, being a secondary school student and earning <50,000 naira (Table 3).

A significant association was found between hospital staff category and outcome ($p=0.002$), with laboratory scientists (100%) and pharmacists (83.3%) showing higher proportions. Student class also significantly associated ($p=0.004$), with SS3 students having highest proportion (47.2%). No significant association was observed with school location ($p=0.393$). Monthly income significantly related to outcome ($p=0.004$), with those earning <₦50,000 showing higher proportions (65.4%) (Table 3).

The data reveals that SLA use is significantly associated with dissatisfaction with natural skin color ($p<0.001$), perception of light skin as more attractive ($p<0.001$), and prior consideration or use of SLA ($p<0.001$). Those who had previously used SLA were also more likely to continue using it ($p<0.001$), and many persisted despite reporting harmful effects ($p<0.001$). In contrast, knowing someone who uses SLA ($p=0.726$) and having a history of skin conditions ($p=0.205$) showed no significant association with SLA use (Table 4).

After adjusting for other variables, females were significantly more likely to use SLAs than males (aOR=4.10, $p<0.001$). Marital status and occupation also showed strong independent associations with SLA use ($p<0.001$). While age group and education level were not significant predictors, income between ₦100,000-199,000 and ₦50,000-99,999 was associated with significantly lower odds of SLA use compared to the highest income category ($p=0.017$ and 0.013, respectively). Respondents dissatisfied with their skin colour had over twice the odds of SLA use compared to those satisfied (aOR=2.43, $p=0.020$), and those who perceived dark skin as attractive were significantly more likely to use SLAs than those who preferred light skin (aOR=7.66, $p<0.001$). Additionally, previous use of SLAs with harmful effects was a strong predictor of continued use (aOR=5.68, $p<0.001$), while having a past skin condition was associated with reduced likelihood of use (aOR=0.27, $p=0.006$) (Table 5).

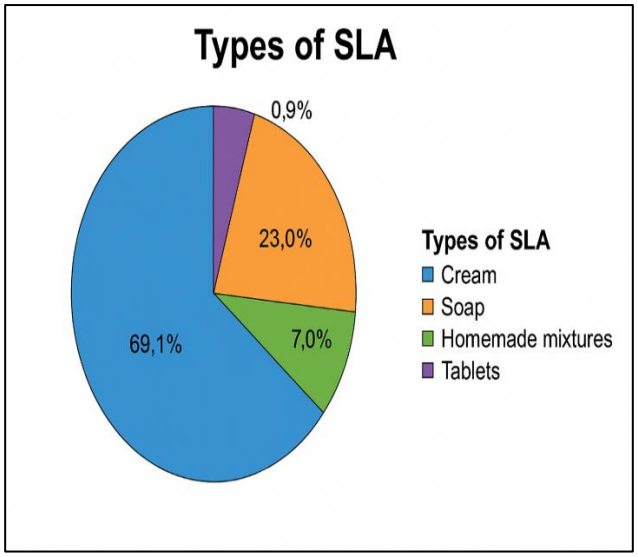

Figure 1: Types of SLAs used by the respondents.

*The homemade mixture(s) included lime, pawpaw, honey, rice water, tomatoes and milk. Hydraulic car fluid and toothpaste was also used. Some mixed soaps with the other products (Figure 1).

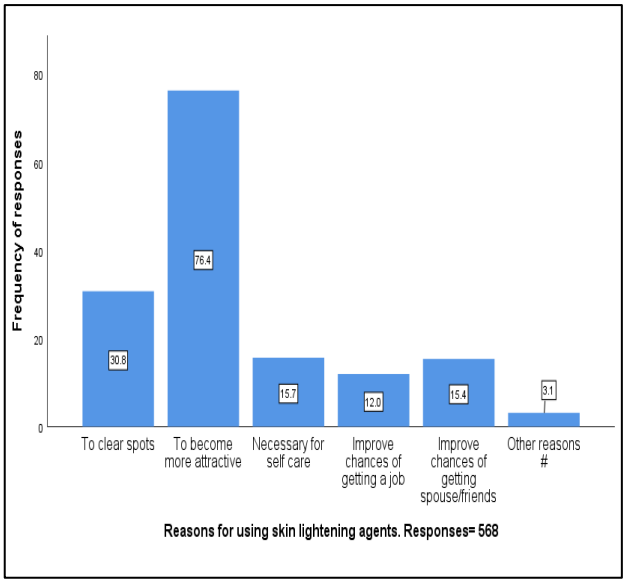

Figure 2: Reasons for using SLAs.

*#other reasons included; for confidence, to treat skin conditions, to be like/copy friends, ignorance of the danger.

Table 1: Socio-demographic characteristics of the respondents.

Variables	N	Percentage (%)
Age group (in years)		
≤18	84	21.1
19-28	92	23.1
29-38	93	23.3
39-48	98	24.6
49-58	28	7.0
≥59	4	1.0
Total	399	100.0
Gender		
Male	164	41.1
Female	235	58.9
Total	399	100.0
Marital status		
Single	194	48.6
Married	202	50.6
Others	3	0.8
Total	399	100.0
Ethnicity		
Tiv	237	59.4
Idoma	50	12.5
Igede	29	7.3
Others	83	20.8
Total	399	100.0
Religion		
Christianity	357	89.5
Islam	42	10.5
Total	399	100.0
Education		
Informal	7	1.8
Primary	14	3.5
Secondary	200	50.1
Tertiary	178	44.6
Total	399	100.0

Continued.

Variables	N	Percentage (%)
Occupation		
Unemployed	2	0.5
Unskilled workers	92	23.1
Students	93	23.3
Artisans and skilled workers	31	7.8
Clerical workers	72	18.0
Managerial and professionals	109	27.3
Total	399	100.0
Category of hospital staff		
Nurses and CHEW	56	48.7
Doctors	34	29.6
Pharmacists and pharmacy technicians	6	5.2
Laboratory scientists	4	3.5
Physiotherapists, dietician and clinical psychologists	5	4.3
Hospital administrative and admin staff	10	8.7
Total	115	100.0
If you are a student, what class are you		
SS1	26	28.0
SS2	31	33.3
SS3	36	38.7
Total	93	100.0
Location of secondary school		
Semiurban	45	48.4
Urban	48	51.6
Total	93	100.0
Average monthly income (in Naira)		
No earned income	138	34.6
<50000	104	26.1
50,000-99,999	35	8.8
100,000-199,000	64	16.0
>200000	58	14.5
Total	399	100.0

Table 2: Relevant history on knowledge of SLAs.

Variables	N	Percentage (%)
Are you aware of skin bleaching?		
Yes	399	100.0
No	0	0.0
Total	399	100.0
Use of SLA		
Yes	199	49.9
No	200	50.1
Total	399	100.0
How did you get to know about SLA you use?		
Family/friends	157	78.9
Advertisement	42	21.1
Total	199	100.0
Knowing someone that uses SLA		
Yes	202	50.6
No	197	49.4
Total	399	100.0
Type of skin colour		
Light	117	29.3
Brown	99	24.8
Dark	183	45.9
Total	399	100.0

Continued.

Variables	N	Percentage (%)
Satisfaction with skin colour		
Yes	302	75.7
No	97	24.3
Total	399	100.0
Prior SLA use and stopping		
Yes	90	22.6
No	309	77.4
Total	399	100.0
If yes to above, why did you stop?		
Rashes, pimples, skin infection	22	24.2
Dark patches	20	21.8
Thinning of the skin	18	19.7
Redness	10	10.8
Itching and irritation	6	6.5
Stretch marks	3	3.2
High cost	5	5.4
Others (not satisfied, lost interest, etc)	6	8.4
Total	90	100.0
Closest person that uses SLA		
Family member	84	41.6
Friend	88	43.6
Colleague	30	14.9
Total	202	100.0
Duration of use of SLA? Mean 27.69±23.86 months		
Less or equal to 12 months	71	35.7
13-36 months	85	42.7
37-72 months	36	18.1
73-108 months	4	2.0
Greater than equal to 109 months	3	1.5
Total	199	100.0
Average monthly expenditure on SLA in naira mean 2496±3796.30		
<1000	53	26.6
1000-4999	120	60.4
5000-9999	12	6.0
10000-14999	4	2.0
15000-19999	2	1.0
20000-24999	4	2.0
≥25000	4	2.0
Total	199	100.0

Table 3: Relationship between socio-demographic variables and use of SLA, (n=399).

Variables	Use of SLA, N (%)		Chi-square	Df	P value
	Yes, N (%)	No, N (%)			
Age group (in years)					
≤18	30 (35.7)	54 (64.3)	16.698	5	0.005*
19-28	57 (62.0)	35 (38.0)			
29-38	54 (58.1)	39 (41.9)			
39-48	44 (44.9)	54 (55.1)			
49-58	13 (46.4)	15 (53.6)			
≥59	1 (25.0)	3 (75.0)			
Gender					
Male	47 (28.7)	117 (71.3)	50.135	1	0.000*
Female	152 (64.7)	83 (35.3)			

Continued.

Variables	Use of SLA, N (%)		Chi-square	Df	P value
	Yes, N (%)	No, N (%)			
Marital status					
Single	95 (49.0)	99 (51.0)	3.258	2	0.196
Married	104 (51.5)	98 (48.5)			
Others	0 (0.0)	3 (100.0)			
Ethnicity					
Tiv	130 (54.9)	107 (45.1)	6.255	3	0.100
Idoma	21 (42.0)	29 (58.0)			
Igede	14 (48.3)	15 (51.7)			
Others	34 (41.0)	49 (59.0)			
Religion					
Christianity	177 (49.6)	180 (50.4)	0.118	1	0.731
Islam	22 (52.4)	20 (47.6)			
Education					
Informal	5 (71.4)	5 (28.6)	14.468	3	0.001*
Primary	13 (92.9)	1 (7.1)			
Secondary	103 (51.5)	97 (48.5)			
Tertiary	78 (43.8)	100 (56.2)			
Occupation					
Unemployed	0 (0.0)	2 (100.0)	27.778	5	0.000*
Unskilled workers	61 (66.3)	31 (33.7)			
Students	33 (35.5)	60 (64.5)			
Artisans and skilled workers	22 (71.0)	9 (29.0)			
Clerical workers	37 (51.4)	35 (48.6)			
Managerial and professionals	46 (42.2)	63 (57.8)			
Category of hospital staff					
Nurses and CHEW	23 (41.1)	33 (58.9)	18.549	5	0.002*
Doctors	9 (26.5)	25 (73.5)			
Pharmacists and pharmacy technicians	5 (83.3)	1 (16.7)			
Laboratory scientists	4 (100.0)	0 (0.0)			
Physiotherapists, dietician and clinical psychologists	2 (40.0)	3 (60.0)			
Hospital administrative and admin staff	8 (80.0)	64 (55.7)			
If you are a student, what class are you					
SS1	8 (30.8)	18 (69.2)	13.422	3	0.004*
SS2	8 (25.8)	23 (74.2)			
SS3	17 (47.2)	19 (52.8)			
Location of secondary school					
Semiurban	14 (31.1)	31 (68.9)	0.728	1	0.393
Urban	19 (39.6)	29 (60.4)			
Average monthly income (in Naira)					
No earned income	64 (46.4)	74 (53.6)	15.330	4	0.004*
<50000	68 (65.4)	36 (34.6)			
50,000-99,999	18 (51.4)	17 (48.6)			
100,000-199,000	26 (40.6)	38 (59.4)			
>200000	23 (39.7)	35 (60.3)			

*Statistically significant

Table 4: Relationship between other variables and use of SLAs, (n=399).

Variables	Use of SLA, N (%)		Chi-square	Df	P value
	Yes, N (%)	No, N (%)			
Type of skin colour					
Light	86 (73.5)	31 (26.5)	36.980	2	0.000*
Brown	40 (40.4)	59 (59.6)			
Dark	73 (39.9)	110 (60.1)			

Continued.

Variables	Use of SLA, n (%)		Chi-square	Df	P value
	Yes, N (%)	No, N (%)			
Satisfaction with skin colour					
Yes	126 (41.7)	176 (58.3)	33.028	1	0.000*
No	73 (75.3)	24 (24.7)			
Skin colour thought to be attractive					
Light	178 (56.7)	136 (43.3)	39.234	2	0.000*
Brown	15 (50.0)	15 (50.0)			
Dark	6 (10.9)	49 (89.1)			
Ever considered skin lightening before					
Yes	118 (76.6)	36 (23.4)	71.779	1	0.000*
No	81 (33.1)	164 (66.9)			
Prior SLA use but stopped					
Yes	67 (74.4)	23 (25.6)	28.062	1	0.000*
No	132 (42.7)	177 (57.3)			
Knowing someone who uses SLA					
Yes	99 (49.0)	103 (51.0)	0.122	1	0.726
No	100 (50.8)	97 (49.2)			
Prior use of SLA with harmful effect					
Yes	64 (71.9)	25 (28.1)	22.249	1	0.000*
No	135 (43.5)	175 (56.5)			
Have you ever had a skin condition?					
Yes	24 (42.1)	33 (57.9)	1.606	1	0.205
No	175 (51.2)	167 (48.8)			

*Statistically significant.

Table 5: Logistic regression model of independent variables predicting the practice of use of the SLAs.

Variables	Adjusted odds ratios	95% CI	P value
Age group (in years)			
≤18	0.087	0.001-8.039	0.290
19-28	0.045	0.001-3.095	0.150
29-38	0.039	0.001-2.649	0.132
39-48	0.063	0.001-4.294	0.200
49-58	0.037	0.000-2.761	0.134
≥59	1		
Gender			
Male	1	2.241-7.487	0.000*
Female	4.096		
Marital status			
Single	1		
Married	0.999	0.000-	0.000*
Others	0.999	0.000-	0.000*
Education			
Informal	0.115	0.003-4.013	0.233
Primary	0.159	0.011-2.307	0.178
Secondary	1.159	0.389-3.455	0.791
Tertiary	1		
Occupation			
Unemployed	1		
Unskilled workers	0.999	0.000	0.000*
Students	0.999	0.000	0.000*
Artisans and skilled workers	0.999	0.000	0.000*
Clerical workers	0.999	0.000	0.000*
Managerial and professionals	0.999	0.000	0.000*

Continued.

Variables	Adjusted odds ratios	95% CI	P value
Average monthly income (in Naira)			
No earned income	0.173	0.017-1.758	0.110
<50000	0.095	0.014-0.658	0.138
50,000-99,999	0.090	0.014-0.598	0.017*
100,000-199,000	0.421	0.139-1.274	0.013*
>200000	1		
Type of skin colour?			
Light	0.600	0.265-1.362	0.222
Brown	1.189	0.556-2.545	0.655
Dark	1		
Satisfaction with skin colour?			
Yes	2.434	1.150-5.153	0.020*
No	1		
Skin colour thought to be attractive			
Light	1		
Brown	0.959	0.323-2.846	0.940
Dark	7.661	2.533-23.169	0.000*

*Statistically significant.

DISCUSSION

This study assessed knowledge and determinants of SLA use among 399 participants. The mean age of the respondents was 31.76±11.77 years. This is comparable to mean age of 30±7.32 years in a study in Pakistan.[16] but lower than 25.92±6.15 years in a cross-sectional study conducted among 296 residents of Ikeja LGA, Lagos state, Nigeria. The difference may be due to the sample size. Females made up 58.9% (235) and those who were married made up 50.6% (202). This is similar to community-based cross-sectional studies in Lagos, Nigeria and Ghana where females made up 64% and 50.2% respectively.[7,8] Slightly above half (50.6%) were married. Majorities were of the Tiv tribe and were Christians. The demographics largely reflected the local ethnic and religious makeup, with the Tiv tribe and Christians forming the majority.

Most respondents had secondary (50.1%) or tertiary (44.6%) education, and the prevalent occupations were professionals, students, and unskilled workers. This may be because the mean age and prevalent age groups are young that were actively schooling or working. Monthly income was low for many, with over a third reporting no income, and only 14.5% earning more than ₦200,000. Among hospital staff, nurses/CHEWs were most represented, and among secondary school students, the majority attended urban schools.

All respondents were aware of skin lightening. A majority perceived lighter skin as attractive (78.7%), although most had dark skin (45.9%) and were satisfied with it (75.7%). Prior consideration of skin lightening was reported by 35.8%, with common deterrents being lack of interest and fear of side effects. Slightly above one-fifth (22.6%) had used SLA but later stopped with the most prevalent reason for stopping being rashes, pimples and skin infection (24.2%). In contrast, a study in Lagos, Nigeria stated reasons for stopping skin bleaching to include; disapproval of family and peers, pregnancy, economic factors and unacceptable side effects.[17]

The respondents' reasons for practicing skin bleaching included; becoming more attractive (76.4%) which had the highest proportion, to clear spots, necessity for self-care and improve chances of getting spouse/friends. Other reasons were for confidence, to treat skin conditions, to be like/copy friends and ignorance of the dangers of skin bleaching.

In a Saudi Arabian study, participants used skin-lighteners for cosmetic and medical conditions (67.2% and 17.5%, respectively).[18] In Zimbabwe, reasons reported for skin bleaching was to have smooth and healthy skin alongside other factors such as beauty and gaining social favours for example getting married and having good jobs.[8,9] In a study in Ghana, reasons for skin bleaching included to enhance beauty and healthy skin (97.6%), boost self-esteem (78.6%), and treatment of skin disorders (77.4%). Most of the participants in a similar study in Lagos (71.8%) claimed that the main reason for their use was to treat skin disorders. In Bayelsa, State Nigeria, 'removal of discoloration/dark spots' (40%) and 'cosmetic reasons' (37.8%) were the commonest reasons for use.[4]

There was a statistically significant relationship on bivariate analysis between the age of the respondents and the practice of skin lightening (p=0.005). Those aged 19-28 years had the highest prevalence followed by those aged 29-38 years. This might be the case since these age groups are younger, more likely to be employed and making money from a variety of jobs, and possibly more stable financially to be able to buy the things. As suggested by

the majority of respondents, they could also wish to appear appealing while going about their daily business. This is consistent with research conducted in Lagos, Nigeria that found a statistically significant increase in skin bleaching among younger age groups.[2,8] Conversely, there was no significant relationship between age and the practice of skin lightening in a study in Zimbabwe.[9]

Gender also showed strong association ($p<0.005$), with females four times more likely to use SLAs (AOR=4.10). This is consistent across studies in Lagos, Saudi Arabia, and the U.S.[14,18,19] Women, have been found to be more vulnerable to media and cultural propagation of beauty standards with the believe that lighter skin can elevate their physical appearance and social acceptance.[14]

Marital status independently predicted SLA use, with singles more likely to bleach. This mirrors findings in Saudi Arabia but contrasts with Lagos and meta-analysis results.[2,8,19] Single individuals may bleach to attract spouses. They may also be within the younger age group who were found to practice skin bleaching more.

There was no statistically significant association between ethnicity and practice of skin lightening. This finding is divergent with findings in New York, where greater skin bleaching practice intensity was observed among foreign-born women than US-born women in the African and Afro-Caribbean population.[20] In an Indian study feeling of being disempowered due to darker skin colour led such women to take risks to lighten their skin.[21]

Religion showed no association with skin bleaching practice. This is similar to a study in Zimbabwe.[9] To the best of the authors' knowledge; there is little information available regarding the relationship between skin bleaching and religion. In examining a Christian perspective on bleaching, Tenai from South Africa observed that "both men and women who whitened their skin went to great lengths to hide their actions, in order to circumvent open mockery" in various Christian contexts.[22] When they concealed their profession, it became similarly difficult, if not impossible, to offer medical aid when the skin-harming products they employed were used on. Tenai therefore argued in favour of helpful assistance in these situations.[22]

Education correlated with SLA use ($p=0.001$), especially among those with primary or no education, similar to Lagos and meta-analysis findings.[2,8] The current result contradicts an observation from Zimbabwe that stated there was no variation in the use of SLA based on education level.[9] Therefore, educational programmes in local languages and illustrations can address skin bleaching among elementary school pupils and those without a formal education.

One independent predictor of the practice of skin whitening was occupation. Skin lightening chemicals were most commonly used by unskilled workers followed by skilled workers. It's possible that their lack of education prevents them from understanding the risks associated with skin bleaching, from being able to discern which products are harmful from those that are not, and from being aware of the recommendations made by regulatory agencies. A case might be made for education since many artists hold some sort of certification. To dispel rumours, further in-depth research on the topic of skin bleaching and jobs is required.

Pharmaceutical technologists, chemists and laboratory scientists were the hospital staff members who used it the most. This is not entirely evident why. Skin bleaching practices and hospital staff's occupation and category were statistically significantly correlated ($p<0.005$).

According to this study, SS3 pupils practiced skin bleaching at the highest rate, and there was a statistically significant correlation between the students' class and their skin lightening behaviour. Their age and increased peer pressure compared to those in lower classes could be the reason for this. There was no discernible correlation between the location of the secondary school urban or semi-urban and the use of skin whitening. According to Nyoni-kachambwa et al this data is consistent with that from Zimbabwe, where location had no discernible impact on skin bleaching.[9] In contrast, a meta-analysis revealed that the prevalence of skin bleaching was statistically significantly greater among people who lived in urban or semi urban areas than in rural ones.[2]

Lower income was significantly associated with SLA use, consistent with Saudi findings.[19] Perceived skin attractiveness and satisfaction were strong independent predictors. While some studies show darker-skinned individuals bleach more.[23,24] This study found those with lighter skin used SLAs more, possibly to maintain perceived advantages.

There was a strong correlation between skin colour, contentment with skin tone, and perceived attractiveness of skin tone. Skin lightening behaviour was independently predicted by two factors: skin colour satisfaction and perceived attractiveness. More over half of the participants (56.7%) thought that lighter skin tones were more appealing. In a survey conducted in Bayelsa, Nigeria, participants expressed a similar view, with 20.9% believing that males find women with lighter skin to be more attractive.[4]

Participants with lighter skin tones were more prone to bleach their skin. This may be the result of their wish to hold onto their ideal complexion for the advantages they believe their colour affords them. This is in opposition to other research that found darker-skinned individuals used skin-whitening products at a higher rate.[23,24] Therefore, all gender, young people, including those in secondary school engage in skin bleaching. The complications are likely to start earlier and run a longer course. Preventive measures to curb bleaching are necessary. More awareness of the

services of dermatologists and availability of dermatologists is needed

Limitations

The sampling method was by a non-probability sampling technique which is prone to bias. There could have been recall bias due to social desirability effect. To minimize this, the authors were non-judgmental and showed no interest in personal identification by not asking for name, phone number, or address while interacting with the participants. However, this could still affect the outcome. The study was conducted in a hospital setting; this can affect generalizability because of the sample size compared to the general population. Some of the soaps and creams mentioned by the participants were not found in the markets, stores and online, hence some valuable information on their content was missed.

CONCLUSION

The practice of skin bleaching was high among the participants and creams were the most used. Homemade mixtures were also used and it included plant products and other substances such as hydraulic car fluid and toothpaste. The motivators for skin bleaching included becoming more attractive, clearing of spots, a necessity for self-care, improving chances of getting jobs/friends/spouse among others. There was statistically significant relationship between age group, gender, education, occupation, category of hospital staff, being a secondary school student and earning <50,000 naira. There was also statistically significant relationship between type of skin colour, satisfaction with skin colour, perception of which skin colour was attractive and considering skin lightening in the past and use of skin lightening agent. The independent predictors of the practice of use of SLAs were gender, marital status, occupation, being satisfied with skin colour, perceived attractive skin colour, having had an adverse effect and having had a skin condition in the past. This study recommends that there should be strict safety regulations and monitoring of the production and sale of skin care products by regulatory agencies like NAFDAC to curb consumers contact with harmful products. In addition, consumer education to both the public and individuals by health care professional at each contact on safe skin care products.

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