

Full Length Research Paper

Pattern of skin lightening cosmetics use and perceived risk of skin cancer among undergraduate students of university of Ibadan, Nigeria

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Background: Skin lightening cosmetics use has been a practice that cut across various populations across the world and Nigerians have been reported to be the highest users. However, various complications have been documented with prolong use of the product ranging from mild reactions such as exogenous ochronosis to severe cases like skin cancer. The study however assessed the pattern of use of skin lightening cosmetics among the undergraduate students of University of Ibadan, Nigeria. **Method:** A descriptive cross-sectional study design was adopted using a simple random and systematic sampling technique with self-administered questionnaire to 365 respondents who met the eligibility criteria and consented to participate. Statistical analyses were done. Numeric variables were frequencies, percentages, means and Chi-square at $p= 0.05$. **Results:** the mean age of the respondents was 20.0 ± 2.93 years. 41.4% of the respondents were aware of the toxic components of skin lightening cosmetics. Although, 45.2% opined they used it ignorantly. About 11.8% claimed they use it in the last 3 months and 36.6% claimed experiencing early symptoms of its adverse effects. **Conclusion:** About average of the student population ignorantly use cosmetics containing banned chemicals with consequent adverse effects. Policy restricting the use of toxic cosmetics is therefore recommended.

Key words: Pattern, lightening cosmetics, risk, skin cancer, undergraduate students.

INTRODUCTION

Cancer is a multi-system disorder that influences all aspects of life of affected individuals. It has also become a cankerworm that is eating deep into our society. However, skin cancer is one form of cancers that has not gained so much attention of the researchers in recent time yet it is creating a lot of havoc owing to lifestyles and exposures of different groups of people to varying chemicals. Skin cancers have been noted as one of the most prevalent forms of cancers in the United States and the number of cases continues to rise (The Skin Cancer Foundation, 2016).

National Cancer Institute (2012) documented about 3.5 million cases of skin cancers are diagnosed each year and that 1 in 5 Americans will develop skin cancers over their life time.

The use of skin bleaching agents or lighteners have been linked to development of skin cancer although by a few authors (Ly, 2010) and the practice has been reported in many parts of the world, such as Caribbean, South America, Asia, the Middle East and several African countries like Kenya, Ghana, South Africa and Nigeria (Oliveira et al. 2014), (Ly, 2010). Among African countries, lightening products are most popular in Nigeria and also among women (Afrizap, 2016). In a study of four hundred and fifty Nigerians who admitted the use of bleaching creams, 73% were women and 27% were men (Olumide et al., 2014).

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Various reasons have been given for using the lightening products ranging from medical to aesthetic needs (Lewis et al., 2011) with several forms of skin bleaching which include; the face, upper parts, lower parts and private (sexual) parts bleaching. The reason for choosing which type or pattern of skin bleaching depends largely on the individual and the purpose of doing it, but basically most reasons are to increase social acceptance and to add commercial value to their quality (Lewis et al., 2011).

A number of undesirable effects have been reported owing to several toxic components of these bleaching agents. Damage produced depends on the extent of use and length of time. Side effects are more pronounced on thin, highly vascularized skin and in the folds, face, eyelids, axillary areas, and groin (Kooyers & Westerhof 2010). The severity also depends on toxicity, concentration, number of products used at a time and individuals' skin sensitivity. One's lifestyle; exposure to workplace, home environment, contact with aggressive environmental conditions, charcoal fires, sunlight, dryness, lack of fresh air, and pollution—all compound the effects of the unknown substances used on the skin (Julien, 2014). Some of the effects include; exogenous ochronosis related to long-term use of hydroquinone and nephrotic syndromes secondary to mercury (Gandhi, 2012), (Barr, 2012). Although, Hydroquinones are by far the most common dangerous agents among others but the havoc keep increasing in Nigeria because most cosmetic products are not registered by National Agency for Food Drug Administration and Control (NAFDAC) and they bear no correct ingredient labeling (Olumide et al., 2014). Some are even misbranded and have been found to contain higher concentrations of chemicals than stated on the label (Kass, et al., 2014).

Since, prolonged use of such agents have been associated with some health risks and other complications, therefore this study was designed to investigate the pattern of use of these agents and the perceived risks among young people especially the undergraduate students among whom skin bleaching is also prevalent.

MATERIALS AND METHODS

Study Design

The study employed cross-sectional descriptive study design in assessing the pattern of use of skin lightening agents among undergraduate students, University of Ibadan, and how their prolong use can predispose them to skin cancers.

Study Setting

The study was carried out in six halls of residence in the

University of Ibadan, Nigeria, namely, Queen Elizabeth hall, Queen Idia hall, Awo hall (for female hostels), Tedder hall and Independent hall (for male hostels).

Sample Size Determination

The sample size was determined as described by Cochran (1977) for a population that is above 10,000.

Sampling Techniques

All the female undergraduate halls were selected for the study. While, a simple random technique was used to select male hostels which include Tedder hall and Independent hall, each one picked via balloting from 2 clusters of male hostels. Subsequently, a systematic sampling technique was then used to select respondents from blocks within the halls.

Data Collection

A 51-item self-administered structured questionnaire was used to elicit data from the 365 respondents who consented to participate in the study. Ethical approval was secured from the Institutional Review Board (IRB) before carrying out the study. Data was collected with the aid of 2 research assistants over a period of one week. Same were analyzed and interpreted.

RESULTS

Socio-demographic Characteristics of the Respondents

Table 1 showed the respondents' mean age was 20 ± 2.93 with minimum and maximum age of 18 and 28 years respectively. Majority of the respondents were females (67.4%), with highest number of Christians (80.8%). The highest numbers were in 400 level of their studies (24.1%). Awo hall constituted the largest number of the respondents (25.5%). It was observed that majority received more than #10,000 monthly as stipends (43.0%), while the predominant ethnic group was Yoruba (80%).

Knowledge of Each Component in Cosmetics

Figure 1 displayed the knowledge of the respondents on various components in skin lightening cosmetics. The highest number of the respondents (29.8%) knew about Hydroquinone in cosmetics. This was followed by knowledge of mercury, steroids and talc in order of descent. Meanwhile, not so many (9.4%) knew about Cadmium.

Table 1. Socio-demographic Characteristics of the respondents.

Variables	Frequency	Percentages
Age (years)		
<18 years	26	7.1
18- 22 years	285	78.1
23- 27 years	33	9.0
>27 years	3	0.8
Mean \pmSD		20\pm2.93
Religion		
Christianity	295	80.8
Islam	67	18.4
Gender		
Male	119	32.6
Female	246	67.4
Level of Study		
100 Level	61	16.7
200 Level	83	22.7
300 Level	85	23.3
400 Level	88	24.1
500 level	24	6.6
600 level	20	5.5
Hall of Residence		
Queens	60	16.4
Idia	91	24.9
Awo	93	25.5
Tedder	48	13.2
Indy	69	18.9
Monthly stipends (Naira)		
<2000	32	8.8
2100-5000	47	12.9
5100-10000	94	25.8
>10000	157	43.0
Ethnicity		
Yoruba	292	80.0
Igbo	43	11.8
Hausa	7	1.9

Factors Promoting Use of Cosmetic Agents

The information on Table 2 revealed that 34.2% of the respondents have medium brown skin colour while majority of them do not wish to be fairer (77.0%) and were not interested in purchasing the skin lightening cosmetics (90.1%). For fairer skin individuals, a few percentages (22.7%) were interested in using the agent to lighten up their skin. About 51.8% do not have anyone selling bleaching agents around them. Most of the participants (83.3%) claimed no other member of their family uses the agents. However, a good number believed that skin bleaching enhances beauty (47.1%), facilitates spousal satisfaction (32.1%), had peer

influence (65.5%) and promotes job seeking and marketing (35.3%).

Pattern of Use of Skin Lightening Cosmetics (SLC)

This is presented in Table 3. A higher percentage 65% had never used skin lightening cosmetics before whereas; a substantial number claimed the usage (27%). Majority (72.9%) did not respond to the period of usage but a few numbers had used it in the last 3-6 months (18.9%). From the number that used the products, a higher number (62.5%) claimed they applied the cosmetics once a day to the entire body mostly (43.8%) and majority (65.2%) ascertained they used their creams alone.

Figure 1. Knowledge of Each Component in Cosmetics.

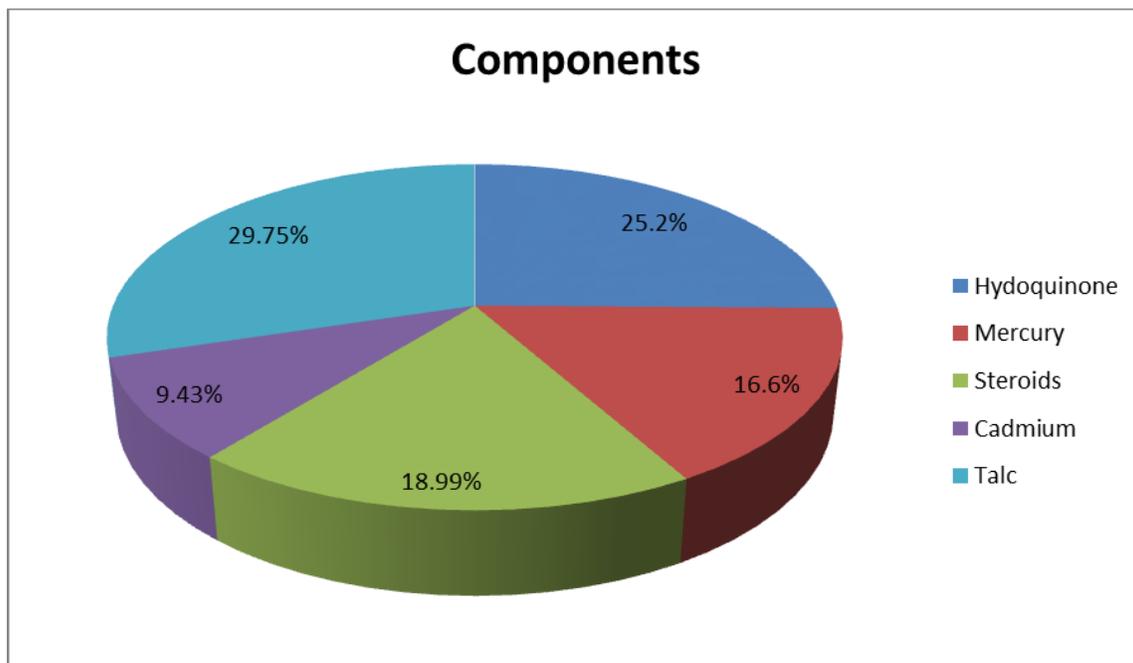


Table 2. Factors promoting skin lightening cosmetic use.

Variables	Frequency	Percentages
Colour of the skin		
Very fair	16	4.4
Fair	83	22.7
Light brown	59	16.2
Medium brown	125	34.2
Dark brown/black	74	20.3
Desire to be lighter		
Yes	76	20.8
No	281	77.0
Planning purchasing SLC		
Yes	27	7.4
No	329	90.1
Spending substantial amount to purchase SLC		
Yes	19	5.2
No	338	92.6
Faired skin desiring SLC for 'maintaining skin'		
Yes	83	22.7
No	215	58.9
Sale of the bleaching agent around?		
Yes	166	45.5
No	189	51.8
Family using skin bleaching agent?		
Yes	41	11.2
No	304	83.3

Table 2. Cont.

If yes, who?		
Dad	4	1.1
Mum	12	3.3
Siblings	17	4.7
Beauty enhancement a factor in skin bleaching?		
Yes	172	47.1
No	87	23.8
Spousal satisfaction a factor in bleaching practice?		
Yes	117	32.1
No	109	29.9
Peer influence as a factor in skin bleaching		
Yes	239	65.5
No	56	15.3
Job seeking and marketing encourage skin bleaching practice		
Yes	129	35.3
No	118	32.3

Table 3. Pattern of use of skin lightening cosmetics (SLC).

Variables	Frequency (365)	Percentages
Ever used SLC		
Yes	101	27.7
No	240	65.8
Not Sure	15	4.1
Use in the last 3 months		
Yes	30	8.2
No	303	83.0
Not Sure	13	3.6
Period of use		
3-6 Months	69	18.9
6-12 Months	13	3.6
1-2 Years	9	2.5
above 2 Years	8	2.2
Time of application		
once a day	228	62.5
twice or more	19	5.2
Daily	28	7.7
Others	20	5.5
Body part applied		
face only	49	13.4

Table 3. Cont.

arms, chest & legs	60	16.4
entire body	160	43.8
Others	18	4.9
Method of application		
cream alone	238	65.2
mixture with other agents	31	8.5
other methods	19	5.2

Table 4. Perceived risk of skin cancer with SLC.

Variables	SA	A	U	D	SD
Experiences Body odour	7	26	93	122	101
Percentages (%)	1.9	7.1	25.5	33.4	27.7
Becoming more sensitive to infections.	-	13	63	142	128
Percentages (%)	-	3.9	17.3	38.9	35.1
Experiences fragile skin	4	12	49	134	151
Percentages (%)	1.1	3.3	13.4	36.7	41.4
Notices wound and growth.	4	16	37	87	196
Percentages (%)	1.1	4.5	10.1	23.8	53.7
Noticed patches and discolorations	16	36	38	103	153
Percentages (%)	4.4	9.9	10.4	28.2	41.9
Noticed wrinkled part in the body	10	14	46	94	178
Percentages (%)	2.7	3.8	12.6	25.8	48.8
Experienced facial burns.	4	16	37	87	196
Percentages (%)	1.1	4.4	10.1	23.8	53.7
Sweat profusely or moderately after applying SLC.	31	48	61	68	132
Percentages (%)	8.5	13.2	16.7	18.6	36.2
Detect changes in urine production	16	7	32	189	99
Percentages (%)	4.4	1.9	8.8	51.7	27.1
I stay in a stuffy environment.	20	45	60	129	86
Percentages (%)	5.5	12.3	16.4	35.3	23.6
Have other skin diseases	19	12	36	97	174
Percentages (%)	5.2	3.3	9.9	26.6	47.7
None of my close relation has ever had skin cancer.	230	50	18	15	28
Percentages (%)	63.0	13.7	4.9	4.1	7.7

Components in Cosmetics

The charts on Figures 2-5 revealed the toxic components contained in the cosmetics of the respondents. The information revealed that majority of the cosmetics used by

the respondents did not contain excessive toxic agents except for fragrance which has a very high percentage. Nevertheless, few numbers indicated their cosmetics contained traces of the dangerous chemicals that could be deleterious to health with continuous use.

Figure 2. Components in cosmetics.

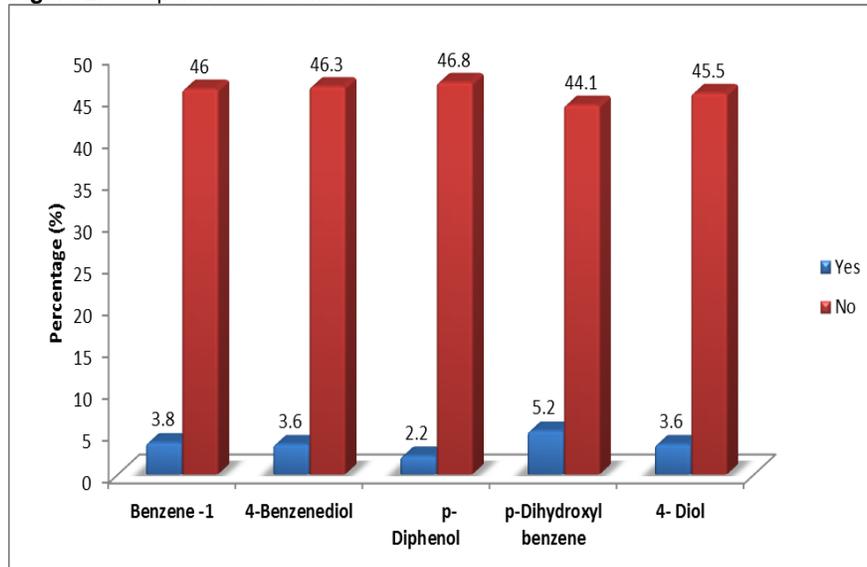
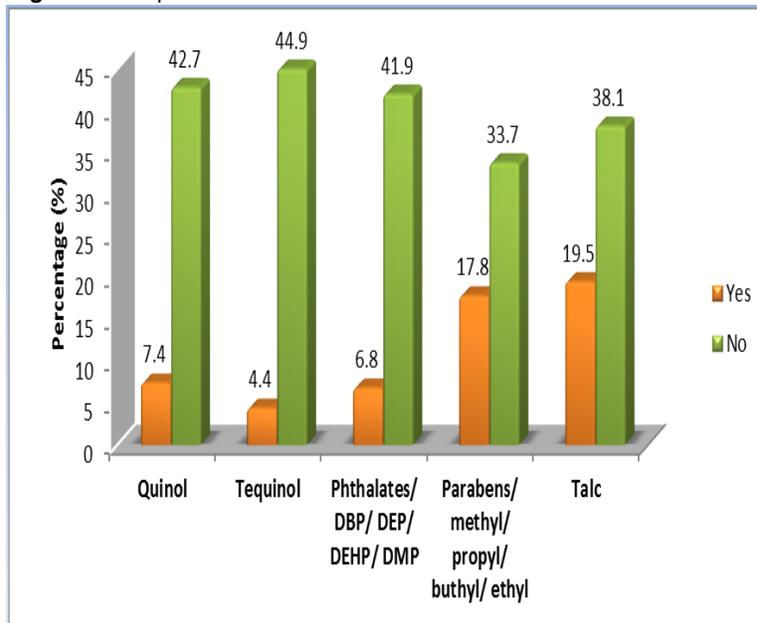


Figure 3. Components in cosmetics.



Perceived Risk of Skin Cancer with Skin Lightening Cosmetics

Studying the responses of the respondents, not so many of them have been experiencing the risks associated with the use of the lightening cosmetics. It was observed that as a result of SLC use 9.0% had body odour, 3.9% became more sensitive to infection, 4.4% had fragile skin, 5.5% had wound and growth on their bodies, 14.3% noticed patches and discolorations, 6.5% had

wrinkledness on their bodies, 5.5% noticed facial burns. 21.7% claimed they sweat profusely, 6.3% are already experiencing changes in their urine, which are all pointers to developing skin cancer.

DISCUSSION

It is a well-documented fact that the use of skin lightening cosmetics cut across all socio-demographic characteristics across the world, and how their prolong

Figure 4. Components in cosmetics.

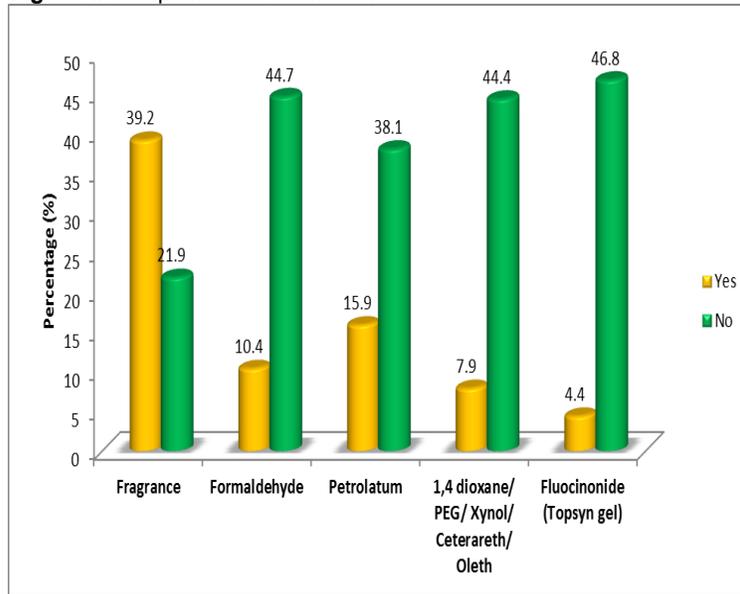
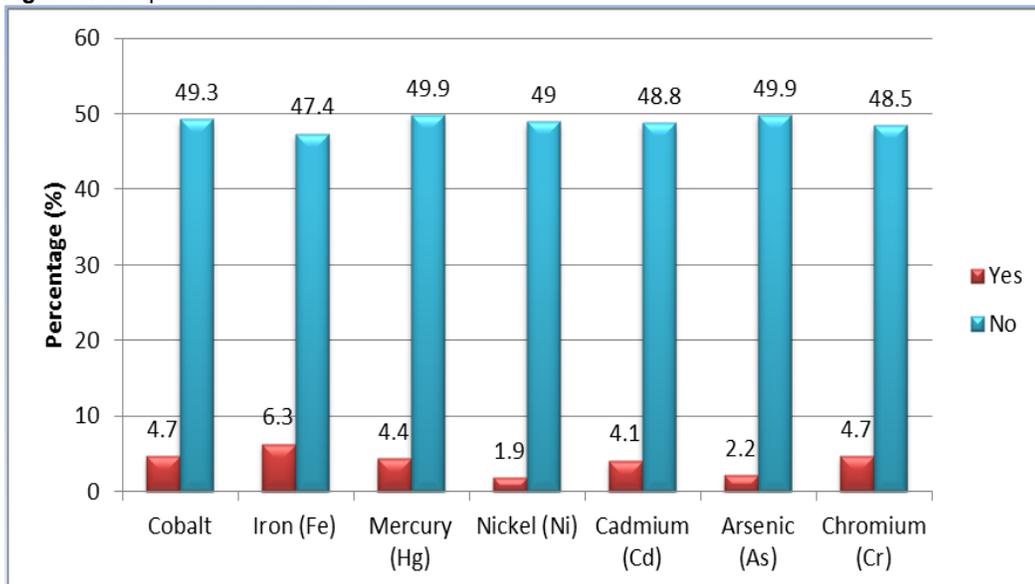


Figure 5. Components in cosmetics.



use are predisposing individuals to certain health challenges including skin cancers. The fact that majority of the respondents in the current study were females was still an added fact that the practice is more common in women than men (World Health Organization 2015). The educational level of the participants and their financial status also informed their desire for skin lightening cosmetics use as the same factors were highlighted as acumen that could encourage indulgence (Alatawi 2018),

(Nadia 2017). This further emphasizes the importance of educational empowerment on health promotion, irrespective of luxurial state of the young individuals, wellbeing precedes any euphoria living. Knowledge of the components of skin lightening cosmetics use is crucial in determining the effect of the products. Despite the awareness of the respondents on the components of SLC such as Hydroquinone, Mercury, Steroids and Cadmium, many of the respondents still do

not usually check cosmetics labeling before purchase making them fall victim of the use. This calls for a more strategic enlightenment programme that will educate the populace on regular checking of product contents and ensuring they are free from toxic agents before purchase. An average percentage of the respondents supported the fact that social relationships and opportunities were contributors to SLC use as corroborated likewise by Durosaro (2015) and Gwaravanda (2011). Our culture, media and advert sector's perspective also made it difficult for young individuals to accept and celebrate their natural skin colour making the practice difficult to curb. This should be corrected by appropriate sector regulation and change of mind set through education.

The pattern of use of the skin lightening agent for a period of 3 months was noted among the respondents in the current study, with no mixture of other product but applying their cosmetics to their entire body. These were in alignment with several authors (Julien 2014) and (Antoine 2014) who documented that a period that is greater than 2 weeks of application of SLC to the entire body is deleterious to health. Meanwhile, about the content of the mixture, Kooyers (2010) believed many individuals add other mixtures to their cosmetics making it difficult to analyze which particular agent causes reaction, but that fact could not be sustained in the current study. A larger sample could be used subsequently to decipher the dichotomy. Continuous education will also go a long way in enlightening the young ones on the adverse effects the prolong use could pose on their health.

About 50% of the respondents using the SLC have noticed some discolorations, wrinkledness of the body, growth/wound on the body, fragile skin, facial burns and changes in urinary output all related to skin lightening cosmetic use. All these were adverse reactions associated with the chemicals in cosmetics and are signs that could progress to skin cancer with prolong use (Ly 2010), Obuekwe et al (2004), Levitt (2007). Although, the percentages of the toxic agents contained in their cosmetics currently may appear negligible, with consistent and prolong use, it may be disastrous in few years to come as cancer cells are known to grow slowly.

CONCLUSIONS

A few population still use cosmetics that contain the dangerous chemicals unknowingly, and with consistent and prolong use may predispose unwholesome effect on their bodies and could pose threat to their lives in time to come. The study however recommends that a more rigorous regulation be enforced on the production and importation of cosmetic products by Standard Organization of Nigeria (SON) and National Agency for Food, Drug Administration and Control (NAFDAC). In addition, strict penalty should be issued to the importers

and local manufacturers who produce or are found in transaction of such products. Likewise, public sensitization should continue on the implications of these toxic products on health, until the practice goes into extinction. The media and our culture are also advised to always celebrate individual's natural colour. Government, private sectors, stakeholders and recruiting agencies should endeavor to celebrate and attribute equal privileges if not more to young individuals that retain their natural looks in order to discourage the practice of SLC. Individuals should endeavor to always check the product labeling before purchase to ensure it is free of hazardous components. Skin testing before use of these pharmaceutical products is also recommended to prevent hypersensitivity to the agents.

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