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The awareness of the resident of Calabar municipality on the adverse effect of bleaching creams on the skin surface

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ABSTRACT

Skin toning or bleaching is a process of changing skin complexion by reducing the synthesis of melanin pigment in the body. This could be done by using cream containing bleaching agent such as hydroquinone, steroids and mercury. This study aimed at elucidating the awareness of the adverse effect of bleaching cream on the skin. This research was done using questionnaire, titled "cosmetic application analysis questionnaire" which was distributed to residents of Calabar Municipality. The age groups studied were; group A= < 16, B= 16-25, C= 26-35 and D= \geq 36. The complexions studied were fair, chocolate and dark complexion. The result obtained revealed fair complexion with 80.2%, chocolate= 10.0% and dark complexion= 9.8%. The side effects observed were thin/ red skin/ stretch marks= 2.9%, darkening of skin= 1.4%. From the above result it showed that the Ibos among the ten ethnic groups were more affected (40.2%) and the Yoruba were the least (1.4%); and the proportion of males and females using bleaching creams in Calabar Municipality was significant. The result also shows that greater percentage inhabitants of Calabar were unaware of the adverse effects of bleaching cream and more people bleach.

Keywords: Bleaching cream, Skin, Adverse effect, Awareness.

INTRODUCTION

Skin bleaching, whitening and lightening refers to the process of applying chemical substance on the skin surface in order to change the skin tone or provide skin complexion by reducing the concentration of melanin pigment. Bleaching cream contain bleaching agent that can discolour human skin and also may cause skin problems such as cancer. They are of various types and contain hydroquinone, mercury, steroids etc. examples of some cream containing such chemicals in Nigeria are crusader skin tanning cream, crusader ultra brand cream, fair and white body clearing milk (body lotion), clear essence skin beautifying milk (body lotion), peau claire skin lightening oil (body oil), tenovate, body clear cream spot remover, pimple medicated cream etc. long term usage of bleaching cream can lead to hyperpigmentation at the interphallangeal joints, buttocks, and ear [1]; and thin skin in some areas of human body such as face [2]. According to Narayan in 2013 suggested that the sales of bleaching cream in India totalled 258 tons [3], and based on sales growth in Africa, Asia and Middle East, bleaching cream may reach US \$19.8 billion in 2018 [4].

The skin consists of two regions, superficial region called epidermis and deeper region called dermis. The epidermis is non vascular and lined by keratinized stratified squamous epithelium with distinct cell types and cell layers. The cells found in the epidermis are keratinocytes, melanocytes, Langerhans cells and Merkel cells. The melanocytes are located in the basal layer and synthesize melanin pigment. Melanin pigment imparts dark colour to the skin and exposure of skin to sunlight promotes increased synthesis of melanin. The melanin protects the skin from the damaging effects of ultraviolet radiation. The skin is in direct contact with the external environment and protect the body surface from mechanical abrasion, forms physical barrier to pathogens and foreign microorganisms; regulate

body temperature; respond to stimuli for temperature, touch, pain and pressure; excretion of water, sodium salts, urea and nitrogenous waste; and formation of vitamin D [5].

Sometimes bleaching may be due to unawareness to individuals applying such chemicals which differ from normal cosmetics in that the chemical composition include chemicals which work together to produce the desire effect. Some researchers have made effort in enlightening the public on the adverse effect of bleaching cream and the rate of patronization is increasing as the day goes. Therefore, this research is aimed to elucidate the awareness of the adverse effect of using bleaching cream to enhance beauty, creating more impact in the minds of readers and the general public that life could be more beautiful if caution is taken when using some beauty enhancement products.

MATERIALS AND METHODS

Questionnaires were used in the course of this research. The questionnaires were distributed to a cross-section of residents in Calabar Municipality. The ages were grouped into four:

A= <6

B= 16- 25

C= 26- 36

D= \geq 36

The filling of the questionnaires was supposed by the researchers and a fair number of the questionnaires were distributed to the above listed age groups with each having 250 copies. Pearson chi-square test was used for statistical analysis in this study. Statistical significance is tested at $p < 0.05$ and $P > 0.05$.

RESULTS

Among 1000 questionnaires distributed to individuals residing in Calabar Municipal 682 are females and 318 are males. The tribes are Annang (28 females and 22 males), Boki (22 females and 9 males), Efik (99 females and 62 males), Hausa (20 females and no male), Ibibio (179 females and 75 males), Ibo (200 females and 102 males), Ogoja (40 females and 20 males), Quas (40 females and 12 males), Ugep (17 females and 5 males), and Yoruba (39 females and 11 males). 702 individuals used bleaching cream, 298 used non bleaching cream and 100 persons were observed to be chocolate, 98 dark and 802 fair in complexion. The reason for using bleaching cream include aesthetics (149), to prevent dry skin (180), skin appearance (120), and to smoothen the body (253). Darkening of skin (80), eczema (130), thin/ reddish skin/ stretch marks (301), slow wound healing/ enlarge blood vessels (110) and excessive hair growth (81) were the side effect observed. It was also observed from the questionnaire that 188 individuals appreciated the use of bleaching cream whereas 812 do not appreciate it and out of 1000 individuals, 398 were aware of the side effect and 602 are not aware.

Table 1: Population distribution

SEX	FREQUENCY	PERCENT
Female	682	68.2
Male	318	31.8
TOTAL	1000	100

Table 2: Frequency distribution of different tribes

TRIBE	SEX		TOTAL
	FEMALE	MALE	
Annang	28	22	50(5.0)
Boki	22	9	31(3.1)
Efik	99	62	161(16.1)
Hausa	20	0	20(2.0)
Ibibio	179	75	254(25.4)
Ibo	200	102	302(30.2)
Ogoja	38	20	58(5.8)
Quas	40	12	52(5.2)
Ugep	17	5	22(2.2)
Yoruba	39	11	50(5.0)
Total	682	318	1000(100)

() =percentage; Chi=22.422; df= 9; $p < 0.05$

Table 3: Distribution of various complexions

COMPLEXION	SEX		TOTAL
	FEMALE	MALE	
Chocolate	94	6	100(10.0)
Dark	88	10	98(9.8)
Fair	682	302	802(80.2)
TOTAL	682	318	1000(100)

() = percentage; Chi = 64.447; df= 2; p<0.05

Table 4: Distribution of cream:

DIST. OF CREAM CREAM TYPES	SEX		TOTAL
	FEMALE	MALE	
Bleaching	479	223	702(70.2)
Non-bleaching	203	95	298(29.8)
TOTAL	682	318	1000(100)

() = percentage; Chi = 64.447; df = 2; p<0.05

Table 5: Frequency of the different reasons for using bleaching creams

REASONS	SEX		TOTAL
	FEMALE	MALE	
Aesthetics	118	31	149(21.2)
Prevents dry skin	118	62	180(25.6)
Skin appearance	78	42	120(17.1)
Smoothens the body	165	88	253(36.0)
TOTAL	479	223	702(100)

() =percentage; Chi=10.495; df=3; p<0.05

Table 6: Frequency of distribution of side effects of using bleaching creams

SIDE EFFECTS	SEX		TOTAL
	FEMALE	MALE	
Darkening of skin	64	16	80(11.4)
Eczema	90	40	130(18.5)
Thin/redden skin/stretch marks	201	100	301(42.9)
Slow wound healing/ enlarged blood vessels	87	23	110(15.7)
Excessive hair growth	37	44	81(11.5)
Total	479	223	702(100)

() =percentage; Chi =30.457; df=4; p<0.05

Table 7: Appreciation of the use of bleaching creams

	SEX		TOTAL
	FEMALE	MALE	
Do appreciate	127	61	188(18.8)
Do not appreciate	555	257	812(81.2)
TOTAL	682	318	1000(100)

() =percentage; Chi =0.045; df=1; p<0.05

Table 8: Awareness of side effects of bleaching creams:

	SEX		TOTAL
	FEMALE	MALE	
Aware	206	192	398(39.8)
Unaware	476	126	602(60.2)
TOTAL	682	318	1000(100)

() =percentage; Chi =82.403; df=1; p<0.05

Table 9: categories of users:

	SEX		TOTAL
	FEMALE	MALE	
Deliberate users	73	49	122(17.4)
NON-deliberate users	406	174	580(82.6)
TOTAL	479	223	702(100)

() = percentage; Chi= 4.804; df=1; p<0.05

TABLE 10: Frequency distribution of population of users

TRIBES	SEX		TOTAL
	FEMALE	MALE	
Annang	19	19	38(5.4)
Boki	17	6	23(3.3)
Efik	52	47	99(14.1)
Ibibio	130	48	178(25.4)
Igbo	193	93	286(40.2)
Ogoja	14	0	14(2.0)
Quas	27	5	42(6.0)
Ugep	7	3	12(1.7)
Yoruba	10	0	10(1.4)
TOTAL	479	223	702(1000)

() =percentage
 Chi=22.422; df=9; p<0.05

Table 11: Showing frequency distribution of non-bleaching and bleaching cream users based on age group

AGE GROUP	NON-BLEACHERS		BLEACHERS		TOTAL
	FEMALE	MALE	FEMALE	MALE	
A(<16)	102	50	57	41	250
B(16-25)	21	10	180	39	250
C(26-35)	60	30	127	33	250
D(>36)	20	5	115	110	250
TOTAL	203	95	479	223	1000

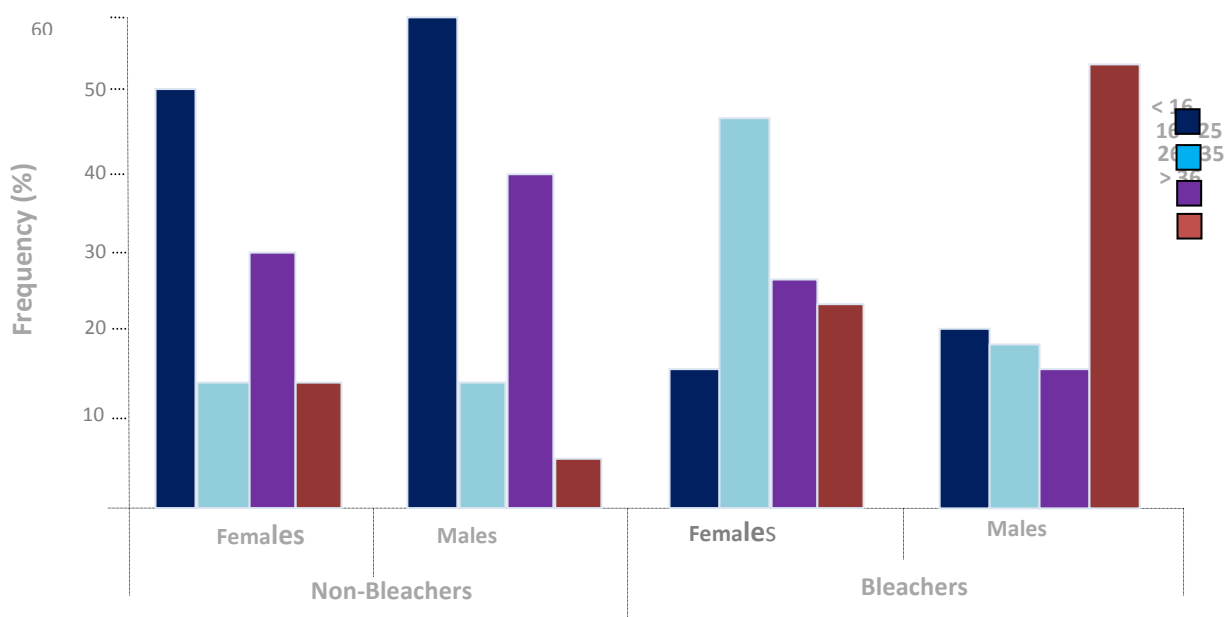


Fig. 1 Distribution of non-bleaching and bleaching cream users based on age group.

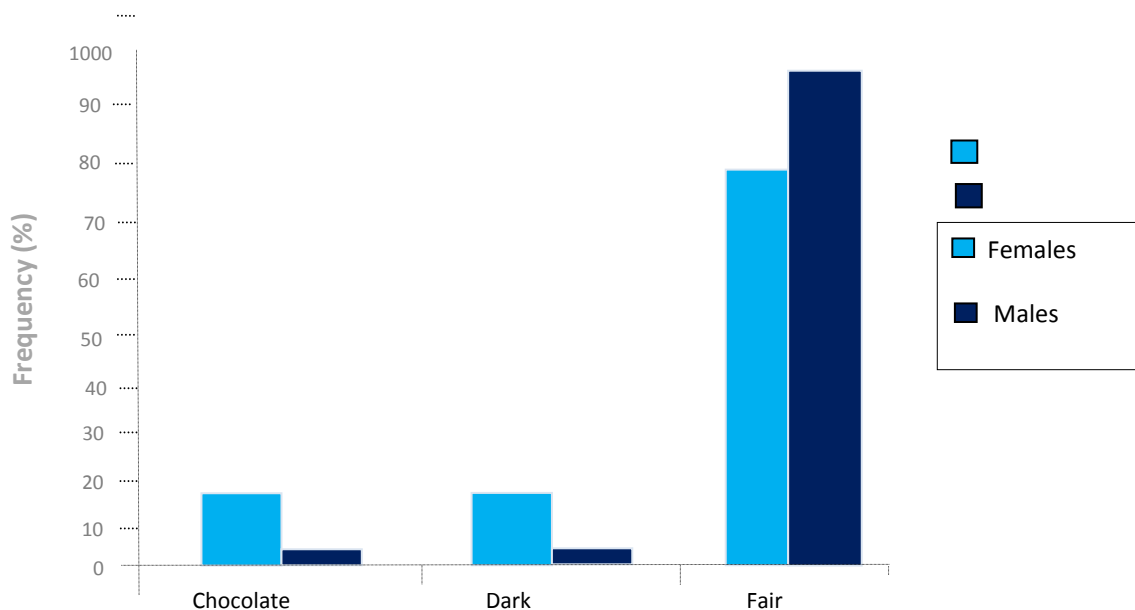


Fig. 2 Distribution of the different complexion (skin Colours) among the study population.

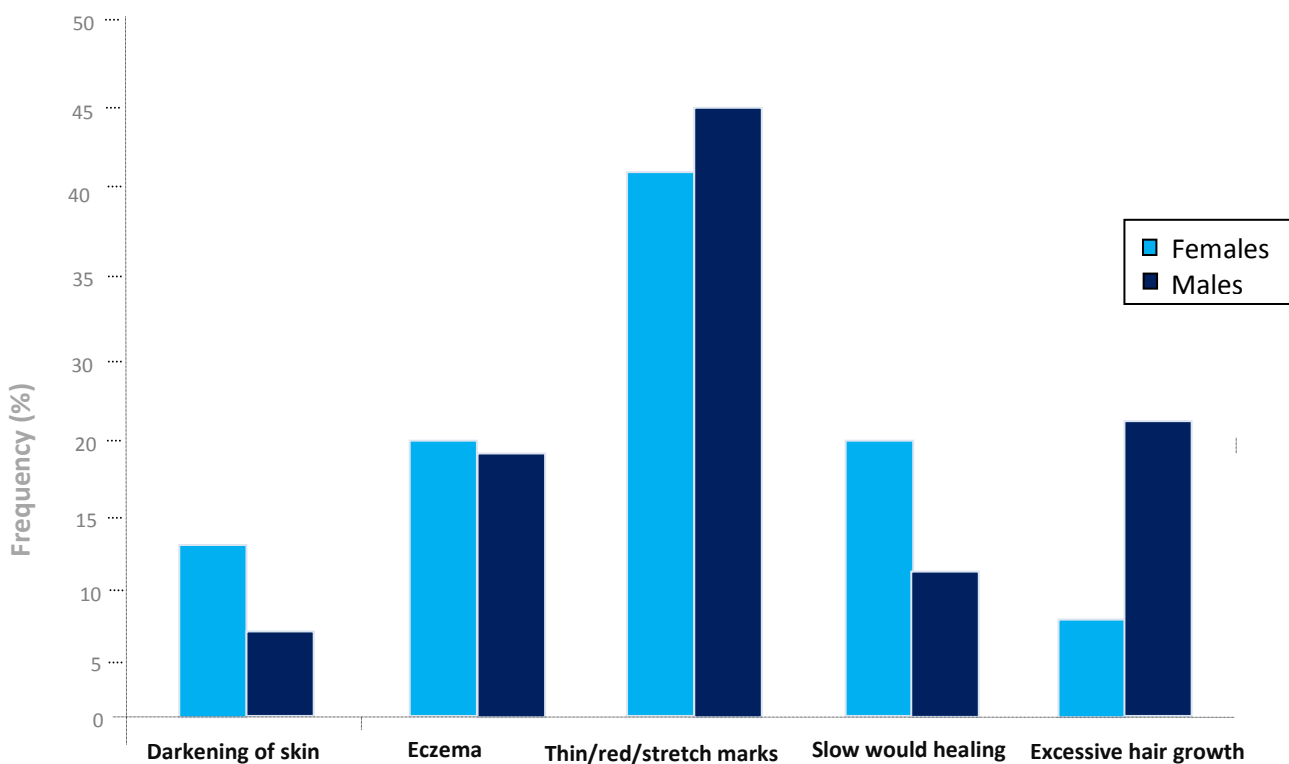


Fig. 3: Common side effects noticed among bleachers in Calabar Municipality

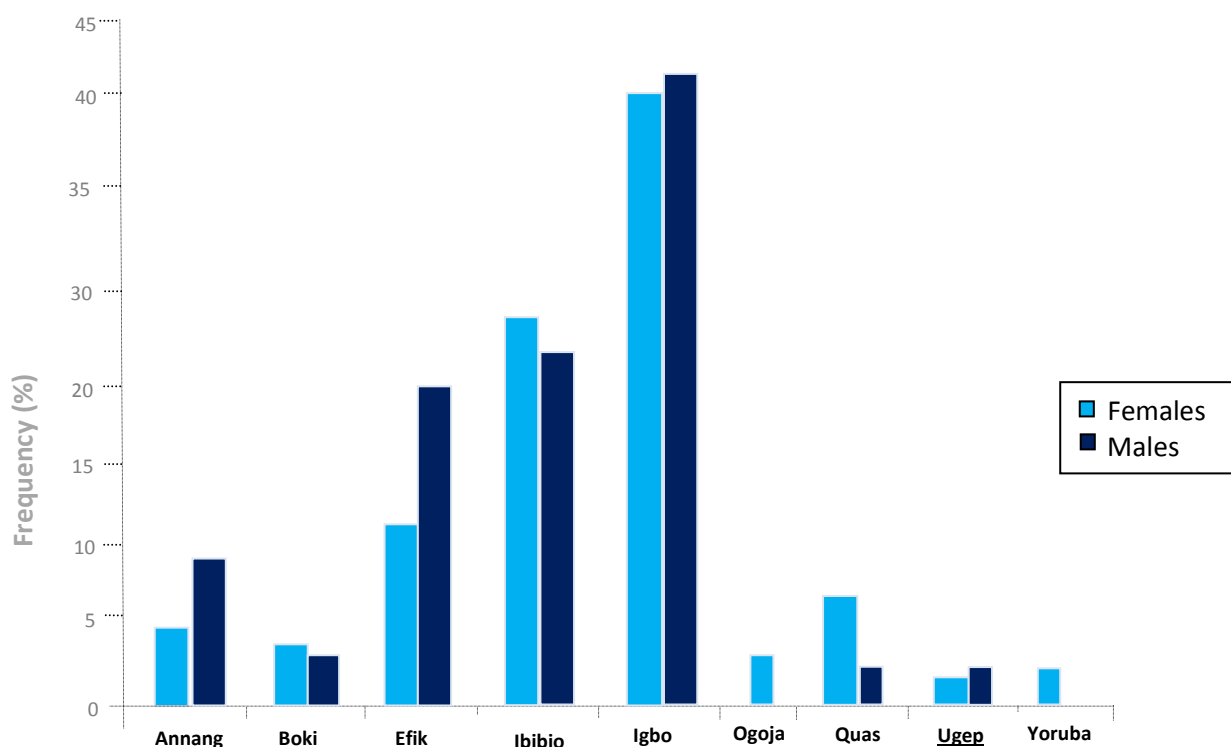


Fig. 4. Frequency distribution of population of users based on sex.

DISCUSSION

Skin lightening soaps and cream contain hydroquinone, mercury, and steroids etc which are commonly used among the African and Asian nations [6-8]. They are found in other cosmetics such as eye makeup cleansing products and mascara [6, 9 & 10].

Women in Nigeria (77%), Mali (25%), South Africa (35%), Togo (59%) and Senegal (27%) used skin lightening products on regular basis [6]. In 2008, UNEP surveyed almost 40% of women in China, Malaysia, Philippines and Republic of Korea using skin lighteners in 2004 [6]. Another survey in 2011 by German Federal Ministry for Environment, Nature Conservation and Nuclear Safety noted that people from Brazil, Kyrgyzstan, Mexico and Russian Federation believes that mercury-containing skin lightening products are easy to obtain [11]. Due to consumers' pressure, some manufacturers do not use mercury as preservatives in cosmetics anymore. However, most jurisdictions still allow the sale of makeup products containing mercury compounds.

Our research investigated the awareness of the adverse effects of bleaching creams on the skin surface among the people residing in Calabar Municipality revealed that 68.2% are females and 31.8% are males who were studied (table 1). Among 1000 people studied 702 used bleaching cream and 298 individuals used non bleaching cream (table 11). The tribe studied were Annang, Boki, Efik, Hausa, Ibibio, Ibo, Ogoja, Quas, Ugep and Yoruba (table 2). Side effects observed were darkening of skin (hyperpigmentation) in line with IPCS, eczema, thin/ reddish skin/ stretch marks, slow wound healing/ enlarge blood vessels and excessive hair growth (table 6). According to IPCS in 2003, suggested that inorganic mercury in bleaching cream and soaps can cause kidney damage [12], skin rashes, discolouration, scarring and reduction of skin resistance to bacteria, and fungal infection [6 & 8] anxiety, depression or psychosis and peripheral neuropathy [6, 8 & 9].

According to Tang and co-workers in 2006 reported a case of a 36 year old Chinese woman who developed nephrotic syndrome resulting from bleaching cream containing mercury [13]. Another study reported large population of nephrotic syndrome among African women using ammoniated mercuric chloride-containing bleaching creams for periods ranging from one month to three years. The severity of nephrotic syndrome to those women who stopped using bleaching cream became lesser compare to those who were still using it [12 & 14]. Among the individuals questioned 39.8% are aware of the adverse effect and 60.2% are not aware; this shows that the level of unawareness is three times more in females compare to males in Calabar municipality (table 8). The skin contains melanocytes which synthesizes melanin pigments that imparts dark colour to the skin when the skin is exposed to sunlight. The melanin pigment produced, protects the skin from the damaging effects of ultraviolet radiation [5] and

mercury salt inhibit the formation of melanin pigment (hypopigmentation) resulting in a lighter skin tone [12 & 15] and when applied to the skin surface it may impair the functions of melanocytes.

CONCLUSION

Bleaching creams containing mercury, hydroquinone and steroids are hazardous to human health and the level of unawareness in females is three times higher compare to males in Calabar Municipality.

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