IBOM MEDICAL JOURNAL
Vol.18 No.3 | July - September 2025 | Pages 414-423
www.ibommedicaljournal.org

Skin Lightening Practices and Patterns Among Urban Residents in Makurdi, Nigeria: A cross-sectional Study

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Abstract

Background: Skin lightening practice which involves use of various cosmetic products to lighten the skin raises significant health concerns, as some products may contain harmful chemicals.
Objective: To describe the pattern of skin lightening practices among urban residents in Makurdi, Nigeria.
Methods: The study was a descriptive cross-sectional study of 399 participants selected by random sampling. A self-administered pretested questionnaire was used. The data was analyzed using Statistical Package for the Social Sciences version 25 and presented as frequencies and proportions.
Results: The participants mean age was 31.76 ± 11.77 years and females were 235(58.9%). About half, 200(50.1%) had secondary education and 202(50.6%) were married. Self-reported practice of use of SLA was 49.9%. Cream was commonest and home-made mixtures of edible and non-edible substances such as honey, lime, tooth paste, hydraulic car fluid were also used. Of the 329 creams used, 197(59.9%) contained one or more SLA, while 121(32.1%) of 377 soaps contained SLA. The top five SLA in creams were vitamin C (25.3%), hydroquinone (21.3%), Kojic acid (15.9%) and corticosteroids (7.3%). The five commonest skin lightening ingredients identified in the soaps were titanium oxide (56.6%), salicylic acid (9.2%), vitamin C (9.2%), mercury (7.5%), lactic acid (2.0%) and licorice extract (1.3%). Eighty-five (42.7%) had used SLA for 13 - 36 months, applying twice a day 172(86.4%) and all over the body 175(87.9%). Majority used different types of SLA serially 80(40.2%).
Conclusion: Policymakers should regulate skin products and healthcare providers should make sustained effort at educating the public against this harmful practice.

Key words: Skin lightening, skin lightening agent, corticosteroids, hydroquinone, kojic acid

Introduction

Globally, the cosmetic use of chemical agents to lighten the appearance of the skin is a common practice. This practice is also known as, skin whitening, skin lightening, skin toning and/or skin bleaching.[1,2]
Users of skin lightening agents (SLA), frequently are not aware of the possible negative effects of these products because they purchase them without professional guidance, and are reported to only cease using them if they directly experience harm.[3] Skin bleaching was found to be prevalent in Borno State, northeastern Nigeria, with nearly half of the respondents unaware of the long-term risks, potential adverse effects, and the ingredients contained in skin-bleaching products.[4]

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DOI: 10.61386/imj.v18i3.699

Many cosmetic shops and street vendors, circumvent prohibitions or legal restrictions regarding sales of harmful skin products.[5] Pollock et al has also noted that occasionally manufacturers of illegal skin products do not declare all the ingredients to evade restrictions.[6]
Many synthetic and natural substances have been

employed for skin lightening. They are used as cosmetics or for therapeutic effects.[7] These substances are prepared and available as creams, soaps, serums, injections, and tablets.[8,9] For instance, in Saudi Arabia, 45.4%, 39.5%, 25.5%, 2.1%, and 0.2% of female university students reported using cream, serum, tablets, injectables, and soap, respectively, according to a survey.[8] Skin toning products, such as creams (38.9%) and soap or gel (35.5%), were used by 389 female undergraduate students studying in Ghana.[9] A recent study among female medical undergraduates in Nigeria found that 40.9% had used skin-lightening products, with facial cleansers being the most commonly used (51.1%).[10]

The use of skin lightening agents made from plants or edible food such as citrus fruits, milk, turmeric, honey, potato, blueberry and carrots is also common. Some cultural practices involving use of mixtures of Bos taurus l (cattle) urine, bile, dung and crushed neem leaves for skin care[11] and use of cow dung as sunscreen have been documented.[12] The use of medicinal plants is integral to the health and wellness routines in Benue State. A study documenting traditional medicinal plants in the Benue state highlights their application in skin-related conditions although skin lightening was not specifically reported.[13]

Some of the chemical compounds and ingredients found in skin lightening products include corticosteroids, mercuric compounds, kojic acid, vitamin A, vitamin C and salicylic acid.[14] In a meta-analysis, topical corticosteroids were the most often utilized medication (51.8%), followed by mercurials (34.4%).[14] Other investigations found that the most commonly used products were hydroquinone-based, whereas the least commonly used agents were mercury-based.[8,15] Studies have highlighted the increasing trend of SLA use in urban settings, with concerns over the associated health risks, such as skin irritation, exogenous ochronosis and steroid-induced skin damage.[6,16–18]

Despite the evidence of practice of skin-lightening in Nigeria, there is limited research specifically examining the patterns of use of skin lightening agents in Benue State. Existing literature largely focuses on broader national or regional trends, often neglecting the unique behaviours at the state level. Furthermore, dermatological perspectives on the health implications of skin lightening practice in this region remain underexplored. Hence, this study set out to explore the patterns of practice of skin lightening among urban dwellers in Benue State.

Material and Methods

Study location

Makurdi, the capital of Benue State is located in North Central zone of Nigeria. Makurdi lies within latitude 70 42" North and longitude 80 28" East. The River Benue is the most conspicuous geographical feature that characterizes Makurdi.[19] Benue State shares boundaries with five other states of Nigeria. On the East is Taraba, Nassarawa is to the North, Cross River to the South, Kogi to the West and Enugu to the South-West. The population of Makurdi in 2024 was 472,000.[20] Makurdi is an urban settlement. The major ethnic groups are Tiv, Idoma and Igede but other Nigerian tribes can also be seen. Most dwellers are civil servants, students, artisans, traders and farmers etc.[19]

Federal Medical Centre, Makurdi, is a 400-bed tertiary hospital. The participants of the study were drawn from hospital staff, patients, patient's relative, students and market traders.

Study design: It was a cross-sectional descriptive study design.

Sample Size Calculation

The Leshlie-Kish formula was used to determine the minimum sample size for the studies with single proportion.[21]

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

Where N = Minimum sample size

Z = constant at 95% confidence level = 1.96

p = Prevalence of characteristic of interest which prevalence of skin bleaching in a similar study. (52.7% in a study in Lagos, Nigeria).[22]

q = 1 - p (ie 1 – 0.527) = 0.473

δ = desired precision at 5%= 0.05

$N = (1.96)^2 \times (0.527 \times 0.473)/ (0.05)^2$

N = 383

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

Selection and description of participants: They were randomly selected over a period of 5 weeks.

Inclusion criteria were those aged 15 years and above and consented to the study. The participants of the study were drawn from hospital staff, patients and patient's relative, market traders and students. Patients that were very ill and those who did not give consent were excluded. Parental consent was also sought for those less than 18 years.

Consenting patients and patient relations were administered the questionnaire after consultation (They made up 200 participants). The staff were given the questionnaires at their offices or work station. The staff included doctors, nurses, pharmacists, Community Health Extension Workers, clinical psychologists, nutritionist, physiotherapists, administrative staff and maintenance staff (they made up 121 participants selected proportionately)

Market traders were recruited while the authors visited cosmetic shops (Modern market, Makurdi), and provision stores (in Mami Market, Mobile Barracks, Adeke, Makurdi) to identify creams and soaps. The market traders made up 100 participants. The students in the study were children and wards of patients and the market traders.

Study tool: A self-administered pretested questionnaire was used and collected data included: socio-demographic characteristics, relevant personal history, practice and pattern of use of skin lightening agent. The names of the creams and soaps currently being used by the respondents were also documented. Identification of skin lightening agents used by the participants was done by looking up the ingredients of the cream and soap the respondents mentioned at supermarkets (Sudopee, CMG, DO Brothers all in Makurdi), cosmetic shops (Modern market, Makurdi), and provision stores (Mami market, Adeke, Mobile Barracks, Makurdi). Some of the ingredients were found using Google search engine. The tool was a questionnaire developed by the researcher to explore the research questions. Some of the questions were adopted from other studies to ensure content validity.[6,14,15,22–24] A pretest was carried out by administering 42 questionnaires at the National Health Insurance Authority Clinic of Federal Medical Centre, Makurdi to ensure clarity of the questions.

The following common skin lightening agents were identified from literature search.[25–28] and were then looked for in the ingredient label of the creams and soaps which the participants had written down in their answers and this was recorded as follows;

1. Corticosteroids
2. Hydroquinone
3. Mercury and Mercuric salts
4. Salicylic acid
5. Kojic acid
6. Titanium oxide
7. Vitamin C or Ascorbic acid
8. Glutathione
9. Lactic acid
10. Niacinamide
11. Alpha arbutin
12. Azelaic acid
13. Glycolic acid
14. Linoleic acid
15. Aminopropyl ascorbyl phosphate
16. Mulberry extract
17. Bearberry extract
18. Licorice extract
19. Hyaluronic acid

Data analysis: Data analysis was done using SPSS version 25. The data was presented as frequencies and proportions.

Ethical considerations: The procedures followed were in accordance with the institutional (Federal Medical Centre, Makurdi) ethical standards of the responsible committee on human experimentation and with the Helsinki Declaration of 1975, as revised in 2000. Informed consent was obtained and the participants confidentiality was maintained. There was no incentive given and participants that were patients could decline at any time without it affecting their normal consultation and management. Ethical approval was applied for and obtained from the Health Research Ethics Committee of Federal Medical Centre, Makurdi, Benue State.

Results

The study participants were three hundred and ninety-nine (399) out of the calculated sample size of 421, thus the response rate was 95%. The study was conducted between 21st of June and 30th August 2023.

Table 1:There were more participants aged between 39 - 48 years and the mean age of the respondents was 31.76 ± 11.77 years. More than half (58.9 %

n=235) were females and those who were married made up 50.6% (202). Over four-fifth of the respondents had either secondary education (50.1%, n=200) or tertiary education (44.6%, n=178). Those with managerial and professional jobs made up (27.3%, n=109). Majority did not earn monthly income (n=138, 34.6%) and those that earned > 200,000 naira were 58 (14.5%)

Table 1: Socio-demographic characteristics of the respondents

Variable	Frequency	Percentage
Age group, mean 31.76 ± 11.77 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**
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**
Average monthly income		
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: Shows the relevant history of use of skin lightening products

Variable	Frequency	Percentage
Self-reported use of skin lightening agent		
Yes	199	49.9
No	200	50.1
Total	**399**	**100.0**
Type of skin lightening product used		
Cream	138	69.3
Soap	45	22.7
Homemade mixtures	14	7.0
Tablets	2	1.0
Total	**199**	**100.0**
Have you used SLA in the past but stopped		
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**
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**
Closest person that uses SLA		
Family member	84	41.6
Friend	88	43.6
colleague	30	14.9
Total	**202**	**100.0**
Source of SLA?		
Market	365	91.5
Drug store	10	2.5
Hawkers	3	0.8
Online	21	5.3
Total	**399**	**100.0**

Table 2 Continues:

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**
Frequency of application of SLA		
Once a day	23	11.6
Twice a day	172	86.4
Only if I have skin problems	4	2.0
Total	**199**	**100.0**
Body part SLA is applied		
Face only	24	12.1
All over the body	175	87.9
Total	**199**	**100.0**
Pattern of application of SLA		
Only one type	76	38.2
Different type followed by another (serially)	80	40.2
Mixing of different agents	43	21.6
Total	**199**	**100.0**

Table 2: shows that skin bleaching was practiced by nearly half of the participants (49.9%, n=199) and that 22.6% had used skin lightening products in the past. About half of the users knew someone that uses SLA (50.6%, n=202) and family members (41.6%) and friends (43.6%) made up the most acquaintances of SLA users. Creams (69.3%) and soaps (22.7%) were the most used products. The products were mostly bought from the market (91.5%) and a small proportion obtained it via online (5.3%). Eighty-five (42.7%) had used SLA for 13 - 36 months. Slightly more than four-fifth of the respondents spent < 1000 naira (26.6%, n=53). Most applied SLA twice a day (86.4%, n=172) and all over the body (87.9%, n=175). They mostly used different types of products serially (40.2%, n=80).

Table 3: shows the identified skin lightening ingredients found in the current creams of the respondents. The commonest five skin bleaching ingredients identified were vitamin C (25.3%), hydroquinone (21.3%), kojic acid (15.9%), corticosteroid (7.3%), salicylic acid (7.3%) and the least were glycolic acid and mercury with 0.3% each.

Table 3: Names of skin lightening ingredients identified in the respondent's current skin lightening creams

Names of skin lightening ingredients identified in the skin lightening creams*	Frequency of presence in the creams	Percentage
Vitamin C	94	25.3
Hydroquinone	79	21.3
Kojic acid	59	15.9
Corticosteroid	27	7.3
Salicylic acid	27	7.3
Niacinamide	20	5.4
Arbutin	20	5.4
Lactic acid	18	4.9
Gluthathione	12	3.2
Titanium oxide	6	1.6
Licorice extract	5	1.3
Linoleic acid	2	0.5
Glycolic acid	1	0.3
Mercury	1	0.3
Total	**371**	**100.0**

*Total number of creams named by the respondents were 329 out of which 197 (59.9%) contained skin lightening agents. Thirty-eight creams contents were not identified as they were not seen in the shops or on google search, 94 creams did not contain the listed skin lightening agents, 7 did not use any cream and 70 did not answer the question.

Figure 1: is a pie chart showing the number of identified ingredients present per skin lightening cream. The total number of skin lightening creams was 197. Nearly half (n= 96, 49%) contained one of the listed lightening ingredients and four (2%) contained four of the listed lightening ingredients.

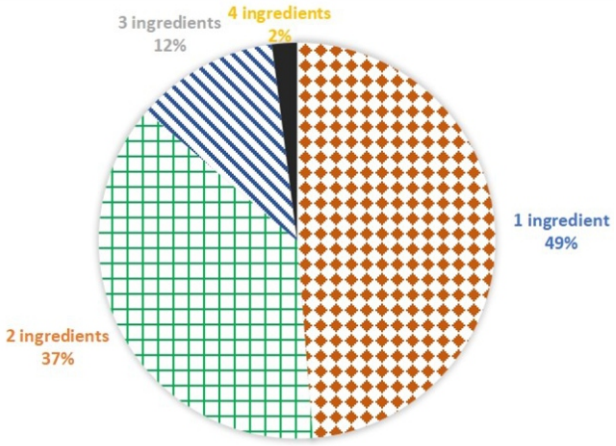

Figure 1: A pie chart showing the number of identified ingredients present per skin lightening cream.

Table 4: Identified skin lightening ingredients found in the current soap of the respondents

Name of skin lightening ingredients identified in the skin lightening soaps*	Frequency of presence in the soaps	Percentage
Titanium oxide	86	56.6
Salicylic acid	19	12.5
Vitamin C	14	9.2
Niacinamide	14	9.2
Mercury	12	7.9
Lactic acid	3	2.0
Hydroquinone	2	1.3
Licorice extract	2	1.3
Total	**152**	**100.0**
Number of identified skin lightening ingredients per skin lightening soap used by the respondents (n=121)		
One ingredient	92	76.0
Two ingredients	23	19.0
Three ingredients	6	5.0

*Total number of soaps named by the respondents were 377 and 121 (32.0%) contained skin lightening agents. Seventy-six contents were not identified as they were not seen in the shops or on google search, 180 soaps did not contain the listed skin lightening agents and 22 did not answer the question.

Table 4: shows the identified skin lightening ingredients found in the current soap of the respondents. The five commonest skin lightening ingredients identified in the soaps were titanium oxide (56.6%), salicylic acid (9.2%), vitamin C (9.2%), mercury (7.5%), lactic acid (2.0%) and the least was licorice extract (1.3%). The total number of skin lightening soaps was 121. Nearly four-fifths (n= 92, 76%) contained one of the lightening ingredients and six (5%) contained three of the lightening ingredients.

Table 5: Names of substances in homemade mixtures for skin lightening used by the respondents

Names of substances used for homemade mixtures	responses
Black soap, rice water	1
Black soap and medicated soap	1
Black soap, sulphur	1
Camwood, tomatoes, toothpaste	1
Funbact A cream, aloe vera	1
Funbact A cream, aloevera, honey	1
Honey, palm oil	2
Hydraulic car fluid	1
Honey, lime, milk	1
Lime	1
Lime, honey	1
Lime, yoghurt	1
Not listed	2
Pawpaw leaf	1

Table 5: shows the names of substances used for homemade mixtures 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.

Discussion

The study observed patterns of practice of skin lightening and several observations made are related as follows. 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 29 but lower than 25.92±6.15 years in a cross-sectional study conducted among 296 residents of Ikeja LGA, Lagos state. More than half (58.9 %) were females and those who were married made up 50.6%.[22] This is similar to community-based cross-sectional studies in Lagos, Nigeria and Ghana where females made up 64% and 50.2% respectively.[22,24] Over four-fifth of the respondents had either secondary education or tertiary education, which is congruent the community based study in Lagos, Nigeria where 75.2% had at least, a tertiary education.[22] The age and gender are likely influenced by the type of study population in the different studies.

The prevalence of the practice of skin lightening was 49.9 %. This is based on self-reported use of SLA by the respondents. Sagoe et al., 2019, in a meta-analysis, reported a pooled lifetime prevalence of skin bleaching of 27.7%. Africa had an estimated prevalence of 27.1%, whereas Asia had a prevalence of 23.1%.[14]

A critical look at the answers given to both soaps and creams used by the respondents as at the time of the study added some extra details which counters their self-reported SLA use. For instance, concerning the creams mentioned, 59.9 % contained one or more skin lightening agents while 32.0 % of the soaps used contained skin lightening agent. It therefore implies that, the respondents may have been unaware of the content of their creams and soaps. This may expose the users to harm, if the particular agent were to be toxic to health.

A lesser proportion (22.6%) had used skin lightening products in the past. In a similar study carried out in Ilorin, north central Nigeria, 11.6% of the respondents, had used SLA in the past. This observation was said to suggest that it is possible for

users to change their attitude given the right awareness.[30] The reasons for stopping the practice were largely due to adverse experiences such as rashes, dark patches, thinning of the skin and stretch marks. Other reasons for stopping included the high cost of the products, loss of interest and being unsatisfied with the practice. This was corroborated in a study among beauty salon workers in Asmara, Erithrea, where 53.6% stopped skin bleaching due to adverse effects, fear of adverse effects and ineffectiveness.[16]

This study found that most of the respondents (78.9%) knew about the product used through their family/friends and the closest person to them that used SLA was predominantly friends followed by family member and the least was colleagues. This pattern suggests that the influence of family and acquaintances may contribute to the practice. It may also imply that if any one in such a circle is successfully educated on the dangers involved, other acquaintances may easily be convinced to stop. Egbi and Kasia found that 52.1% of those with a history of use of SLA among close relatives also used SLA (78.9%). Bakare, in Lagos reported that 63.1% claimed their sources of information were salespersons.[22] The products used in this study were mostly bought from the market (91.5%) and a small proportion obtained it via online (5.3%).

In this study, creams were the most common form of skin lightening agent used (69.3%). Soaps (22.6%), homemade mixtures (7.0%) and tablets (1.0%) were also used. The commonest five skin bleaching ingredients identified in the creams were vitamin C (25.3%), hydroquinone (21.3%), kojic (15.9%), corticosteroid (7.3%), salicylic acid (7.3%) and the least were glycolic acid and mercury with 0.3% each. Nearly half (n= 96, 49%) contained one of the lightening ingredients while others contained two to four of the lightening ingredients. The presence of multiple skin lightening ingredients may constitute an additive effect and may increase adverse effect. This is an important point to encourage analytical studies in this aspect. In a meta-analysis, topical corticosteroids were the most common agent (51.8%) followed by mercurials (34.4%) along with others such as salicylate, glycolic acid, kojic acid and vitamins A and C.[14] Hydroquinone-based products were the most frequently used, while mercury based agents were the least used as reported by other studies.[8,15] In this study, the use of Funbact A, a triple action cream containing betamethasone dipropionate, clotrimazole and neomycin sulphate for the preparation of home-made SLA was observed.[31] This can be termed as drug misuse because its therapeutic purpose is for treatment of bacterial infections, skin inflammation and fungal skin infection within a particular time-frame under supervision. The prolonged use of corticosteroids, hydroquinone and mercury containing skin products include skin irritation, hyperpigmentation, diabetes, renal impairment and neurological dysfunction.[6,16,18,32] These are life-threatening conditions, hence the need to address such harmful practices.

This study shows that nearly four-fifths of the skin lightening soaps (n= 92, 76%) contained one of the lightening ingredients and others contained between two or three of the lightening ingredients. The five commonest skin lightening ingredients identified in the soaps were titanium oxide (56.6%), salicylic acid (9.2%), vitamin C (9.2%), mercury (7.5%), lactic (2.0%) and the least was licorice extract (1.3%). In a study in Somalia, 47% of skin lightening used by respondents contained mercury.[33] In another study, considering various regulations, 68-84 % of all creams and 7.5-65% of all soaps exceeded regulatory guidelines for at least one active ingredient out of the 98 creams and 93 lightening soaps that were bought in small ethnic shops in Canada and large city markets in sub-Saharan West Africa.[34] Mercury, hydroquinone and clobetasol propionate concentrations listed on soap and cream labels typically did not match the concentrations that were measured.[34] This highlights the need for stricter monitoring of skin products that are sold to unsuspecting consumers.

The homemade mixture (s) used were natural products such as lime, pawpaw, aloe vera honey, rice water, tomatoes, palm oil, tumeric and milk. Products made for other purposes such as hydraulic car fluid and toothpaste was also used. Some mixed soaps and creams with the natural products. Within the parameters of this investigation, it is not possible to determine the impact of such mixes. To effectively guide consumers, however, it is necessary to address a number of issues, including the absence of standard measurements, a lack of information regarding the additive effect of

different components, and the effect of fermentation if improperly stored. Additional research should be done on the use of items intended for other uses, such as toothpaste and hydraulic auto fluid. Similar uses of both natural and manmade chemicals for skin bleaching have been documented by other writers. According to some users.[6,14,35,36] these are less costly, less harmful, or toxic-free which is not proven.

The present study shows that most of the respondents spent < 1000 (26.6%) and 1000 – 4999 (60.4%) on SLA. Four (2.0%) spent ≥ 25,000 naira. The minimum wage in Nigeria as at the time of the study was 30,000 naira, making such spending a large part of some income earners. The average monthly expenditure on cosmetics was significantly higher for users of skin lightening agents in another study.[37] The respondents mostly applied skin lightening products twice a day (86.4%) and all over the body (87.9%) in this study. Few used on only their face. It has been reported that users of skin bleaching products tend to target certain body parts such as the face, upper limbs, lower limbs and genital areas.[38] A study among male and female undergraduates in Ibadan, Nigeria observed that 62.5% applied the skin lightening products once a day to the entire body mostly (43.8%) while 13.4% used on their face alone.[39]

The participants in this study mostly used different types of products (one after the other) (40.2%), some used only one type (38.2%) and about one-fifth (21.6%) mixed different agents together. In a study in Ibadan, Nigeria, more than half (65.2%) used creams alone while 8.8% mixed the cream with other agents.[39] Observations from other studies report that occlusion over the skin with tight compression materials after applying creams or bathing in mixtures containing a combination of skin lightening agents is also practiced.[40,41] The practice of mixing these products of which the final outcome on health is uncertain need to be discouraged using health education.

In this study, the highest proportion of duration of use of skin lightening agents was 13 – 36 months (42.7%) followed by those who had used for less or equal to 12 months. This is longer in duration than that obtained in the study in Ibadan where 18.9% had used for at least 3-6 months and 2.2% had used for more than two years.[39] A similarly long range for duration of skin bleaching of 6 months to two years was reported from a 10 months review of attendees of a dermatology clinic at a tertiary hospital in Lagos, Nigeria.[42] The variation in duration is likely due to differences in the sample populations across these studies, as our study included individuals from various occupations and students, while the Ibadan study focused exclusively on undergraduates.

Conclusion: Patterns in skin bleaching practices reveal underlying issues. The use of substances produced for other uses such as tooth paste and hydraulic car fluid was seen among the respondents. Some mixed different products together, of which the ultimate additive effects is not clearly known. These practice raises important concerns regarding public health and highlights the need for awareness programs. Ultimately, addressing the root causes of skin bleaching requires a multifaceted approach, which includes education, policy intervention and regulation enforcement.

Acknowledgement: The authors are grateful to the management of Federal Medical Centre, Makurdi.

Conflicts of interest/competing interests

The authors declare that there is no conflict of interest in this study.

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