

GENDER, CULTURE AND DEVELOPMENT IN AFRICA

Edited By

Mobolanle Ebunoluwa Sotunsa

Olajumoke Yacob-Haliso



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AND DEVELOPMENT
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Chapter 39

THE IMPACT OF COSMETIC PRODUCTS ON HUMAN HEALTH

Shadiat Olapeju Shuaib

Introduction

In the human society, the use of cosmetics has become a regular practice among males and females from primordial times to date because they are employed for beauty purpose, personal hygiene, protection, and attraction to opposite sex. Despite its high-ranking status as a multi-billion dollar industry in contemporary times due to high patronage, it is observed that in recent times, fake, toxic, and substandard cosmetic products have characterized many cosmetics market in the world leading to varied serious health hazards for innocent consumers. In the light of this, the paper employs descriptive and analytical methods in reviewing and examining the philosophy of cosmetics, their functions, applications, control measures and side effects. It is discovered that cosmetics have various categories and brands depending on their composition, application and uses. The study also shows that most of the cosmetic products in the market today contain carcinogenic chemicals that are injurious to human health. In addition, the study reveals that many consumers are also ignorant or nonchalant about the chemical composition and the side effect of the cosmetics they apply on their bodies. The study concludes that a general awareness programme about the chemical composition of cosmetics will help consumers to understand their workings and health risk involved. More so, that authorized cosmetics regulatory agencies should be more proactive in their duties by testing, certifying, monitoring and controlling the chemical composition of cosmetics put on sale by manufacturers in conjunction with the standard best practices of cosmetic acts.

According to Murray's (1935) anthropological report, the first appearance of cosmetics on human body can be traced back to antiquity in the human society; it may however be a surprise to note that to date, the materials used for cosmetic products from the beginning of time were not totally different from what is obtainable in the modern times. This is because the modern composition of cosmetic products is still majorly predicated on plants, animals and mineral resources, regardless of their advanced technological outlook (Shuaib, 2014). They still imbibe some of the ingredients and functions of ancient make-up art such as barks, leaves, rocks, nuts, and oily substances and animal produce into their composition which were directed at enhancing, modifying, and beautifying the human body. In view of this, Directive 93/35/EEC on the Sixth Amendment to the original Cosmetic Directive of 1976, asserts that cosmetic product is:

Any substance or mixture intended to be placed in contact with the various external parts of the human body (epidermis, hair system, nails, lips and external genital organs) or with the teeth and the mucous membranes of the oral cavity with a view exclusively or mainly to cleaning them, perfuming them, changing their appearance and/or correcting body odours and/or protecting them or keeping them in good condition.

The summary of the above definition can also be deduced from Fischer's (1973: p. 22) definition of modern cosmetics as "articles intended to be rubbed, poured, sprinkled, or sprayed on, introduced into, or otherwise applied to the human body or other parts thereof for cleansing, beautifying, promoting attractiveness, or altering the appearance". These two definitions literally imply that cosmetics application is a common practice among human beings in diverse societies of the world for addressing various personal and societal needs. From the dermatological point of view, however, Nigram (2009, p. 10) classified the modern cosmetics into the following categories:

(a) skin-care cosmetic; cleansing agents, moisturizing agents, etc. (b) hair-care cosmetics; styling agents, shampoos, hair colorants, etc. (c) face-care cosmetics; facial foundations, powders, eye shadows, mascara, lipsticks, etc., (d) nail-care cosmetics; nail vanishes, paint removers etc.) (e) fragrance products; deodorants, after shaves, perfumes, etc., and (f) ultraviolet UV light screening preparations.

Interestingly, most of the highlighted cosmetic products are variously used by both males and females in the human society for one purpose or the other, particularly in the enhancement of their appearance, despite the fact that many other categories of cosmetics still exist such as adhesive and anti-bacteria materials that are not included in the list above but are regularly applied for one reason or the other in the society. A study conducted by Sedlewicz (2005, p. 8) reveals that "an average adult uses nine cosmetics products daily and more than twenty five percent of women use fifteen or more". This indicates that, in the human society, the application of cosmetics is a common feature among males and females, old and young, according to their preference and taste for a wide range of cosmetic products found on the shelves of cosmetics stores in different societies of the world.

Chemical Reactions to Cosmetic Products

Despite the functional values of the articulated cosmetic products, most of them are regrettably prone to chemical reactions, when applied on the human skin. This is to say, that, they act as antigen that triggers negative reactions in the human skin because of their chemical composition. In view of this, Foley, Nixon and Thompson (1993, p. 128) opine that cosmetics, toiletries, and skin care products, including sunscreens quite frequently cause adverse skin reactions". Menkart's (1979, p. 599) summation indicates that, "an average adverse reaction to cosmetics occurs once in every 13.3 years per person" The articulated adverse skin reaction is what Eldridge (2012, p. 1) describes "as an unwanted or unexpected negative reaction to skin care application that is used by man in an approved manner". She goes further to explain that the adverse reaction can be mild, as simple as rash, or life threatening in nature, they can occur immediately application of product is done or develop overtime." Some of these adverse reactions can either be mild and can be anticipated by a doctor, while others are very rare. To this extent, Lindorf, (2006, p. 12): an Iowa based physician, in a *Women Health Magazine* laments that, chemical reactions in cosmetic products "have been proven to cause cancer, tumors, irritations and many other skin disorders". The occurrence of these skin disorders, has however been linked to several factors, chief among which, is Contact Dermatitis. According to Degroot (1990), this chemical skin disorder, is the commonest single reason for hospital referrals.

Contact dermatitis in simple terms is a condition marked by the areas of inflammation that is formed after a product comes in contact with the skin. There are two forms of contact skin reactions. They are; Allergic Contact Dermatitis and Irritant Contact Dermatitis. The Irritant Contact Dermatitis occurs when a substance reacts with the master cell of the skin, and then releases histamine and other inflammatory substances on the skin, in a reaction, that does not involve the immune system (Usatine & Riojas, 2010, p. 251). Irritant Contact Dermatitis is the most commonly complained about by patients, and in this sense, it can occur in anyone. Despite its high prevalent rate, Emmon and Mark (1985, p. 262) claim that "most people do not seek medical attention for mild allergic and irritant reactions". The symptoms of irritant skin reactions are usually visible in stinging, itching, redness in the skin area, and burning where the product is applied. Most especially, after the skin has been damaged or injured by the substance after application, which invariably aided the reaction to be very painful and easy to appear on the skin, because the skin had already lost its natural protection against irritant (Kimber, 1989, p. 276). The appearance of this skin reaction however begins with itching, and redness that can progress into blisters.

On the other hand, the Allergic Contact Dermatitis is perceived by Natures' Gift Aromatherapy Product (n.d. para. 6) as "the sensitivity and true allergy to specific ingredients in a product which causes itching, redness, and swelling." The neck is the most common site for contact allergies, although reactions may occur in other parts of the body. According to Simion (2001, p.837), this reaction involves the immune system and is classified as a Tcell-type or delayed hypersensitivity, involving T-cells and macrophages. Before the reaction occurs, the substance has to enter the skin through the lymphatic tissues and then cause the T-cell to become sensitized. If at any

point in future, a related chemical substance is introduced into the skin or possibly any other part of the body, the immune system would react perceiving it as a threat and cause a similar reaction. This time around, the resulting rash may be more severe and may be followed by an Anaphylaxis.

In Degroot and Beverdan, Tjong, Coenraads, and Nater's (1988, p. 124) study on skin allergy, "It is estimated that; 1 to 3% of the population are allergic to a cosmetic or cosmetic ingredients". The exigency of this occurrence is further enumerated in one of the American survey conducted by Grief and Maibach (197, p. 95) "which comprised 30,000 customers, where 700 reactions occurred during one year period". However, in 2012, more than 2,000 skin reactions have been confirmed by the research undertaken by The Scott Hamilton Care Initiative, in their cancer research programme, where skin reactions were traced to components of some cosmetic products which include eye-shadows, lipsticks and colourants.

Eiermann, Lansen, Maibach, and Taylor (1977, p. 12) also observe that Fragrances and preservatives are some of the most common causes of the highlighted reactions in patients, but the type of skin reactions inert in them are "irritant rather than allergic in nature" according to Maibach and Johnson (1975, p. 728), "in most cases, these are only mild or transient such as stinging, and smarting, and contact urticarial". But in some other cases, the reactions may be more severe, with redness, edema, dryness and scaling.

According to the dermatological research conducted on nail disorder by Okoro, Onunu, Nnoruka and Kubenije (2010, p. 207) in Nigeria, human nails are also involved in many chemical reaction diseases as a result of cosmetic products. These can be perceived in nail polish or nail varnish which contains toxic ingredients like Phthalates which have the ability to discolour, disfigure and damage human nail plate temporarily or permanently and in extreme cases cause increased risk of diabetes.

From their report Apergillosis nail disorder can discolour the nail plate to yellow while nail disorder called Psuedomon deforms its natural colour to green, apart from other dermatitis conditions caused by nail glue and artificial nails which roughen the surface of the natural nail plate and split them into layers through repeated wetting and drying of the nail plate with toxic chemicals contained in them and significantly cause loss of adhesion between the nail cells and invariably make it difficult for natural nail to grow on the plate temporarily or permanently resulting in psychological and emotional trauma for such individuals.

Also, skin lightening or depigmentation agents such as hydroquinone (HQ) have been observed overtime by scientists as very effective agent of depigmentation, but with increasing report on its negative side effect, there has been continuous drive to find an alternative depigmentation agent in herbal and pharmaceutical depigmentation agents. To date, the American Federal Drug Administration (2013) has received reports on redness, swelling, blisters, burning, bleeding, rash and itching effect after use of products that contain Alpha Hydroxy Acids (AHA), particularly those with concentration over a PH acid level of 3.5 or less. In addition to that, The Nigerian National Agency for food and Drug Administration and Control (NAFDAC) in a recent interview with News Agency of Nigeria (2015, p. 15) equally complained that

some unregistered beauty range products which include soaps, creams, and serum that contain Retin – a sensitive ingredient in wrinkle creams and serums formula and other fake and substandard chemicals have been noticed to cause irritant contact dermatitis.

Hair dye composed of P-phenylenediamine and ammonium per sulfate that is usually adopted for lightening the hair can also be the cause of skin irritation. Nigram and Saxena (1988, p. 56) surmise that “there has always been several reports in the literature of the allergic anaphylactic reactions on using hema hair dyes”. Some cases have sneezing, running nose, cough and shortness of breath instead of skin reactions.

Johansen, Rastogi, Menne, and Johnsen (1996, p. 169) are Indian researchers who also highlight that there can be adverse skin effect to sun screen agents which may result in irritant, allergic photo toxic, or photo allergic reactions which are caused not only by active constituents of the product but also by additives such as fragrances and stabilizers. Benzophen is probably the most common sensitizes, while Dibenzoyirethanes, Para-amino benzoic acid (PABA) and Cinnama dermatitis are also not left out (Nigram 2009, p. 10).

Effects of Cosmetic Products on Actors/Actresses

There are also some theatre make-up products that contain allergic ingredients which affect actors when applied on their bodies. Example of these can be found in spirit gum; an alcoholic liquid adhesive product used for adhering facial hair pieces and prosthetic materials on actors. Susan's (2007, p. 1) response to an article on “Myth of Spirit Gum by Fantasy Festival Costume website”, says “I wore fairy ears for Halloween. The next day, I noticed that my ears started to hurt, and the day after, they were swollen and itchy and I look like Dumbo. Also, I started having trouble breathing.” Susan later consulted a doctor and was discovered that she was allergic to resin; a tree sap derivative that is contained in many beauty products and adhesives.

Diminas (2011) also corroborate Susan submission in an interview with the researcher when he highlights “the side effect of adhesive materials was the painful effect on actor's skin when removing their hair attachment after production” thus, giving credence to the negative effects of adhesive materials on actors.

Apart from adhesive materials, face care cosmetics such as foundation, lipsticks and liners among others have been discovered to contain some chemical with allergic reactions when applied on actors, irrespective of the fact that they are very useful in the theatre for the projection of actors' roles to the audience. This is because foundation that are found in cake, liquid, dry and grease bases are usually used by theatre make-up artists to even tone the actors skin, cover blemishes, provide flawless and aesthetic finish as well as improve their skin imperfections. While lipstick; a waxy coloured solid stick cosmetics are equally very effective in the theatre for exerting colour textures and protection on actors lips, albeit defining their mouth areas for visibility and projection of their characterization to the audience aside creating beauty effects. Similarly, liners such as eye and lip liners are utilized in the theatre. Eye liners are normally used for coloration and visibility of eye lashes, perimeters of the eyes and eyelid, while the lip liners are applied to create a line and boarder for the actors' lips so that the smudging and spreading of lipsticks below and above the lips of actors can be prevented.

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PART IV

Gender, Political Participation and Governance

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However, in spite of the functional values of foundation powder, lipsticks and liners in the theatre, the experimental study conducted on the highlighted cosmetics with some (400 Level Advanced Technical Theatre workshop Class) of Department of Performing Arts, University of Ilorin, Nigeria in 2012 academic session revealed that some chemical components of these cosmetic products are hypersensitive and carcinogenic to human skin. This is because they caused itching, irritation, burning, swelling and redness when applied on the students' skin. The conclusion was drawn when the researcher applied the three cosmetic products on 30 students and observed the side effect of the products on them by watching and listening to the reactions and responses of members of the class during the question and sessions that ensued after the experiments.

One of the causative allergens in foundation powder is what Fox (2015) identifies as oxybenzone. He further explains that a new study conducted by U.S. Center for Disease Control (CDC) reveals that 97% of Americans are contaminated with widely used sun screen ingredient called oxybenzone has been linked to allergies, hormone disruption and cell damage. He also listed lead as a causative chemical in some lipsticks products that can lead to poor muscle coordination, nerve damage to sense organs and nerves controlling body and reproduction problem when found in large quantity in lipsticks. Cleveland Clinic (2016) analysis of chemical composition of eyeliners also brought to light the fact that BHA (butylated hydroxyanisole) urea, sulfates and phthalates are chemical substances with negative effects on users because they can cause pain on the eyes, sensitivity to light, persistent blurred vision swellings and discharge of the eyes.

Nevertheless, above all the aforementioned carcinogenic ingredients in cosmetic products, the most dangerous and dreadful are heavy metal group, which comprise; arsenic, and mercury, beryllium, nickel, selenium, lead and thallium. In this wise, they are banned as international ingredients in cosmetics and declared as toxic ingredients. According to Environmental Defence Canada (2011):

These heavy metals can build up in the body over time and are known to cause varied health hazards, which include: cancer, reproductive and developmental disorder, neurological problems, memory loss, mood swings; nerve, joint, and muscle disorders; cardiovascular, skeletal blood immune system, kidney and renal problems; headaches; vomiting, nausea and diarrhea; lung damage; contact dermatitis; and brittle hair and hair loss. (p. 3)

Conclusion and Recommendations

Although cosmetic products have not always been associated with serious health hazards, compared with oral products, they are not always safe for use because fake and substandard, and toxic ingredients have become regular features in their composition. Hence, to safeguard public health all over the world, understanding the chemical composition of cosmetics will help consumers in choosing their personal care products and make them understand their workings and the health risk involved. This is imperative since testing of cosmetic products is voluntary and majorly controlled by manufacturers and not always by federal regulatory agencies in most countries

of the world unlike food and pharmaceutical products, except, when risk factors are suspected or reported by monitoring agencies or users (Epstein & Fitzgerald, 2009, p, 40).

The carcinogenic effect of the highlighted chemical-based cosmetic products can however be reduced on consumers, or better still avoided if greater attention is paid to natural make-up recipe that would enhance the skin texture, moisture, and outlook rather than damage it or worst still cause irreparable loss such as death to their users and consumers. More importantly, it is also advisable that cosmetic regulatory agencies across the globe should be more proactive in their duties and responsibilities by meticulously monitoring and controlling the chemical composition of cosmetics by manufacturers in line with best practices of cosmetics production and administration regulations and safe guard public health through testing and certifying them for human consumption before the sales of such cosmetics.

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Interview

Interview with Dagogo Dimines at Flawless Concept building. Apapa, Lagos on the 4th of April 2011.