



KNOWLEDGE, PREVALENCE AND DETERMINANTS OF THE USE OF SKIN-LIGHTENING CREAMS AMONG UNIVERSITY UNDERGRADUATES IN BABCOCK UNIVERSITY

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ABSTRACT: *The quest for lighter skin has become a dangerous obsession fueled by societal beauty standards and cultural norms. The purpose of this study was to analyze the inspiration prompting the use of these products among undergraduate students using descriptive research surveys. This study examined the knowledge, prevalence and determinant of the use of skin lightening creams among three hundred and thirty (330) undergraduates of Babcock University, Ilishan-Remo. through a simple random sampling technique using self-structured questionnaires. Data was collected with the use of SPSS and frequency count. Pearson correlation was used to draw conclusions on the hypothesized statement of study. The researcher found a significant relationship between knowledge of skin lightening creams and its determinant of use, with over half of respondents (56.37%) agreeing that lightening creams could cause kidney failure. Treatment of hyperpigmentation was the motivating factor among 57.58% of respondents. There is therefore a need for undergraduate students to be provided with adequate education regarding the dangers of skin lightening creams and be encouraged to visit appropriate health facilities for skin disorders instead of self-meditating.*

KEYWORDS: Prevalence, determinants, skin lightening cream.



INTRODUCTION

Skin lightening, also known as skin whitening or bleaching, is a chemical process that reduces melanin levels in the skin, making it lighter or more even. This process has a negative impact on wellbeing and presents substantial issues to dermatologists (Pollock et al., 2020). The skin protects internal organs by providing a physical barrier against mechanical, thermal, and chemical harm. It is made up of three layers: the epidermis, which contains melanin and protects the body from pathogens and germs; the dermis, which includes nerve receptors; and the hypodermis, which serves as a heat regulator and cushion.

Melanin, a pigment found in the skin, is responsible for the variation in tones and color and protects the skin and internal organs from ultraviolet rays. It originates through melanogenesis from melanosomes found in the skin's inner layers (Hwang & Hong 2017). Skin darkening can be caused by a variety of factors, including aging, hormonal changes, endocrine illnesses, inflammation, and radiation exposure, resulting in skin conditions such as freckles, melasma, or hyperpigmentation (Margit & Melissa, 2018).

Skin-lightening creams, also known as skin-bleaching, whitening, brightness, or fading creams, are used by 67% of South African users to treat inflammatory skin conditions such as melasma, acne, and hyperpigmentation, while 33% use them solely for skin-lightening (Lartey et al., 2017). In some parts of East Africa, 52% of users use complexion-whitening products for pigmentary issues, 38.7% prefer a lighter skin tone, and 9.7% use the products for both reasons (Lartey et al., 2017). These creams contain steroids, hydroquinone, mercury salts, and other ingredients that lower skin pigmentation levels to achieve a fairer complexion. The most common reason for using these products is cosmetic purposes, rather than medical reasons like treating melasma (Alegbeleye, 2017). This research aims to determine the extent of use among undergraduates to guide legislative decision making. The use of skin-whitening creams has been linked to harmful outcomes such as ochronosis, rashes, and systemic problems like diabetes, psychosis, and hypertension (January J. et al., 2018).

LITERATURE/THEORETICAL UNDERPINNING

Skin-lightening product usage is prevalent across genders and races, characterized by higher prevalence among women. The majority of those using skin-bleaching treatments are black females, as they perceive fair skin to be more attractive than dark skin (Akiibinu, 2019). The prevalence of skin-lightening practice varies globally and is influenced by social, cultural, and economic factors. The World Health Organization (WHO) reports that up to 77% of Nigerian women use skin-lightening products regularly, making it the highest percentage in the world. In many African countries, such as South Africa, Togo, and Senegal, up to 25% of women use these products (WHO, 2023). In Asia, such as India, up to 70% of women use these products. In Latin America, particularly among women of African and indigenous descent, skin-lightening is also prevalent (Dlova & Hamed, 2015; Shroff et. al., 2018; Akiibinu, 2019).

Teenagers are considered the most susceptible to skin bleaching, with rates ranging from 27% in Senegal to 77% in Nigeria (Akiibinu, 2019). Other countries, such as Mali, Philippines, Togo, Malaysia, Taiwan, The Republic of Korea, Hong Kong, and South Africa, also reported significant percentages of skin-bleaching practices among female teens. Higher rates were



observed among unmarried students possibly due to societal pressures on younger single women to look their best to attract potential partners (January J. et al., 2018).

Studies have identified multiple factors influencing lightening product use, including various social, cultural, economic, and psychological factors; dermatological issues, media influence, colorism, unequal access to resources, societal pressure, and beauty standards. People with lighter skin tones often have better access to employment and social status, while those with darker skin tones are often subjected to discrimination and stereotyping, leading to lower self-esteem and a desire to conform to societal beauty standards (Hall J. Camille, 2017).

Skin lightening lotions contain various ingredients such as magnesium, kojic acid, ascorbyl phosphate, mercury, arbutin, vitamin C, hydroquinone, ascorbyl glucoside, calcium ascorbate, and azelaic acid. These ingredients work by inhibiting the tyrosine-melanin pathway enzyme(s) in different ways (Akiibinu et al., 2019). The current global use of topical lightening agents is estimated at an estimated rate of 27.7%, with Africa having a rate of 27.1%. Nigerian women have the greatest incidence of skin bleaching globally, with 77.3% of women engage in the practice, as reported by the WHO (Adegboyega, 2020). Studies conducted in Nigeria have shown a high prevalence of skin lightening product use among specific groups, such as 48.1% of university undergraduates in northern Nigeria, (Amodu et al., 2018) and 38.0% of undergraduates in southwestern Nigeria (Adebimpe et al., 2020).

Many people who use skin lightening products are completely unaware of the health risks and dangers they pose. Skin lightening works by reducing melanin production, which lightens the skin but also makes it more susceptible to ultraviolet (UV) rays from the sun. According to the National Health Service in 2019, the risks of using skin lightening creams containing corticosteroids, hydroquinone, or mercury include skin thinning, scarring, organ damage (kidneys, liver), nerve damage, abnormalities in a newborn baby, psychosis, cancer, and brain damage in fetuses, among other things. Excessive and prolonged use of hydroquinone-containing lightening creams can also result in exogenous ochronosis, or permanent blue and purple skin pigmentation.

The use of skin-lightening agents and foundation-like substances can be traced back to Ancient Egyptians, Romans, and Greeks. They discovered that a combination of honey and olive oil could be used to lighten the skin, and they used various ingredients to create a paler complexion, such as chalk dust and a mixture that included white lead, which is still used in modern foundations. Arsenic was also used to lighten the skin, as it dilates capillaries, giving the user a temporary flush to the cheeks.

Lighter skin tone became the trend for over hundreds of years because it was mostly seen among rich women who did not work under the sun, thereby avoiding the skin-darkening effects of the sun, and thus was associated with wealth. Light-skinned slaves received preferential treatment over their dark-skinned colleagues, resulting in a system of light-skin supremacy (Ngunan, 2019).

Skin lightening has become popular in recent years for a variety of reasons, including minimizing wrinkles and age-related damage, achieving a specific complexion, and combating pigment discolorations caused by sun exposure or acne (Lazenby, 2018; Helmet, 2019). In accordance with Ola (2019), African women lighten their complexions not for vanity, but due to the fact that pale skin is regarded as more attractive and can offer economic benefits. This is



especially true in Africa, where light-skinned women are regarded as more desirable as well as more probable to thrive in industries such as modeling and movies. Women may bleach their skin to connect with others, battle prejudice, overcome feelings of inadequacy, change their physical appearance, break free from bondage, and follow fashion and prostitution trends (Oberiri, 2018).

COMMON SKIN LIGHTENING AGENTS AND THEIR ADVERSE EFFECTS

In 2019, Akiibinu et al. conducted a research to quantify the extent of Mercury, Lead, Cadmium, and Arsenic in 12 popular body creams. The findings revealed that all 12 lightening creams contained significantly greater amounts of Mercury than the control. Eleven (11) of 12 lightening creams had significantly higher Lead level and Arsenic levels. Four of the twelve lightening creams (22.9%) showed significantly greater amounts of Cadmium.

In 2017, Lartey et al. conducted a cross-sectional research in three urban fishing communities in Accra to examine adult skin whitening product utilization. The study found that hypopigmentation (96.8%), ochronosis (86.4%), changes in skin texture (50.3%), stretch marks (56.3%), and infections (15.1%) were all unfavorable dermatological outcomes.

In 2019, Akiibinu et al. set out to analyze the amounts of hazardous heavy metals in 12 popular skin lightening creams used in Nigeria. The results revealed that all lightening creams contained a marked elevation of Mercury than the control creams, and 11 out of 12 lightening creams contained marked elevations of lead than the control creams. The study established that Mercury, Cadmium, Lead, and Arsenic are recurring ingredients in skin whitening cosmetics sold in Nigeria.

There is little knowledge on the level of heavy metals in the body products that are circulating the marts in Nigeria.

Table 1: Commonly Found Agents in Lightening Creams and Their Effects

Agents	Possible side effects	Potential adverse effects	Possible Long-term effects
Hydroquinone	Skin irritation, redness, and dryness, particularly when starting treatment; temporary stinging or burning sensation; temporary worsening of acne.	Exogenous ochronosis (blue-black darkening of the skin) after long-term use; enhanced sensitivity to sunlight is a rare but potentially significant complication.	Cancer, Leukemia, Renal adenomas.
Mercury	Allergic reactions, skin irritation.	Kidney damage, liver and brain damage	Nervousness, tremors, memory loss, Renal damage, scarring, depression, psychosis, nerve damage, brain and liver damage.



Kojic acid	Contact dermatitis.	Skin irritability.	Skin may become more susceptible to sunburn.
Retinol	Skin irritation, redness, and dryness, particularly when starting treatment; increased sensitivity to sunlight.	Skin irritability.	Skeletal anomalies that frequently resemble diffuse idiopathic hyperostosis syndrome. Furthermore, long-term retinoid usage in children may impair development by promoting premature closure of the epiphyseal growth plates.
Tretinoin	Skin irritation, redness, and dryness, particularly when starting treatment; increased sensitivity to sunlight; temporary worsening of acne.	Increased sensitivity to sunlight; potential for birth defects if used during pregnancy.	Skin may become more susceptible to sunburn, damages to skin barrier.
Vitamin C	Skin irritation, redness, and dryness, particularly when starting treatment; increased sensitivity to sunlight.	None known.	Skin may become more susceptible to sunburn.
Niacinamide	Skin irritation, redness, and dryness, particularly when starting treatment; increased sensitivity to sunlight.	None known.	None known.
Glycolic Acid	Erythema (skin redness), dry skin, burning feeling, itching, skin irritation, and skin rash.	None known.	Long-term use of such products could harm collagen in deeper skin layers, leading to thickening, paleness, and a shiny appearance.
Arsenic	Moles or blisters; stomach discomfort; nausea and vomiting; diarrhea; irregular heartbeats; muscular cramping; tingling	Premalignant skin conditions, elevated blood pressure, neurologic disorder, and chronic disease mortality are all possible outcomes.	Cardiovascular disease, diabetes, and carcinomas of the bladder, lung, skin.



	sensations in the fingers and toes.		
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THEORETICAL FRAMEWORK: HEALTH BELIEF MODEL

Health belief model is a psychology theory that explains people's health actions by examining their health beliefs and attitudes (Glanz et al., 2008). According to the concept, people's health-related activities are heavily impacted by the perceived amount of risk associated with different behaviors and the perceived rewards of acting (Glanz et al., 2008; Green, 2017). The HBM was established in the 1950s and has since been enhanced and widely used to analyze and predict health behaviors by health educators and researchers. The model comprises four components: susceptibility perception, seriousness perception, action benefits perception, and action obstacles perception (McCarthy, 2020). It has been used for a variety of health behaviors, including vaccination and seeking medical attention.

APPLICATION OF HEALTH BELIEF MODEL

In conformity with the theoretical framework behind the health belief model, what a person perceives regarding the extent of their health issues is as a result of their unique health behavior (the advantages of acting, the obstacles of acting, and their confidence in their capacity to act) because it takes into account the individual's perception of the negative outcomes that can result from such behaviors, the benefits associated with the use of these topical agents, the stumbling blocks to using them, and their confidence in using the creams. This model can be used to explain the motivations behind the use of these topical agents. By investigating these beliefs, healthcare providers may gain a clearer picture of the motives behind underlying individuals' health behaviors and devise treatments to encourage healthy habits. The HBM is considered to be the most appropriate theory for this study since it provides a clear explanation of the elements that encourage people to use skin-lightening treatments. The adoption of this hypothesis has the potential to benefit society by promoting healthy lifestyle choices.

- **Perceived Susceptibility:** Undergraduates will evaluate the reason behind their choice of skin color altering topical agents. To assess perceived susceptibility, it is important to consider factors such as an individual's reason for opting for a product containing lightening agents, knowledge of the risks associated with skin lightening products, their beliefs about their own vulnerability to these risks, and their attitudes towards the use of these products.
- **Perceived Severity:** This involves the undergraduates considering the consequences that result from the continuous application of these lightening creams.
- **Perceived Benefit:** If the undergraduates weigh the pro and cons of using bleaching creams, they have a greater chance of taking actions that they believe is more beneficial to them (such as opting for safer lightening options and incorporation of sunscreen) which will reduce the adverse effects of bad lightening products and lead to other positive outcomes.

- **Perceived Barriers:** If the undergraduates should perceive temporary effects that may occur from stopping the use of lightening products such as darkening of the skin and eruptions of acne, this might affect the course of action taken towards health.
- **Cues to Action:** This refers to external events that make these undergraduates desire a health change. It could range from government policies, adequate campaigns against use of skin lightening products that can damage skin and organs, and encouraging students to make use of provided health facilities to see a dermatologist instead of self-medicating. A cue to action is a concept that helps a person to move from wanting to make a positive health change to actually taking a step to make the change.
- **Self-Efficacy:** This is when the undergraduates can successfully participate in the event without consideration of the associated barriers.

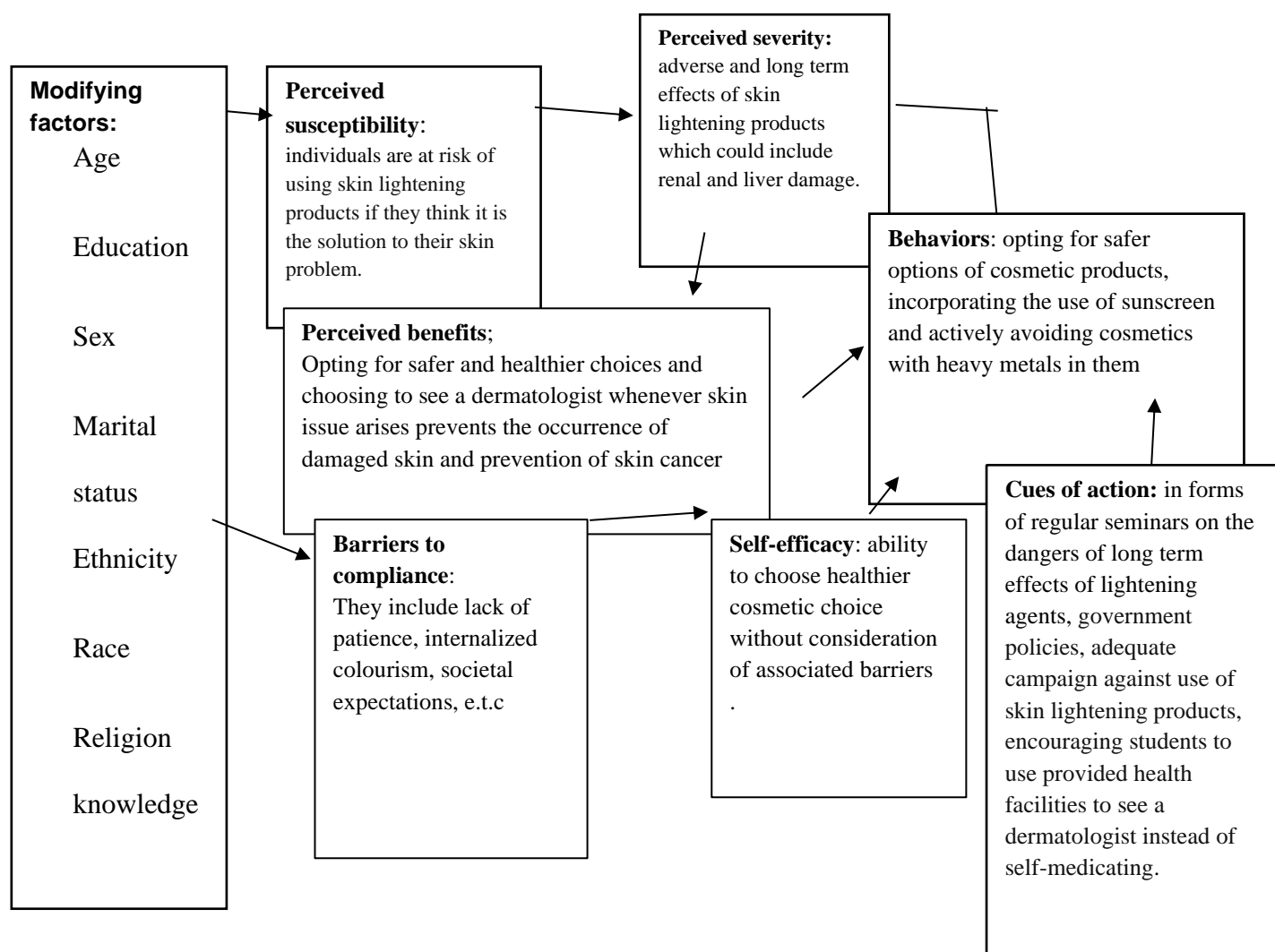


FIG. 1: CONCEPTUAL FRAMEWORK

SOURCE: RESEARCHER’S CONCEPT (Agboola, 2023)



METHODOLOGY

RESEARCH DESIGN

The project utilized a cross-sectional descriptive design to assess the prevalence, variables influencing, and comprehension of skin-lightening cream usage among undergraduate students at Babcock University in Ilishan-Remo, Ogun State, Nigeria.

POPULATION

The research focused on undergraduate students between the ages of 16 and 27 at Babcock University in Ilishan-Remo, Ogun State, Nigeria. To manage the high student population, the study was conducted in only two hostels: Havilah and Felicia Adebisi Dada halls. The number of students who registered for the second semester in these halls was assessed by the hall administration to be 498 in Felicia Adebisi Dada Hall and 864 in Havilah Hall, making a total of 1,362 students.

CALCULATION OF SAMPLE SIZE

Cochran's formula was employed to determine the sample size from the population. The formula is as shown below:

$$x = \frac{z^2pq}{e^2}$$

where

n = sample size

z = standard error associated with the chosen level of confidence (typically 1.96)

p = variability/standard deviation

q = 1-p

e = margin error

N = population size

$$x = \frac{1.96^2(0.5)(0.5)}{(0.05)^2}$$

$$x = 385$$

Small sample size correction

$$n = \frac{x}{1 + \frac{(x-1)}{N}}$$

$$n = \frac{385}{1 + \frac{(385-1)}{1362}}$$



$$n = \frac{385}{(1+384 \div 1362)}$$

$$n = \frac{385}{1+0.2819}$$

$$n = 300.3$$

~ 300

ATTRITION RATE: 10% of calculated sample size

$$10/100 \times 300$$

$$= 30$$

$$300 + 30 = 330$$

RESIDENCE HALL	TOTAL POPULATION	ESTIMATED SAMPLE SIZE
Havilah Hall	864	864/1362x330 =209.3 =209
Felicia Adebisi Dada	498	498/1362x330 =120.6 =121
TOTAL	1362	330

This gave a minimum sample size of 330 which was the number of participants used for this study: 209 in Havilah Hall and 121 in Felicia Adebisi Dada Hall.

INSTRUMENTATION

A researcher-structured questionnaire was used to gather data on the prevalence, determinants, and knowledge of the use of skin-lightening creams among undergraduates at Babcock University Ilishan-Remo in Ogun State, Nigeria. The questionnaire is divided into four sections:

- Section A: Sociodemographic data of the respondents.
- Section B: Questions regarding the use of skin lightening creams to determine the prevalence, where the respondents are required to indicate by ticking their choices.
- Section C: Determinants of the use of skin lightening creams, where the respondents are required to indicate their choices by ticking their choices.
- Section D: Knowledge on skin lightening creams, where the respondents are required to indicate their degree of agreement or disagreement as follows: Strongly Agree (SA), Agree (A), Disagree (D) and Strongly Disagree (SD).

The instrumentation item was grouped to represent the study's goal, and answer research questions and hypotheses.



RELIABILITY OF RESEARCH INSTRUMENT

A pretest was carried out among 20 students from Olabisi Onabanjo University to ensure the reliability of the research instrument. Reliability with a value of 0.75 was established using Cronbach Alpha Coefficient.

VALIDITY OF THE INSTRUMENT

Content validity was established through expert review when the researcher's supervisor reviewed the questionnaire and made necessary adjustments and recommendations to refine its quality before administration to the participants.

ETHICAL CONSIDERATION

Because human subjects were involved in this study, ethical issues were taken into account. Before conducting the questions, participants were asked to grant verbal and written agreement after being briefed about the questionnaire's content and procedures. The replies of the participants were kept private, and no one was made to participate without voluntary consent. The Babcock University Health Research and Ethical Committee approved this study for ethical reasons (BUHREC 156/23).

DATA COLLECTION METHOD

The procedure of gathering data began with gaining ethical permission from the Babcock University Health Research Ethical Committee (BUHREC 156/23). The questionnaire was administered by the researcher. For identification purposes, each questionnaire was allocated a unique serial number. Before delivering the questionnaire, the researcher explained its objective to the undergraduate students at Babcock University, Ilishan-Remo. The survey was delivered first at Felicia Adebisi Dada Hall, the researcher's residence, and then two days later, on a Friday afternoon before Sabbath service, the researcher proceeded to Havilah Hall to distribute the questionnaires. On the same day of the administration, the completed questionnaires were collected from the respondents.

DATA ANALYSIS FINDINGS

The acquired data in this study was examined using the Computer-Based Statistical Package for Social Sciences (SPSS) version 20.0. Descriptive statistics were used, such as frequencies, percentages, mean and standard deviation. In addition, based on the information gathered from the sample, inferential methods were utilized to estimate the characteristics of the population. Pearson product moment correlation was used to assess the hypothesis at a significance level of 0.05.

**Table 2: Sociodemographic Characteristics of the Participants**

Variable	Frequency	Percentage
Age		
16–19 years	86	26.1
20–23 years	234	70.9
24–27 years	10	3.0
Religion		
Christian	251	76.1
Islam	70	21.2
Traditional	9	2.7
Marital status		
Single	330	100.0
Married	0	0.0
Divorced	0	0.0
Separated	0	0.0
Ethnicity		
Yoruba	174	52.7
Hausa	36	10.9
Igbo	120	36.4
Hall of residence		
Havillah Hall	209	63.3
Felicia Adebisi Dada Hall	121	36.6
Faculty		
Benjamin S. Carson (SNR) College of Health	22	6.67
School of Nursing Sciences	42	12.73
School of Computing and Engineering Sciences	64	19.39
School of Education and Humanities	13	3.94
School of Public and Allied Health	76	23.03
School of Science and Technology	84	25.45
Veronica Adeleke School of Social Sciences	29	8.79
Level		
100	0.0	0.0
200	43	13.03
300	46	13.94
400	191	57.88
500	50	15.15
600	0.0	0.0

Table 2 shows the sociodemographic data of the respondents. It indicates that 26.1% of them were between 16 and 19 years, 70.9% of them were between the ages of 20 and 23 years and 3.0% of them were 24 to 27 years old. The majority of the respondents were 20 to 23 years old. It also shows that 76.1% were Christians, 21.2% were Muslims and 2.7% were traditionalists. The majority of the respondents were Christians. It is also observed that all the respondents were single. More than half (52.7%) of the respondents were Yoruba, 10.9% were Hausa and 36.4% were Igbo. The majority of the respondents were Yoruba. This is an indication that the



study was carried out in a university situated in the Southwest of Nigeria which is dominated by the Yoruba people. The table further shows that 63.3% of the respondents reside in Havilah Hall while 36.6% reside in Felicia Adebisi Dada Hall. The majority of the respondents reside in Havilah Hall. 6.67% of the respondents were from Benjamin S. Carson (SNR) College of Health faculty, 12.73% were from School of Nursing Sciences faculty, 19.39% were from School of Computing and Engineering Sciences, 3.94% were from School of Education and Humanities, 23.03% were from School of Public and Allied Health, 25.45% were from School of Science and Technology, and 8.79% were from Veronica Adeleke School of Social Sciences. The majority of the respondents were from the School of Science and Technology. It is indicated that 13.03% were in 200 level, 13.94% were in 300 level, 57.88% were in 400 level, while 15.15% were 500 level students. The majority of the respondents were in 400 level.

Table 3: Prevalence of the Use of Skin Lightening Creams

Variable	Frequency	Percentage
Have you ever used a lightening cream in the past?		
Yes	187	56.67
No	133	40.30
Not sure	10	3.03
Do you currently use a lightening cream?		
Yes	125	37.88
No	205	62.12
Not sure	0	0.0
Does your cream have 'lightening' 'brightening' 'whitening' 'toning' or 'bleaching' indicated on it?		
Yes	143	43.33
No	160	48.48
Not sure	27	8.18
Which of these does your cream contain?		
Hydroquinone	0	0.0
Arbutin	15	4.55
Kojic acid	20	6.06
Niacinamide	74	22.42
Retinol	25	7.58
Vitamin C	95	28.79
Salicylic acid	12	3.64
None	205	62.12
Other lightening products	0	0.0
Which of these have you used or currently used?		
Funbact-A	223	67.58
Skineal	44	13.33
EpidermCream	7	2.12
Visita Plus	2	0.61
Tydineal	5	1.52
Are you currently treating hyperpigmentation of any form?		
Yes	190	57.58



No	140	42.42
Not sure	0	0.0

Table 3 shows the prevalence of the use of skin lightening creams among undergraduates in Babcock university. It is revealed that 56.67% admitted to have used topical products containing skin lightening ingredients in the past while 40.30% said they have never used a skin lightening cream before. 37.88% admitted to currently using skin lightening creams while 62.12% said they were not using a skin lightening cream. It is indicated that 43.33% currently use body creams that had 'lightening,' 'brightening,' 'whitening,' 'toning' or 'bleaching' indicated on it; 48.48% said they did not; while 8.18% were not sure if their body creams had these terms or not. The table shows that 4.55% of respondents' creams had arbutin in their ingredient list, 6.06% had kojic acid, 22.42% had niacinamide, 7.58% had retinol, 28.79% had vitamin C, 3.64% had salicylic acid while 62.12% of respondent's cream had none of these in their ingredient list. 67.58% of respondents indicated to have either used Funbact-A currently or in the past, 13.33% indicated the same for Skineal, 2.12% for EpidermCream, 0.61% for Visita Plus and 1.52% for Tydineal. Finally, the table also shows that 57.58% indicated that they are currently treating hyperpigmentation while 42.42% are not.

Table 4: Determinants of the Use of Skin Lightening Creams

Variable	Frequency	Percentage
Which of these have you had in the past?		
Acne	287	87.27
Dark spot	285	86.36
Sunburn	33	10.00
Eczema	1	0.30
Rashes	70	21.21
Uneven skin tone	133	40.30
Which of these do you currently have?		
Acne	213	64.54
Dark spot	189	57.27
Sunburn	87	26.36
Eczema	0	0.0
Rashes	12	3.64
Uneven skin tone	133	40.30
Which of these are your reasons for using a lightening cream?		
For fairer skin	37	11.21
To fit into a job description	12	3.64
To look more beautiful	0	0.00
To correct a skin condition	125	37.88
Do you think you have ever received biased treatment because of the colour of your skin?		
Yes	125	37.88
No	80	24.24
Not sure	125	37.88
Have you ever had self-esteem issues because you thought your skin colour wasn't fair enough?		



Yes	113	34.24
No	217	65.76
Not sure	0	0.00
Do you use sunscreen?		
Yes	155	47.00
No	175	53.03
Not sure	0	0.00

Table 4 shows the various determinants behind their choice of use of skin lightening creams and creams that contained skin lightening ingredients. It is revealed that 87.27% of respondents used these products because they have had acne in the past, 86.36% have had dark spots, 10% have had sun burns, 0.3% have had eczema, 21.21% have had rashes, while 40.30% have had an uneven skin tone. Currently, 64.54% are dealing with acne, 57.27% with dark spots, 26.36% with sunburn, 3.64% with rashes, and 40.30% with an uneven skin tone. Out of these figures, 11.21% indicated wanting a fairer skin as their reason for using a lightening cream, 3.64% indicated using these creams to fit into a job description, while 37.88% indicated using lightening creams to correct a skin condition. The table shows that 37.88% of respondents believed they have been treated differently because of their skin colour, while 24.24% did not think so. 34.24% have had self-esteem issues because they felt the colour of their skin was not fair enough while 65.76% have never had self-esteem issues because of the colour of their skin. The table also indicates that 47% of the respondents used sunscreen while 53% did not use sunscreen.

Table 5: Knowledge on Skin Lightening Creams

S/N		SA	A	U	SD	D
1	Lightening creams have side effects on the skin.	104(31.51%)	206(62.42%)	20(6.06%)	0(0.0%)	0(0.0%)
2	Lightening creams are the same with bleaching and whitening creams	95(28.79%)	14(4.24%)	77(23.33%)	0(0.0%)	144(43.64%)
3	Lightening cream is a drug, not just a cream	50(15.15%)	30(9.09%)	5(1.52%)	200(60.61%)	45(13.64%)
4	Lightening creams can cause cancer	0(0.0%)	186(56.36%)	30(9.09%)	4(1.21%)	110(33.33%)
5	Lightening creams can cause kidney failure	170(51.52%)	16(4.85%)	30(9.09%)	4(1.21%)	110(33.33%)



6	Lightening creams makes the skin thinner and ages faster	186(56.36%)	0(0.0%)	30(9.09%)	0(0.0%)	114(34.55%)
7	Lightening creams makes skin more susceptible to other disease or infection.	0(0.0%)	5(1.52%)	211(63.94%)	0(0.0%)	114(34.55%)
8	Use of lightening creams can lead to a potential health crisis in the future.	186(56.36%)	0(0.0%)	40(12.12%)	0(0.0%)	104(31.52%)
9	Continuous use of lightening creams can cause uneven skin tone.	200(60.61%)	27(8.18%)	18(5.45%)	0(0.0%)	85(25.76%)
10	Lightening creams can be used safely.	165(50%)	0(0.0%)	30(9.09%)	128(38.79%)	7(2.12%)
11	Lightening creams should be used with a sunscreen	165(50%)	0(0.0%)	30(9.09%)	128(38.79%)	7(2.12%)
12	Persistent use of lightening creams can cause body odor	200(60.61%)	85(25.76%)	18(5.45%)	0(0.0%)	27(8.18%)
13	Not all lightening creams are bad	95(28.79%)	14(4.24%)	30(9.09%)	47(14.24%)	144(43.64%)
14	Production of lightening cream is prohibited in Nigeria	74(22.42%)	0(0.0%)	256(77.58%)	0(0.0%)	0(0.0%)
15	Buying and selling of lightening cream is prohibited in Nigeria	74(22.42%)	0(0.0%)	256(77.58%)	0(0.0%)	0(0.0%)
16	Production of lightening cream with Mercury, hydroquinone and arbutin can	33(10%)	0(0.0%)	297(90%)	0(0.0%)	0(0.0%)



results in a jail term in Nigeria					
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Table 5 shows the knowledge of the respondents on skin lightening creams. It is revealed that 93.93% of respondents agreed that lightening creams have side effects on the skin while 6.06% were undecided. Nobody disagreed with the statement. It is also indicated that 33.03% agreed that the term 'lightening creams' mean the same thing as bleaching and whitening creams, 23.33% were undecided while 43.64% disagreed with the statement. It is indicated that 24.24% agreed that lightening cream is a drug and not just a cream, 1.52% were undecided while 74.25% disagreed with the statement. The table shows that 56.36% agreed that lightening creams can cause cancer, 9.09% were undecided while 34.51% disagreed with the statement. More than half (56.37%) of respondents agreed with the statement that lightening creams can cause kidney failure, 9.09% were undecided while 34.51% disagreed with the statement. It is also indicated that 56.36% of respondents agreed that lightening creams make the skin thinner and age faster, 9.09% were undecided while 34.55% disagreed with the statement. It is also revealed that 1.52% agreed that lightening creams make the skin more susceptible to other diseases, 63.94% were undecided while 34.55% did not agree with the statement. 56.36% agreed that lightening creams could lead to future potential health crises, 12.12% were undecided while 31.52% disagreed with the statement. A very large percentage (76.79%) of participants agreed that continuous use of lightening creams could cause an uneven skin tone, 5.45% were undecided while 25.76% disagreed with the statement. It is revealed that half (50%) of respondents agreed that lightening creams can be used safely, 9.09% were undecided while 40.91% did not agree with the statement. This value was the same for the use of sunscreen with lightening creams. A large percentage (86.37%) of the respondents agreed that persistent use of skin lightening creams could cause body odor, 5.45% were undecided while 8.18% did not agree with the statement. The table reveals that 34.03% of respondents agreed that not all lightening creams are bad, 9.09% were undecided while 57.88% disagreed with the statement. It is revealed that 22.42% of respondents agree that the production of lightening creams is prohibited in Nigeria and 77.58% were undecided; this indicates that they had no idea if it was or not. 22.42% of respondents agreed that buying and selling of lightening creams is prohibited in Nigeria and 77.58% were undecided about the statement. It is shown that 10% of the respondents agreed with the statement that the production of lightening creams with Mercury, Hydroquinone and Arbutin can result in a jail term in Nigeria, while a larger percentage (90%) were undecided. This indicates that they did not know if the statement was true or false.

Table 6: Relationship between the Knowledge of Skin Lightening Creams and the Determinant of Use among University Undergraduates in Babcock University

	knowledge of skin lightening creams	Determinant of use
knowledge of skin lightening creams	1	-0.1439**
Pearson Correlation		.000
Sig. (2-tailed %)		
N	330	330
Determinant of use	-0.1439**	1
Pearson Correlation		



Sig. (2-tailed %)	.000	
N	330	330

**. Correlation is significant at the 0.01 level (2-tailed %).

Table 6 shows the Pearson correlation result of the relationship between knowledge of skin lightening creams and the determinant of its use. It can be seen that there is a negative relationship between the variables (-0.144). The significant value is 0.000, indicating a strong relationship between knowledge of skin lightening creams and the determinant of its use. Since the significant value of 0.000 associated with the Pearson correlation value of -0.144 is less than 0.05, the null hypothesis (H_0), which states that there is no significant relationship between knowledge of skin lightening creams and the determinant of use, cannot be accepted. In the light of this, we conclude that a significant relationship exists between knowledge of skin lightening creams and the determinant of use.

Hypothesis Two: There is no significant relationship between the knowledge of skin lightening creams and its prevalence among university undergraduates in Babcock University.

H0: There is no significant relationship between the knowledge of skin lightening creams and its prevalence among university undergraduates in Babcock University.

H1: There is a significant relationship between the knowledge of skin lightening creams and its prevalence among university undergraduates in Babcock University.

Table 7: Relationship between the Knowledge of Skin Lightening Creams and Its Prevalence among University Undergraduates in Babcock University

	knowledge of skin lightening creams	Prevalence
knowledge of skin lightening creams	1	0.1773**
Sig. (2-tailed %)		.000
N	330	330
Prevalence	0.1773**	1
Sig. (2-tailed %)	.000	
N	330	330

**. Correlation is significant at the 0.01 level (2-tailed %).

Table 7 indicates the Pearson correlation result of the relationship between knowledge of skin lightening creams and its prevalence among undergraduates in Babcock University. It can be seen from the table that there is a positive relationship between the variables (0.177). The significant value is 0.000 indicating a strong relationship between knowledge of skin lightening creams and the determinant of its use. Since the significant value of 0.000 associated with the Pearson correlation value of 0.177 is greater than 0.05, then the hypothesis which states that there is no significant relationship between knowledge of skin lightening creams and its prevalence will be accepted as null (H_0). In the light of this, it is concluded that no significant relationship exists between knowledge of skin lightening creams and its prevalence.



DISCUSSION

The study examined the prevalence and determinant of the use of skin lightening creams amongst undergraduates of Babcock University, Ilishan-Remo. The majority of the respondents were 20 to 23 years of age while the mean age was 21.5 ± 2.32 . This result is similar to Adebimpe et al. (2020) who carried out a study to assess the knowledge and pattern of the use of skin lightening creams among undergraduates in Osun State, with a total of 300 and found out that their mean age was 21.0 ± 3.4 years. The findings also revealed that many were Christians, single, Yoruba and resided in Havilah hall. The majority of them were from the School of Nursing Sciences and were in 400 level.

The findings showed that the prevalence of the use of skin lightening creams among undergraduates of Babcock university was high at a rate of 47.87%. This finding is similar to Egbi and Kasia (2021) who conducted a study on the prevalence, determinants and perception of use of skin lightening products among female medical undergraduates in Nigeria, and reported a prevalence rate of 40.9%.

The results showed that 190 (57.58%) of the respondents indicated that they were currently treating hyperpigmentation, while 213 (64.54%) had acne, 189 (57.27%) had dark spots, 87 (26.36%) had sunburns, and 133 (40.30%) had an uneven skin tone. Thirty-seven (37) respondents (11.21%) claimed desiring a fairer skin as their reason for using a skin lightening cream, 12 (3.64%) claimed it was to fit into a job description, and 125 (37.88%) indicated correction of skin condition as their reason for using a skin lightening cream. This finding is similar to Farombi et al. (2018) who carried out a study among 400 students across two tertiary institutions in Osun State to assess the perceived risks, consequences and reasons for skin bleaching. The results showed that 79.8% indicated removal of acne and scars, 79.5% indicated spot removals and 58.3% indicated the desire for a lighter skin as the reason for skin bleaching.

Research findings indicated that a large percentage (56.37%) of the respondents agreed with the statement that lightening creams could cause kidney failure and 56.36% agreed that lightening creams could lead to future potential health crises. This indicated that a large percentage of respondents were quite knowledgeable on the potential consequences and risks that resulted from the use of skin lightening products. This result is in line with that of Egbi and Kasia (2021) who revealed that 91 (82.7%) respondents were very well aware of the downsides of using topical lightening products.

The findings indicated that no significant relationship existed between the knowledge and the prevalence of use among Babcock University undergraduate students. This result is not in line with that of January et al. (2018) who conducted a cross-sectional survey to ascertain the prevalence and correlate the use of skin lightening creams among female university students in Zimbabwe. It showed that the majority (66.7%) of his respondents were very much aware of the adverse effects of skin lightening, and the prevalence of use among his respondents was only 20%.

The result also showed that a significant relationship between knowledge of skin lightening creams and the determinant of use among undergraduate students in Babcock University existed. This result corroborated with that of Bakare et al. (2023) who carried out a cross-sectional study between 296 residents of Ikeja LGA, Lagos State to determine the knowledge, attitude and practices of skin lightening and the motivation for use, and found out that the



majority of their respondents 98% had good knowledge about lightening creams, with 52.7% however admitting using various skin lightening products, and most of them (71.8%) indicating treatment of a skin disorder as their reason for use. There was a relationship between their knowledge of lightening creams and their determinants of use.

IMPLICATION OF THE STUDY TO THE BODY OF NURSING

The prevalence and determinants of the use of skin lightening creams among undergraduates in Babcock University, Ilishan-Remo Ogun State has been examined. Health workers are encouraged to enlighten undergraduate students on the potential harmful effects these agents could have on their internal organs. The health workers are also implored to encourage students and increase the awareness of the importance of using provided health facilities and a dermatologist instead of self medication.

LIMITATION OF THE STUDY

This study was limited by the attitude of the participants who felt reluctant to fill the questionnaire. However, the researcher endeavored to persuade them to fill the questionnaire. This study was also limited by time as the time allotted to carry it out was not sufficient; nevertheless, the researcher did not allow this to become a setback. Therefore, each objective was accomplished.

CONCLUSION

The prevalence and determinants of the use of skin lightening creams among undergraduates in Babcock University, Ilishan-Remo, Ogun State was investigated and analyzed with the use of statistical package (SPSS 20.0). The results showed that the prevalence of the use of skin lightening creams was high among undergraduate students and the majority of its users were using it for the purpose of treating different skin conditions, despite being aware of the potential consequences of using them. The study revealed that a significant relationship existed between the knowledge of skin lightening cream and the prevalence of use among university undergraduates, and there is no significant relationship between the knowledge of skin lightening creams and the determinant of use among university undergraduates in Babcock University.

RECOMMENDATIONS

In the light of the discovery of these findings, the following actions are suggested:

1. Government should ensure that topical products are thoroughly regulated by the National Agency for Food and Drug Administration and Control (NAFDAC), Standard Organization of Nigeria (SON) and Nigerian customs officials to prevent harmful ones from entering into the market.



2. Government should develop more public policies and regulations to curb the sale and distribution of dangerous skin lightening creams.
3. Health education, campaigns and awareness should be provided to undergraduate students in order to raise awareness among them about the immediate and potential harmful effects of the use of skin lightening products.

SUGGESTED FURTHER STUDIES

This research is not all-encompassing in itself. It is therefore suggested that further study should be carried out on the level of toxic metals in skin lightening creams popularly sold in university marts. A similar study should be conducted in other tertiary institutions for comparison using a larger target population.

CONFLICT OF INTEREST

The author declared no conflict of interest.

REFERENCES

- Adebimpe, W. O., Omobuwa, O., Ibirongbe, D., & Efuntoye, A. (2020). Knowledge, pattern and determinants of the use of skin-lightening creams among University Undergraduates in Southwestern Nigeria. *Port Harcourt Medical Journal*. https://doi.org/10.4103/phmj.phmj_11_19
- Adegboyega, A. (2020). *Skin Bleaching Among Female University Students*. Walden Dissertations and Doctoral Studies. 8827.
- Akiibinu, Moses & Soile, Olutola & Akinade, Lilian & Akiibinu, Susan. (2019). Levels of Toxic Metals in Skin Lightening Agents Commonly Used in Lagos, Nigeria. *Journal Of Advances In Chemistry*. 16. 5375-5378. <https://doi.org/10.24297/jac.v16i0.8317>
- Alegbeleye, A. (2017). Cosmetic use of skin lightening products: An emerging public health issue in Africa. *African Journal of Public Health*, 31(2), 145-156.
- Amodu, Mary & Bolori, Mohammed & Ahmad, I. & Kale, A. & Kuchichi, A.. (2018). Knowledge, Attitude and Practice of Skin Whitening among Female University Students in Northeastern Nigeria. *OALib*. 05. 1-14. <https://doi.org/10.4236/oalib.1104501>
- Apuke OD. (2018). Why Do Women Bleach? Understanding the Rationale Behind Skin Bleaching and the Influence of Media in Promoting Skin Bleaching: A Narrative Review. *Global Media Journal* 2018, 16:30
- Bakare, OQ & Oluwole, Esther & Anyanwu-Iyah, EH & Aworinde, OG & Lawal, EO. (2023). Skin Lightening: Knowledge, Attitude, Practices and the Motivations for its Use Among the Residents of Ikeja Local Government Area, Lagos. *Annals of Health Research*. <https://doi.org/10.30442/ahr.0901-01-185>
- Brownson RC, Fielding JE, Green LW. Building Capacity for Evidence-Based Public Health: Reconciling the Pulls of Practice and the Push of Research. *Annu Rev Public Health*. 2018 Apr 1;39:27-53. doi: 10.1146/annurev-publhealth-040617-014746. Epub 2017 Nov



20. PMID: 29166243; PMCID: PMC5972383. <https://doi.org/10.1146/annurev-publhealth-040617-014746>
- Dlova NC, Hamed SH, Tsoka-Gwegweni J, Grobler A. Skin lightening practices: an epidemiological study of South African women of African and Indian ancestries. *Br J Dermatol.* 2015 Jul;173 Suppl 2:2-9. doi: 10.1111/bjd.13556. PMID: 26207658. <https://doi.org/10.1111/bjd.13556>
- Egbi, O. G., & Kasia, B. (2021). Prevalence, determinants and perception of use of skin lightening products among female medical undergraduates in Nigeria. *Skin Health and Disease*, 1(3). <https://doi.org/10.1002/ski2.46>
- Faronbi, J., Oyediran, O. O., Adereti, & Famakinwa. (2018). PERCEIVED RISK AND CONSEQUENCES OF BLEACHING PRACTICES AMONG UNIVERSITY STUDENTS IN SOUTHWEST NIGERIA. ResearchGate.
- Glanz, K., Rimer, B. K., & Viswanath, K. (2008). *Health behavior and health education: Theory, research, and practice* (4th ed.). Jossey-Bass
- Green, E. C., Murphy, E. M., & Gryboski, K. (2020). The Health Belief Model. *The Wiley Encyclopedia of Health Psychology*, 211-214. <https://doi.org/10.1002/9781119057840.ch68>
- Hall, J Camille. (2017). No Longer Invisible: Understanding the Psychosocial Impact of Skin Color Stratification in the Lives of African American Women. *Health & social work.* 42. 1-8. 10.1093/hsw/hlx001. <https://doi.org/10.1093/hsw/hlx001>
- Helmet, D. (2019). Skin Lightening or Bleaching: What You Should Know. Retrieved from <https://www.healthline.com/health/skin-lightening-or-bleaching>
- Hwang I, Hong S. (2017) Neural Stem Cells and Its Derivatives as a New Material for Melanin Inhibition. *Int J Mol Sci.* PMID: 29271951; PMCID: PMC5795986. <https://doi.org/10.3390/ijms19010036>
- January, James & Mberi, Yvonne & Rutendo, Roselyn & Muchenje, Laston & Gonah, Shepherd & Shamu, Roy & Tapera, Roy. (2018). Use of skin lightening creams among female University students in Zimbabwe: a preliminary survey. *Medical Journal of Zambia.* 45. 10.55320/mjz.45.1.120. <https://doi.org/10.55320/mjz.45.1.120> <https://doi.org/10.55320/mjz.45.1.164>
- Juhasz MLW, Levin MK. (2018) The role of systemic treatments for skin lightening. *J Cosmet Dermatol.* PMID: 30133125. <https://doi.org/10.1111/jocd.12747>
- Lartey, M., Krampa, F. D., Abdul-Rahman, M., Quarcoo, N. L., Yamson, P., Hagan, P. G., Tettey, Y., Gyasi, R & Adjei, A. A. (2016). Use of skin-lightening products among selected urban communities in Accra, Ghana. *International Journal of Dermatology*, 56(1), 32-39. <https://doi.org/10.1111/ijd.13449>
- Ngunan, J. (2019). Colonialism and the origins of skin bleaching. Wellcome Collection.
- Pollock S, Taylor S, Oyerinde O, Nurmohamed S, Dlova N, Sarkar R, Galadari H, Manela-Azulay M, Chung HS, Handog E, Kourosch AS. (2020) The dark side of skin lightening: An international collaboration and review of a public health issue affecting dermatology. *Int J Womens Dermatol.* PMCID: PMC8072511. <https://doi.org/10.1016/j.ijwd.2020.09.006>
- Shroff H, Diedrichs PC, Craddock N. (2018) Skin Color, Cultural Capital, and Beauty Products: An Investigation of the Use of Skin Fairness Products in Mumbai, India. *Front Public Health.* PMID: 29410952; PMCID: PMC5787082. <https://doi.org/10.3389/fpubh.2017.00365>
- Syed Ismail, Sharifah. (2017). A case study of selected heavy metals (lead, cadmium, and nickel) in skin-lightening creams and dermal health risk in Malaysia. *Annals of Tropical*



Medicine and Public Health. 10. 95-100. 10.4103/ATMPH.ATMPH_82_17.
https://doi.org/10.4103/ATMPH.ATMPH_82_17

World Health Organization (WHO) (2023). Skin bleaching in Africa. . .a public health problem. In Analytical Fact Sheet.