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Cosmetic And Their Related Side Effect: A Short Overview

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ABSTRACT

The word "cosmetics," which comes from the Greek word "kosmeticos," describes substances used to enhance or beautify look. Humans have wanted to seem beautiful from the time of the tribes. Toxic chemicals included in beauty goods can be detrimental to one's health. These items include skincare, hair, perfumes, dental care, and nail care. These goods are particularly appealing to women. With a global market value of over $20 billion, the cosmetics business plays a big role in the beauty sector. But there is a negative aspect to these products as well. Beyond permissible bounds, toxic compounds and dangerous chemicals are added, which might seriously harm organs and skin and perhaps cause cancer. Since cosmetics are now widely used in both everyday life and fashion, it is imperative to increase awareness of their negative consequences.

KEYWORD:, Cosmetic product and their toxicity, Skin brightening agent, Sunscreen product, Shampoo, Dangerous product used in cosmetics, Health issues with heavy metals in cosmetics products, Conclusion.

INTRODUCTION

Cosmetics are items that are used to enhance attractive traits, clean, or adorn the face. These consist of deodorants, antiperspirants, hair wavers, hair dyes, hair sprays, toothpaste, shampoo, conditioners, mascara, after-shave lotion, styling gel, creams, lotions, powders, fragrances, lipsticks, fingernail paint, and eye and face makeup. Primarily a cosmetic term, "make-up" refers to colored cosmetics meant to change a person's look. Cosmetics and skincare products are concoctions of natural or synthetic chemicals that are intended to enhance the body's look or scent. They are designed to be applied to the body by rubbing, pouring, sprinkling, or spraying in order to enhance beauty, cleanse, or change look without compromising bodily functions or structure.

HISTORICAL SIGNIFICANCE

Ancient Egypt and India are the origins of the science of cosmetology; the first written accounts of cosmetic ingredients date to about 2500 and 1550 B.C. An ancient cure for cracked lips was discovered in the Indus Valley Civilization. In order to make a paste that could be applied to cracked lips, the rind of Bel fruit was ground into a powder and combined with women's milk. This mixture caused the cracks to cease and heal in ten days. It was advised to use a variety of depilatory chemicals to get rid of unnecessary hair because it was regarded as a signal of shame. The milky latex of Nivadunga was applied to the targeted location after the dried fruits of Aavalakatti and impali were soaked in it. This caused the hairs to come out. With cosmetic practices like hair dyeing, depilation, and exfoliation having their roots in ancient Egyptian civilization, kajal has a long history in Hindu culture. White lead and mercury- based cosmetics were used by the Romans, Greeks, and Egyptians to smooth and cleanse skin, cover up body odour, and colour the face for religious and ceremonial purposes. Additionally, according to ancient beliefs, eye makeup might enhance vision and drive off bad spirits. Hindu culture still uses a variety of cosmetics and beauty rituals nowadays.

Cosmetic Products and their toxicity

Social acceptance, peer pressure, and advertising are some of the factors that affect women's skincare decisions. According to a research by Robertson et al., women who wear cosmetics frequently feel insecure and unconfident. Hazardous substances used in cosmetic products have the potential to damage skin. Natural, sustainable components like cane sugar, shea butter, and rose essence should be used by manufacturers. Perfumes and nail polish are examples of long-lasting skincare items that might trigger allergic responses. Moisturizers can exacerbate the hygroscopic qualities of the skin, leading to exfoliation and irritation, particularly when applied in high quantities.

Skin brightining agent

A dangerous skin-lightening substance that may be mutagenic and induce ochronosis is hydroquinone (HQ). An uncommon side effect of HQ is ochronosis, which causes the region treated with high quantities of HQ cream to gradually darken. A hydroxy phenolic substance called HQ prevents the creation of melanin by blocking the tyrosinase enzyme. It may also obstruct the development and breakdown of melanosomes. The most widely used depigmenting chemical at the moment is HQ, but it is very cytotoxic to melanocytes and may be mutagenic to mammalian cells. Exogenous ochronosis may result from the discomfort, redness, and burning it causes. Since ochronosis can cause skin elasticity loss and poor wound healing, several nations have banned its over-the-counter usage.

Hydroquinone is considered one of the most powerful pores and skin brightening retailers because it without delay inhibits the conversion of DOPA to melanin. It is used for melasma, freckles and age spots however extended and unsupervised use may lead to infection and ochronosis. Kojic acid, derived from fungal fermentation, additionally inhibits tyrosinase and moreover works as an antioxidant, making it powerful for dark spot correction. Arbutin, located in bearberry and available in alpha and beta paperwork, is a natural derivative of hydroquinone and slowly releases it in a managed way, making it a safer choice for lengthy-term use.

Vitamin C or ascorbic acid brightens skin through decreasing oxidized melanin, inhibiting tyrosinase and stimulating collagen manufacturing which improves pores and skin texture. Niacinamide, a strong form of diet B3, reduces the switch of melanin from melanocytes to upper skin layers and is well tolerated by touchy skin. Azelaic acid acts by inhibiting tyrosinase and decreasing inflammation, making it beneficial for treating pimples-related pigmentation. Retinoids inclusive of retinol and tretinoin increase mobile turnover which eliminates melanin-weighted down cells and promotes the formation of new healthy pores and skin layers.

1 Black Henna

Red henna and commercial hair colour phenylenediamine (PPD) are used to create the temporary tattoo method known as "black henna." In order to intensify and deepen the colour, improve the design pattern, speed up the dyeing and drying process, and extend the tattoo's lifespan, PPD is added to the henna paste. Blisters, skin oozing, swelling, and erythromatous ashes are some of the adverse consequences of PPD. Immediate allergic responses, including Sneezing, runny nose, coughing, and shortness of breath, have been documented in studies. Localized hypertrichosis following black henna tattoos without allergic responses has been seen in certain circumstances. Many incidents of black powder poisoning, some deadly, were reported in Sudan in the early 1980s. Massive edema of the face, lips, glottis, pharynx, neck, and bronchi are among the first signs, which can develop into acute renal failure and anuria. Some individuals have benefited from dialysis, but others have passed away from renal tubular necrosis.

Black henna works through penetrating the pores and skin surface where the lawsone pigment and delivered chemical substances form bonds with keratin, developing a darker stain than herbal henna. While this offers instant beauty benefits, it also will increase the chance of dermatological toxicity. PPD can crosslink with pores and skin proteins, triggering immune responses that result in touch dermatitis. Repeated publicity to black henna tattoos might also purpose the pores and skin to turn out to be completely sensitized, meaning

future touch with hair dyes, fabric dyes or coloring sellers containing PPD may additionally provoke rapid allergic reactions. In addition to pores and skin results, the chemical substances can purpose swelling, burning, rashes, and in a few cases, long-time period hyperpigmentation or depigmentation.

Sunscreen product

The most prevalent sensitizers in sunscreens are benzophenones, which can result in irritating, allergic, phototoxic, or photoallergic responses. Photoallergic dermatitis can be brought on by dibenzoyl methane, para aminobenzoic acid, and cinnamates. perfumes and other substances that enter the body through the skin, lungs, airways, ingestion, and direct pathways to the brain are the primary source of allergies associated with deodorants, antiperspirants, and perfumes. Airborne contact dermatitis can be brought on by fragrances sprayed into the atmosphere.

The effectiveness of sunscreen is expressed because the Sun Protection Factor (SPF), which ordinarily measures UVB safety. Higher SPF values indicate greater safety towards sunburn, although SPF does now not without delay degree UVA safety. Broad-spectrum sunscreens are formulated to protect the skin from both UVA and UVB rays with the aid of combining a couple of filtering sellers. Sunscreens may contain extra components such as antioxidants, moisturizers, emulsifiers and preservatives to beautify balance, spread and overall skin advantages. Modern formulations intention to be lightweight, non-greasy and cosmetically elegant to improve consumer popularity and adherence.

Shampoo

Shampoos and conditioners have less negative effects since they are in touch with the skin for a shorter period of time. They may, however, make eye contact when washing hair, which might result in tangling or matting of the scalp. Another consideration is the shampoo's pH; the majority have an alkaline pH, which can damage and swell hair shafts. The ideal pH for chemically treated hair is neutral. Shampoos have a significant risk of sensitization since they are diluted with water, have a brief contact period, and are washed off. Ammonium persulfate and hydrogen peroxide solutions, two active chemicals in hair bleaching treatments, can result in Type I and Type IV allergic contact responses.

Dangerous products used in cosmetics

BHA AND BHT

Synthetic compounds called BHA and BHT are used in lipsticks and moisturizers. The European Commission on Endocrine Disruption and the International Agency for Research on Cancer have identified them as a potential human carcinogen and they can result in skin responses. In addition to interfering with hormone function, BHA may encourage tumor growth. Excessive BHT dosages can have negative effects on reproduction by imitating estrogen and inhibiting the expression of male sex hormones.

BHA and BHT are synthetic antioxidant compounds extensively used in pharmaceuticals, cosmetics and food merchandise to prevent oxidation and extend product shelf life. Oxidation is a chemical method in which oxygen reacts with oils or fat, causing rancidity, loss of efficiency and adjustments in oduor, coluor or texture. BHA, or butylated hydroxynisable, is a combination of two isomers of tertiary-butylated hydroxynisable and is relatively powerful in stabilizing fats because it reacts with loose radicals shaped all through oxidative degradation. By donating hydrogen atoms, BHA interrupts the chain reactions that result in lipid peroxidation, as a consequence shielding touchy ingredients. It is fats-soluble, warmness-solid and commonly utilized in products which include lip balms, moisturizers, packaged meals and certain drug formulations. BHT, or butylated hydroxytoluene, capabilities similarly with the aid of performing as an intensive scavenger; its phenolic structure allows it to neutralize free radicals and save you oxidative breakdown of oils. BHT is likewise oil-soluble, strong underneath high temperature and frequently utilized in combination with BHA because the 2 antioxidants showcase synergistic outcomes, imparting more potent safety while used together.

Coal Tar Pigments

Petroleum is the source of coal tar, a substance used in hair coluor and cosmetics, such as p-phenylenediamine. It is more common with darker hair coluor and can result in negative side effects like blisters, erythromatotus rash, stinging, swelling, and surface bleeding. Additionally, henna dyes have been connected to shortness of breath, sneezing, runny nose, coughing, and instant allergic responses. Certain hues of coal tar that are mixed with aluminium substrate and tainted with trace amounts of heavy metals may also be linked to cancer. The brain may be negatively impacted by these hues. Lipstick and other cosmetic coluors are not permitted as food additives. It has been discovered that P- phenylenediamine causes cancer, and women who use hair dyes for an extended length of time possess a higher chance of non-Hodgkin's lymphoma development. Because p-phenylenediamine has long-term negative impacts on aquatic environments, the European Union has classed it as hazardous and highly dangerous to aquatic creatures.

Parabens

Preservatives like parabens, which are frequently found in cosmetics, are thought to disrupt hormone and male reproductive processes. The main female sex hormone, oestrogen, is mimicked by parabens, which readily penetrate the epidermis. According to studies, using methylparaben topically can cause damage to DNA and enhanced skin aging. Parabens can also be found in some foods, such as barley, strawberries, carrots, onions, currents, and vanilla. When consumed, parabens in food undergo metabolism, which reduces their estrogenic properties. They avoid the metabolic process and enter the circulation and bodily organs undamaged when administered topically and absorbed by the body. Every day, women are exposed to 50 mg of parabens, which are linked to neurotoxicity and cancer.

Perfume

A blend of essential oils and solvents, perfume is used to infuse the human body, animals, food, objects, and living areas with a pleasing aroma. With almost 3,000 compounds, it is a key component of colognes, deodorants, and perfumes. Perfumes are frequently found in cosmetics, especially those claimed to be "fragrance-free" or "unscented." Unlisted fragrance chemicals may trigger symptoms of asthma, allergies, and excruciating headaches. Asthma in youngsters can be exacerbated and exacerbated by perfume. It is the second most frequent reason why people have allergies.

Perfumes interact with the skin’s herbal oils and temperature, causing moderate versions in scent from person to individual. The evaporation charge of different fragrant molecules creates a dynamic heady scent profile that evolves through the years, making perfumery each a sensory and chemical art. The awareness of perfume oil determines the category of the product: perfumes and parfums include the highest concentration and ultimate the longest, at the same time as eau de parfum, eau de toilette and body mists include reducing amounts of perfume oil, ensuing in lighter and shorter-lasting scents. Modern perfumes may include stabilizers, antioxidants and preservatives to maintain the integrity of the fragrance at some stage in garage. Although perfumes offer sensory pleasure and private expression, a few people may experience sensitivity or hypersensitive reactions because of sure natural or artificial compounds. Despite this, perfumes remain an essential beauty product used globally for enhancing private identity, mood and social presence thru the controlled launch of complicated aromatic blends.

Health issues with Heavy Metals in Cosmetic Products

Women's health is at danger from heavy metals, which are frequently included in cosmetics. These metals build up in the body over time, causing a number of health problems, including cancer, disorders of the reproductive and developmental systems, neurological disorders, cardiovascular, skeletal, blood, immune system, kidney, renal problems, headaches, nausea, vomiting, diarrhoea, lung damage, contact dermatitis, and brittle hair loss. While some heavy metals are respiratory poisons, others are hormone disruptors. These metals can be absorbed through damaged skin or consumed and enter the body.

Naturally occurring in the environment, cadmium enters the body through the skin and is deposited in the kidney and liver. The International Agency for the Control of Cancer (IARC) has determined that it and its

components are carcinogenic to humans. Prolonged exposure to high amounts of cadmium can result in kidney damage, bone deformities, and simple bone breaking. It can also induce severe stomach discomfort, vomiting, and diarrhoea.

Lipsticks may contain lead because of tainted pigments or raw ingredients. Lead comes into touch with the skin every day, and part of it is absorbed. Increased blood-lead levels in women and children have been connected to the use of leaded eye powders such as Kohl and Surma.

Heavy metals in cosmetic products pose a significant health risk because they can accumulate in the body and disrupt normal biological processes. Cosmetics such as lipsticks, eyeshadows, skin bleaching creams, hair dyes and traditional products such as kum kum or kajal may contain heavy metals either intentionally added for coluor and texture or inadvertently introduced as contaminants during production. Lead is one of the metals of greatest concern; It can be absorbed through the skin or accidentally swallowed from lip products, causing neurological problems, cognitive impairment, behaivioral changes and developmental problems in children. Mercury, commonly found in some skin lightening creams, interferes with melanin production, but also penetrates the skin and reaches the blood, resulting in kidney damage, nervous system disorders, tremors, memory loss and skin rashes. Long-term exposure to mercury during pregnancy can also affect fetal development. Cadmium, used in coluor cosmetics, accumulates in the body over time and can cause bone dissolution, kidney failure and respiratory problems. Arsenic contamination in herbal or traditional cosmetics has been linked to skin lesions, pigment disorders, immune suppression and an increased risk of skin cancer and internal cancer.

These heavy metals show toxic effects because they bind strongly to proteins and enzymes, disrupt metabolic pathways, damage cellular structures and cause oxidative stress. Even low-level, long-term exposure is harmful because the body cannot effectively eliminate many heavy metals, leading to bioaccumulation. Chronic use of contaminated cosmetics increases the total toxic burden, leading to long-term health consequences such as hormonal imbalance, reproductive problems, etc.

CONCLUSION

Toxic compounds included in cosmetic goods can be harmful to one's health and have long- lasting negative consequences. To prevent harm to human health, they should be more stringent when introducing new dangerous compounds into cosmetic formulations, even with the complexity of global regulatory and quality control structures. A global cosmeto-vigilance plan is required to enhance the production, promotion, and use of cosmetics. By disseminating knowledge about the safety of cosmetics and their components, this public health approach keeps possible hazards from developing into serious public health problems.

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