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Knowledge and Perceived Health Risk on Cosmetic Lip Products amongst Female Undergraduate Students: A Mixed Method Study

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Abstract

The use of Cosmetic Lip Products (CLPs) has historically been a fashion statement for women. However, the health risk associated with CLPs has not been thoroughly investigated given that chemical analysis show that CLPs may contain heavy metals injurious to health. This study is aimed at investigating the knowledge and perception of the possible health risks associated with the use of CLPs.

The study adopted a mixed method study design. The descriptive cross-sectional study involved 390 participants drawn randomly from five female hostels. The qualitative method involved four focus group discussions with ≥6 discussants per FGD recruited by snowballing method and conducted using an FGD guide. Data were collected using a pre tested semi-structured questionnaire which contained an 11-item knowledge scale and a 12-item perception scale. A 22-points knowledge scale and 24 points perception scale were utilized for the study. A Knowledge score ≤ 11 and perception score ≤ 12 were categorized as poor knowledge and poor perception. Data collected were analyzed using descriptive and inferential statistics at p= 0.05 level of significance.

Age of respondents was 19.7±1.2 years. Most discussants reported the potential health risk would not sway them from using CLPs as they did not see CLPs as a threat to their health. Majority (83.3%) had poor knowledge and poor perception (59.2%) of the possible health risks associated with using CLPs.

It is recommended that campaigns using the internet to buttress possible health risk associated with CLPs are embarked on by health advocacy groups.

Keywords: *Cosmetic Lip Products, Female, Undergraduates, Health Risk.*

Introduction

According to the Food And Drug Administration (FDA) Cosmetics or "make up" can be referred to as any article intended to be rubbed, poured, sprinkled, or sprayed on, or introduced into, or otherwise applied to, the human body or any part thereof for cleansing, beautifying, promoting attractiveness, or altering the appearance, and includes any article intended for use as a component of cosmetic (USFDA, 2013).

Colour cosmetics like lipstick, mascara, nail polish etc. have the highest average annual growth rate in demand and sales. Within the many sectors of the cosmetic industry, lip products are the third largest division. Colorants are a good source of heavy metal poisoning. The heavy metals usually found in products tested are categorized as unintentional contaminants.

These metals are not intentionally added to the formulation but are simply impurities in the product and are therefore not required to be listed on the cosmetic labels (Health Canada, 2011). The heavy metals usually found in products tested are categorized as unintentional contaminants. These metals are not intentionally added to the formulation but are simply impurities in the product and are therefore not required to be listed on the cosmetic labels. "An impurity is a substance not intentionally added to a product, but rather is either a byproduct of the manufacturing process, formed by the breakdown of ingredients, or an environmental contaminant of raw ingredients" (Ayenimo, Yusuf, Adekunle and Makinde, 2010). Impurities are usually the entrance platform for heavy metals. The metals of most concern are lead, arsenic, cadmium and mercury.

Irrespective of the profound interest in heavy metal hazards of cosmetics; little or no attention has been given to metal contamination of cosmetic products in Nigeria and most sub-Saharan African countries (Ayenimo *et al.*, 2010). There is also paucity of data on current African production and consumption of beauty and personal care products (ARSO Kenya, 2015). According to Ali, Maryam and Fatima (2016) skin lightening creams, face powder and lip sticks are the most commonly utilized category of cosmetic products.

The use of colour cosmetics like lip products by women is a popular daily custom all over the world (Mudholkar 2012). These cosmetics are usually left on the skin for a whole day and are repeatedly used. Among the products that contain toxic metals, the most hazardous seem to be preparations which are applied to the mucous membranes, such as lipsticks and lip glosses (Gondal, Seddiqi, Nasir and Gondal, 2010; Khalid, Bukhari, Riaz, Rehman, Ain, Bokhari, Rasool, Zubair and Munir, 2013; Soares and Nascentes 2013). In the case of cosmetics applied to the lips there is the risk of direct oral ingestion with food when eating or by licking the lips. It is estimated that a person may ingest more than 10 kilograms (22 pounds) of lipstick over a lifetime (Rebecca and Melanie, 2010). The anatomical structure of the lips also poses an added risk as it allows for ease in absorption of chemicals. Skin varies in thickness by anatomic location, sex (male skin is thicker than female skin) and age. Generally, the top corneum layer of regular skin has 15 to 16 layers mainly for protective purpose. In contrast, the top corneum layer of the lip contains only about 3 to 4 layers which is very thin compared to typical face skin (Burns, Breathnach, Cox and Griffiths, 2004).

Metal content in lipstick has been an international health concern. This is because lipstick is the basic daily product that is included in face makeup application in addition to face powder, foundations, eye shadows, and blush (Piccinini, Piecha and Torrent, 2013). Lipstick consumers are exposed to heavy metals only in small amounts, but they expose themselves for a prolonged period of wearing time which makes it vital. The application of lipstick on the lips might cause exposure to a minuscule amount of the lipsticks through ingestion when the consumers eat and drink (Airin and Yu 2015). Most of the adverse events associated with use of contaminated cosmetic products go unnoticed.

Few literature and awareness programmes are available that centre around the knowledge and perceived health risks associated with the use of cosmetic lip products. Colour cosmetics like lipsticks have the highest average annual growth rate in cosmetic sale while the global colour cosmetic market estimated in 2016 to be nearly 52 Billion Dollars is anticipated to reach nearly 80 Billion Dollars in 2026 (Future Market Insights, 2017). The knowledge and perceived health risks by the population with the most likely highest number of users (young females) is vital.

The result of the study would be useful for determining the magnitude of the problem and for the design of effective educational interventions aimed at preventing and/or controlling the utilization of cosmetic lip products at the university; especially as women of colour may happen to be more exposed to toxic cosmetic products than other women according to the Environmental Working Group (EWG) report. The EWG report highlighted that less than one-fourth of analysed cosmetic products made for women of colour scored low in potentially hazardous ingredients. In categories of concealer, foundation, lipstick, and makeup with Sun Protection Factor (SPF), none received a rank of “low hazard” (Grace, 2016).

In addition, the result of the study is potentially useful for the formulation of evidence-based policies and or regulations relating to the use and unethical promotion and sale of cosmetic lip products.

Research methodology

This study adopted a mixed method study design. It was conducted in the University of Ibadan to determine the knowledge and perceived health risks associated with the use of cosmetic lip products amongst the female undergraduate students.

Sample size determination

Using Kish and Leslie Formula [$N = Z^2pq/d^2$], 35.5% prevalence of students using cosmetic products according to Sankaranarayanan (2014), 10% non-response rate, confidence interval at 95% and 5% margin error, hence, the minimum sample size is 390.

Sampling strategy and analysis

A multistage probability sampling method was adopted to select respondents for the study. The sampling method was carried out in five stages.

In the **first stage**, all 5 halls of residence (Queen Elizabeth11, Queen Idia, Obafemi Awolowo, Alexander Brown and St. Anne's Hostel) for female undergraduate students in the university was purposely selected.

In the **second stage**, minimum of half the number of blocks per hall was randomly selected.

In the **third stage**, proportionate sampling method was used to assign the sample size of respondents from selected blocks.

In the **fourth stage**, rooms from each block was selected randomly and Proportionate sampling method was used to assign the sample size of respondents for each room.

In the **fifth stage**, respondents from selected rooms present and willing to participate in the study were recruited.

The data collected was entered and analyzed using IBM SPSS Statistical package 21.0.

Data on knowledge and perception was collected using a knowledge and perception scale with 22 and 24 points respectively being the highest and zero (0) being the lowest. Respondents with ≤ 11 points were regarded as having poor knowledge while respondents with ≤ 12 points were regarded as having poor perception of health risks associated with utilization of cosmetic lip products. Descriptive and inferential statistics were also employed.

Qualitative sampling and analysis

This study made use of qualitative method of data collection. In other to obtain a more qualitative perspective of the research objectives, four focus group discussions were conducted. Discussants who gave their consent were recruited for discussion by snowballing method. In total, four (4) Focus group discussions were conducted for the study with a minimum of six discussants per FGD. Each discussant made use of at least one type of cosmetic lip product (lipstick, lip gloss or lip balm). Each discussant was asked to bring the lip product(s) she was currently using as an example and to help generate discussion. Each focus group session was audio-recorded and a note-taker was also present. The discussions were held around a round table in a conducive environment. The discussions were guided with the use of a focus group discussion guide. For the FGDs special consideration was also given to accommodate female students who were also make-up artists. Data was thematically analyzed.

Result of analysis of qualitative study

Q1: On how females care for their lips

Some of the discussants admitted they did nothing in particular to take care of their lips. Majority mentioned they made use of Lip balm, lip gloss, Vaseline or Baby oil and wipes while the minority reported they used their tooth brush or sugar solution for exfoliation but did not do it often. Some of the discussants had the mindset that making use of lip gloss and especially lip balm equated to lip care. Others mentioned that while taking a bath they washed their face as well as their lips as a way of lip care.

"I don't do anything in particular. I only apply lipstick when its necessary and at times I only use just lip gloss. That's all I do to care for my lips". F1 (FGD 1)

Q2: On what you think are the health risks associated with use of cosmetic lip products

Most discussants had heard that CLPs; especially lead containing lipsticks were carcinogenic and could cause cancer. Some reported from personal experience or from a friend's ordeal that using CLPs could also cause certain skin reactions and infections.

Most discussants were also of the opinion that the cancer health risk were hear-say with no proof or evidence to substantiate it (as they were yet to see anyone who had cancer because they used CLPs) with the exception of discussants in FGD 2 who were in the medical fields and could deduce a link between CLPs and mutation as well as infections.

Most discussants acknowledged that though cancer and infections (subject to sharing of CLPs) could be possible health risks associated with frequent use of CLPs, they however did not accept or were not sure that using CLPs could be associated with reproductive issues and behavioural anomalies.

"According to what I heard and what have been reading they say due to the lead that lip stick contains it can cause lip cancer; that's all I heard". F3 (FGD 3)

Q3: On how will the knowledge of health risks associated with cosmetic lip product affect your utilization

Majority of discussants concurred that though they would endeavour to be careful with the CLPs they purchase and use but that they would not totally desist from using CLPs. They attested that though they are aware of possible dangers, they would not stop using CLPs as it makes them look good and gives their over-all facial make-up a finished look.

They highlighted that to see to their safety, they would: ensure they wipe off CLPs from lips before they go to bed, Learn to Exfoliate lips with tooth brush, Check Listed ingredients on the product, look out for prescription for use if it is provided on the product, Go for high quality CLPs, Go for CLPs made from natural ingredients, Blot CLPs, Not swallow CLPs while eating or lick lips as well as read more information online to be better educated on chemicals contained in CLPs.

Discussants in FGD 1, 2, and 3 were more inclined to make certain changes positive for their health while participants in FGD 4 were strongly of the opinion that whatever the health risks associated with using CLPs they would not be among those who would fall victim.

"It won't change the way I use it because I don't really believe there is a danger in using lipstick. I've not seen anybody with that and I don't believe that even though it happens even though there is a rare occurrence that I will be the one it will happen to. It just can't happen". F4 (FGD 4)

Q4: On if anyone suffered an adverse reaction due to a cosmetic lip product or know someone who has suffered from such

Some discussants had not seen nor heard of anyone who suffered an adverse reaction due to CLPs. Others who had suffered or knew someone who had certain reactions reported cases of friends or relatives who had reactions ranging from: Swollen lips, Itchy lips, Peeling lips, Peppery sensation, Boil on lips, Black/Darkened lips, Green lips and Red lips.

Discussants who had experienced or knew someone who had suffered an adverse reaction showed a more cautious disposition towards CLPs while those who had not were more relaxed in their use of CLPs.

"Well I have never had any reaction but once my sister complained about this product. Was it lips marker, I don't know but she started having sores and it took time for the sore s to dry up and all I don't know what she used for treatment but she was just warning me that I should be mindful of what I apply on my lips that she used a product and she had sores on her lips". F4 (FGD 3)

Q5: On where or from whom you receive information to guide/assist you during purchase

Most discussants reported they sought for information from attendants at the cosmetic shop, friends, relatives and the Internet using Google or Social media. Others mentioned they went with their personal recommendation or TV adverts.

"I get information from my friends and from the internet because I have some friends who are make-up artists so I actually get information from them". F3 (FGD 3)

Q6: On what you think is the best way to educate people on the possible health risks associated with using CLPs

Majority of discussants reported the best approach would be to: Educate Cosmetic Shop Attendants to help customers make informed choices and organize a Social Media Campaign using platforms like Instagram and You-tube as well as TV and Print media Campaigns. They reiterated that the campaign should involve medical personals and other Professionals (Dermatologist and cosmetologist) including Celebrities (that make use of CLPs) who are popular with the target audience.

The minority suggested that rather than only educating consumers on the possible risks associated with using CLPs, alternative CLPs made from natural ingredients that would be health protective and at the same time affordable should be produced because irrespective of the talks given many women will keep using CLPs.

"Ommmmmm I will advise people see those who use it a lot like dermatologist or cosmetologist for whatever health risk that it may pose then over use of these cosmetics should be avoided. Yeah, I think overuse should be avoided". F5 (FGD 1).

Result of quantitative analysis

Socio-demographic characteristics of respondents

Figure 1 shows the proportion of respondents drawn from all five female undergraduate halls; with the highest proportion (32.6%) from Queen Idia Hall and the lowest proportion (2.8%) from St Anne's Hostel.
N = 390

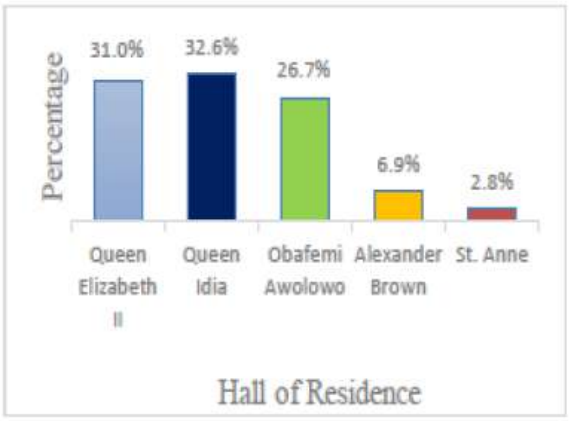

Figure 1. Distribution of respondents by hall of residence

Table 1 summarizes the socio-demographic characteristics of the respondents. The age of respondents ranged from 16 – 28 years with a mean age of 19.7 ± 2.1 years. Most respondents (99.7%) were single. Majority (85.6%) of the respondents were Christians. The largest proportion of the respondents (78.5%) were from the Yoruba ethnic group. Most (28.2%, 27.4%) of them were in 400 and 100 level respectively while few (1.3%) were in 600 level.

Table 2 shows the distribution of respondents who currently use CLPs, showing over 83% are current users.

Table 3 highlights the distribution of Cosmetic Lip Products that are used more often with Lipstick (54.7%) topping the list followed by Lip gloss (31.8%) and Lip Balm (12.0%).

Table 4 shows the distribution of respondents who had suffered an adverse reaction to CLPs while.

Table 5 shows the distribution of respondents who visited a health establishment (11.8%) when they suffered an adverse reaction.

Table 6 shows the distribution of respondents who seek information from professionals before purchasing CLPs. Those who affirmed this accounted for only 14.0%.

Table 1. Respondents' basic socio-demographic characteristics **N = 390**

Characteristics	**No**	**%**
***Ages in years**		
16 - 20	254	65.5
21 - 25	132	13.4
26 ≤ 28	4	0.5
***Religion**		
Christian	334	85.6
Islam	55	14.1
Traditional	1	0.3
***Ethnic Groups**		
Yoruba	306	78.5
Igbo	51	13.0
Hausa	5	1.3
Others	28	7.2
*Others: Bini, Urhobo, Esan and Kwale		
***Levels of Study**		
100	107	27.4
200	69	20.3
300	78	17.4
400	110	28.2
500	21	5.3
600	5	1.3

Table 2. N = 390

Currently use CLPs	**Frequency**	**%**
Yes	324	83.1
No	66	16.9

Table 3. N = 371

I Make Use of	**Frequency**	**%**
Lip Stick	203	54.7
Lip Gloss	118	31.8
Lip Balm	4	12.0
*Others	6	1.5
*Others: Lip Stain, Wet lips, Chapstick, Vaseline, Shea butter, Robb		

Table 4. N = 389

Adverse Reaction	Frequency	%
Yes	23	5.9
No	366	94.1

Table 5. N = 17

Visited a health Est	Frequency	%
Yes	2	11.8
No	15	88.2

Table 6. N = 379

Professional Advice	Frequency	%
Yes	53	14.0
No	326	86.0

Figure 2 shows the distribution for Age of first time use of CLPs, with 12 – 16 years (52.5%) having the highest proportion and 2- 6 years (4.0%) having the least proportion.

Figure 3 shows the distribution of respondents by their choice or lack thereof in lip care with those who do nothing to take care of their lips (45.6%) topping the list. Amongst those who use a particular method to care for their lips, those who practice Exfoliation/Scrubbing with tooth brush had the highest proportion (25.4%) while those who made use of Cleansers had the least (6.4%).

N = 323

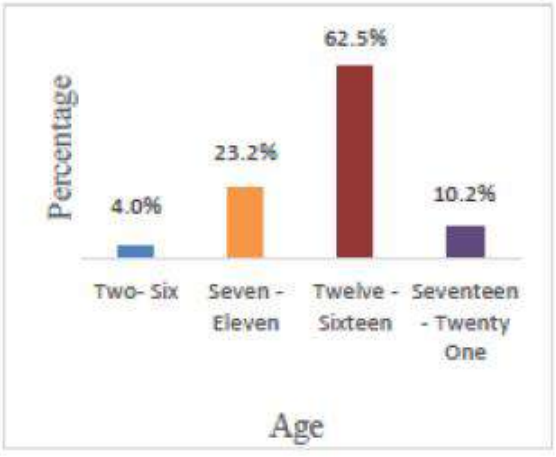

Figure 2. Distribution of respondents by age of first time use of CLPs **N = 390**

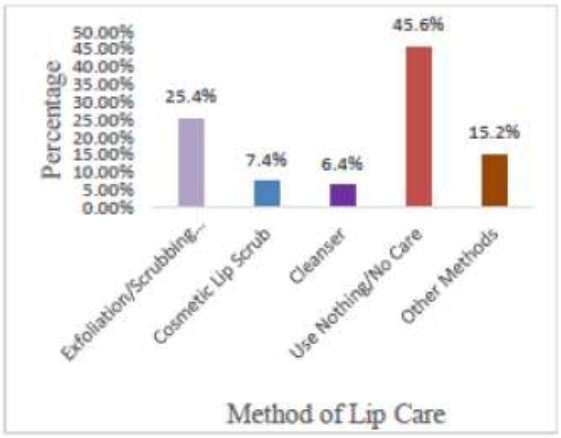

Figure 3. Distribution of respondents by choosen method of lip care

***Others:** Shea butter, Sugar plus Honey Scrub, Soap, Lip Balm, Wet Lips, Robb, Vaseline/Petroleum Jelly, Vitamin E Oil.

Table 7 shows the distribution of respondents' source of information on CLPs they currently use with respondents (91.2%) who choose information from "other sources" (Seeing it in a Shop, Cosmetic Shop Attendant, Hair Dresser, Received CLP as Gift) topping the list.

Table 7. Distribution of respondents' source of information on CLPs they currently use **N = 390**

Source of Info	Frequency	%
Friends	120	32.1
Relative	278	74.3
Magazine Adverts	326	87.2
Internet Adverts	309	82.6
Other Sources	341	91.2
Multiple Response		
*Other Sources: Seeing it in a Shop, Cosmetic Shop Attendant, Hair Dresser, Received CLP as Gift		

Figure 4 shows the distribution of respondents by their level of knowledge on the possible health risks associated with CLPs with those having poor knowledge topping the list (83.3%).

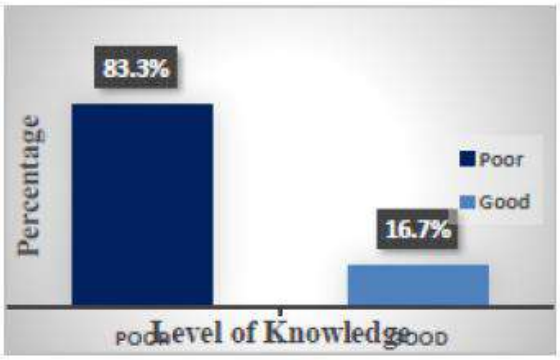

Figure 4. Distribution of respondents by level of knowledge on possible health risks associated with CLPs

Poor (KS ≤11), Good (KS ≥12), Mean KS = 6.221±4.6*** The knowledge categories were operatively defined for this study only***

Figure 5 shows the distribution of respondents by their perception on the possible health risks associated with CLPs with respondents having poor perception accounting for 59.2%.

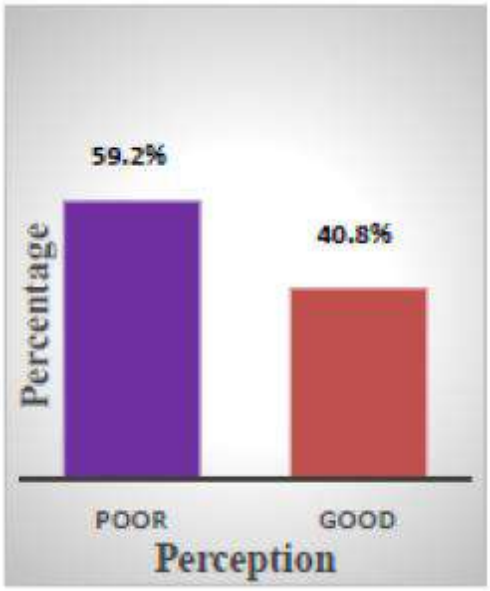

Figure 5. Distribution of respondents by perception on possible health risks associated with CLPs

Poor (PS ≤12), Good (PS ≥13), Mean PS = 11.389±5.4.

Table 8. Shows statistical test of hypothesis using chi-square test and student t-test statistic **N = 390**

Test of Hypothesis	
Chi-square test statistic to determine the relationship between respondents' Knowledge and perception of health risk associated with utilization of cosmetic lip products	X2 = 16.074 P = 0.001, df = 1 *Significant (p<0.001)
Chi-square test statistic to determine the relationship between respondents' Knowledge and Perceived Threat of Health Risks associated with CLPs	X2 = 18.004 P ‹ 0.001, df = 1 *Significant (p<0.001)
Student t-test statistic to determine the relationship between respondents' Age and Perception of health risk associated with utilization of cosmetic lip products	t- test = 2.549 P-value = 0.011 *Significant (p<0.05)
Student t-test statistic to determine the relationship between respondents' Age and Knowledge of health risk associated with utilization of cosmetic lip products	t-test = 0.436 P-value = 0.682 *Not significant (p>0.05)

Discussion and conclusion

Socio-demographic characteristics of respondents

The data collected showed that respondents were within the age group of 16-28 years and were predominantly single. This supports the findings of Sankaranarayanan (2014) in which young adults were discovered to have used more cosmetic products than respondents in older age groups. This finding also corresponds with the age range of young female adults reported by Katie (2016) who were the majority amongst females who purchased cosmetic lip products in 2016.

The result of this study further showed that there is significant difference between the age of respondents and perception of possible health risks associated with CLPs; indicative that older respondents have a better perception of the possible health risks associated with CLPs. This corroborates with the findings of Heyam *et al.*, (2015) where women in older age groups who also had children were more inclined to use herbal products than cosmetic products.

Distribution of respondents by utilization of cosmetic lip products (CLPs)

In the quantitative study, the distribution of previous users as well as current users of cosmetic lip products significantly favoured consumers of CLPs. This was also the case in the qualitative study as majority of participants were CLPs consumers. This depicts the picture that there are more consumers of CLPs than non-consumers. This finding validates the statement by Mudholkar (2012) that the utilization of colour cosmetics like lip products by women is a popular daily custom.

Although the focus of the study was three CLPs (Lip stick, Lip gloss and Lip balm), findings from the quantitative and qualitative study showed that a proportion of respondents also utilized other products on their lips. These products include: Lip Stain, Wet lips, Chap Stick, Vaseline or Baby oil, Shea butter/Ori and Robb. Findings from the quantitative and qualitative study also revealed that respondents did not solely use one CLP alone but tended to use two or more products at a time. This finding is in line with the findings of the Environmental Working Group (2012) and Lisa *et al.*, (2015) which reiterated that females used an average of 12 or 11 cosmetic products daily respectively with some products being reapplied once or twice within 24 hours.

Findings from the quantitative study showed that respondents used Lipstick more than Lip gloss and Lip balm. This substantiates the reason why majority of chemical studies: Parisa *et al.*, (2012), Shikha *et al.*, (2014), Airin and Yu (2015) and others, tested lipsticks for the presence of heavy metals as it has proven to be the CLP favoured by most women.

The findings from the quantitative study further revealed that most respondents first used CLPs between ages twelve and sixteen. Though this finding would be beneficial for producers and marketers of CLPs; it is also beneficial to health promoters to enable them proactively reach this target audience before they begin to use CLPs. This is because findings by Airin and Yu (2015) showed that consumers exposed to heavy metals form CLPs for a minimum of 35 years may most likely be prone to associated carcinogenic health risks.

Methods of lip care

The quantitative and qualitative studies showed that most respondents practiced poor lip care and did not do anything to care for their lips. Both studies also revealed that some respondents thought by making use of products such as: Lip Balm, Lip gloss, Wet Lips, Saliva, Robb, Vaseline/Petroleum Jelly, Vitamin E Oil and Shea butter (Ori), they were caring for their lips. This finding is supported by the study of Edhayavarman and Sunderambal, (2015) which revealed that consumers mostly used Vaseline for Lip care because they were loyal to the brand.

The qualitative study especially revealed that lip care is a novel idea amongst females and is subject to the respondent's knowledge and/or what the respondent thinks will be suitable for her type of body. The qualitative study further revealed that respondents who had experienced and/or had a friend or a relative who had experienced an adverse reaction to a CLP were more cautious with consumption of CLPs and tended to have a method deemed fit to care for the lips. The qualitative study also revealed that protective products meant to be applied before use of CLPs are available, known to Make-Up artists and is more expensive than the Lip products themselves.

Methods of lip care highlighted by participants in both studies include: Exfoliation/Scrubbing with tooth brush, Scrubbing with bathing sponge, Using a Facial Cleanser or Facial Wipe, Sugar plus Honey Scrub, Sugar and water solution scrub and Bathroom soap. Findings in both studies revealed that amongst respondents who practiced one form of lip care or the other Exfoliation/Scrubbing with tooth brush was common because it was "less expensive, cleaned the lips better and easy to carry out". Most respondents in the focus group discussion who had not been engaging in any form of lip care also showed more inclination towards this

method (Scrubbing with tooth brush) as it seemed to be more feasible.

The qualitative study further corroborated the findings of the quantitative study wherein the majority amongst those who had suffered an adverse reaction due to a CLP did not visit a health establishment for treatment. The qualitative study revealed that respondents choose to go off all CLPs for some time till the effect wore off, Apply Vaseline or Shea butter as a curative measure or go for another CLP when the adverse effect wore off.

Although most respondents' method of lip care did not strictly take the same path, the end result was always positive as respondents observed their reactions as well as the reactions others had to CLPs and took appropriate measures that were in their best interest. In the context of this study the power of observation is key and respondents displayed in one way or the other that they employed this tool constantly.

Level of knowledge on possible health risks associated with utilization of CLP

The quantitative study revealed that most respondents had poor knowledge on the possible health risks associated with utilization of CLPs. The qualitative study also revealed that most respondents had poor knowledge on the possible health risks associated with utilization of CLPs but also showed that most participants had heard that CLPs especially lead containing lipsticks were carcinogenic and could cause cancer. Cancer and allergies were also the most reported associated risks. While reproductive and behavioural anomalies were never mentioned nor considered.

The qualitative study further revealed that respondents were aware of the possible health risks but the knowledge would not significantly affect their utilization of CLPs. Instead respondents opted for measures that would be applicable when they were removing CLPs from lips; they include: Ensure they wipe off CLPs from lips before they go to bed, learn to exfoliate lips with tooth brush etc.

The result of this study showed that there is a significant difference between the level of knowledge on possible health risks associated with CLPs and perception of health risks; indicative that respondents with good knowledge would also have good perception on possible health risks associated with CLPs and vice versa.

The result of this study also showed that there is a significant difference between the level of knowledge on possible health risks associated with CLPs and perceived threat of health risks; indicative that respondents with poor knowledge would have poor perception towards possible health risks associated with CLPs and vice versa. This finding is in tandem with the study of Ilkay (2014) which showed that consumer learning had influence on buying decisions of natural cosmetics that were deemed to pose less threat to their health.

Perception on possible health risks associated with utilization of CLP

Findings from the quantitative study showed that most respondents had poor perception on the possible health risks associated with CLPs. The study also revealed that most respondents did not think CLPs posed a threat (poor perceived threat) but thought it could be serious (good perceived seriousness).

The qualitative study also revealed similar details as most respondents did not think CLPs posed a threat to their health. This finding stems from the fact that most respondents reported they had never seen anyone who was diagnosed of cancer of other terminal ailments credited to utilization of CLPs. Another contributing factor to respondents' poor perception is drawn from the report that they had been using CLPs for a long period of time (mostly form secondary school) and could not link it to any serious health condition they had experienced. Some respondents also strongly believed that if for any reason using CLPs posed a serious threat, they would be exempted.

The result of this study showed that there is a significant difference between the level of knowledge on possible health risks associated with CLPs and perception of health risks; indicative that respondents with good knowledge would also have good perception on possible health risks associated with CLPs and vice versa.

Sources of information on cosmetic lip products (CLP)

The findings from the quantitative study showed that most respondents currently using CLPs found out from other sources (which

accounts for: seeing it in a shop, cosmetic shop attendant, hair dresser or received CLP as a gift), magazine adverts, internet adverts and relatives. This finding is in tandem with the findings of Edhayavarman and Sunderambal (2015) which showed that beauticians were the most effective source of brand awareness.

Findings from the qualitative study further showed that respondents relied on the internet to gain access to reviews on CLPs, such that if a product had substantial good reviews or bad reviews as the case may be, it would determine whether or not they would purchase the CLP. This finding is in tandem with the findings of Kenneth *et al*., (2011) who showed that women have been historically influenced by the media as they received information related to fashion by radio, newspapers, magazines and films; all of which can currently be accessed via the internet in the 21st century.

Findings also revealed that only a small proportion of respondents sought for information on CLPs from professionals (Cosmetologist, Dermatologist). It can be inferred from the qualitative study that this small percentage are individuals who have relatives or friends who are professionals and as such can be consulted in an unofficial capacity.

Conclusion

The findings from this study revealed that students had poor knowledge as well as perception on the possible health risks associated with the utilization of cosmetic lip products. Study findings also showed that most students were first introduced to CLPs when they were between ages 12 and 16; an age range that points to individuals in Junior and Senior secondary schools.

The study further showed that utilization of cosmetic lip products is a fashion trend that students would continue irrespective of the possible health risk. This is because they see CLPs as products that pose a minor threat to their health.

It also revealed that though students may be inclined towards discussions and materials that would enable them build their knowledge on CLPs, they would better appreciate the manufacture and availability of CLPs that are affordable but also healthy.

Authors contribution

Aienobe A. C was involved in the conceptualization of the research idea, developed the data collection tool, analyzed and interpreted the data and was a major contributor in writing the manuscript.

Oyediran E. O was involved in the conceptualization of the research idea, was a major contributor in developing the data collection tool, data analysis and writing the manuscript.

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