



General Surgery

ASSESS THE PREVALENCE OF COSMETIC INDUCED DERMATITIS AND ITS IMPACT ON THE QUALITY OF LIFE AMONG UNIVERSITY STUDENTS.

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KEYWORDS :

INTRODUCTION

Cosmetics are described as "articles for beautification, cleansing, or altering physical appearance" by the US Food and Drug Administration (FDA). Cosmetics have become a major component of daily life for people of all generations. These are materials of chemical or natural origin that are intended for topical application on the skin in the form of creams and lotions. Our skin is exposed to the outer environment and cosmetics; it is susceptible to wear and tear (1). This study primarily focuses on cosmetic compounds and their dermatological side effects. The global cosmetics market is growing at an alarming rate, with products made by various companies and of varying quality. The trend in this particular market could be a result of the customers' social or physiological needs. Cosmetics appear to be associated with both men and women who more concerned about their self-image especially in this era of social media.

Skin products such as, moisturizers, shampoos, deodorants, make-up colognes, and other cosmetics are becoming common in our everyday grooming routines. Although cosmetics might help us feel more beautiful, attractive and confident, they can also cause undesirable side effects such as eye and skin inflammation, skin irritation, rashes, acne, hypopigmentation or hyperpigmentation, pruritus, scalp lesions, hair loss, nail bed laxity, and mouth irritation. These symptoms occur due to some components in cosmetics which can function as antigens or compounds that induce allergic reactions (2). With the immediate short term positive effects of cosmetics, the long term damage is usually ignored. These products are considered to be tolerable and safe to a reasonable extent. Therefore, more focus has been placed in recent years on testing and monitoring potential negative effects of cosmetics. There is a certain health risk associated with using certain chemicals that are found in cosmetics which ranges from a minor case of hypersensitivity to a serious case of anaphylaxis or even a fatal intoxication. (1) These reactions might occur right away or after repeatedly using cosmetics. The most frequently reported negative effects associated are with prolonged exposure to heavy makeup were headache, light-headedness, fatigue, and nausea (3).

Irritant dermatitis and allergic contact dermatitis are two possible responses to cosmetic irritants. Irritant dermatitis is more frequent than allergic contact dermatitis. It occurs when an irritating or abrasive chemical causes skin injury. Irritant contact dermatitis typically begins with pruritic, scaly, erythematous, lesions, but it can progress to blisters that bleed. Allergic contact dermatitis develops when a person is allergic to a specific component in a product. (3).

According to research, up to 10% of the population have experienced a skin problem due to cosmetic use at some point in their lives (1). Cosmetic preparations are considered as substrates for the survival and development of a wide range of microorganisms because they include nutrients that promote microorganism growth, such as lipids, polysaccharides, alcohol, proteins, amino acids, glycosides, steroids, peptides, and vitamins.

Cosmetovigilance is a public health monitoring program for cosmetics with public health goals. Manufacturers, healthcare professionals, and consumers are urged to report cosmetics-related adverse drug reactions (ADRs) to the FDA or Health Canada in the US and Canada, respectively. While in the European Union, Post Launch Monitoring and Colipa guidelines aimed to harmonize the causality assessment of

negative effects of cosmetic products. The World Health Organization (WHO) defines essential public health functions (EPHF). The one of the EBHFs is health protection, which involves risk assessment by public health authorities to lessen exposure to health risks and to safeguard the public by guaranteeing environmental and toxicological safety. One of the areas covered by the legal and regulatory framework for health protection and risk assessment is consumer product safety.

Significance of the study

The use of cosmetic products and the variety of chemical substances used in their production are increasing throughout the world. The health risks associated with the cosmetics use are currently a prevalent public health issue. Chemical contaminant exposures contribute to the emergence of non-communicable diseases (4). In the quest for perpetual youth, the potential health risks of cosmetic products are ignored. Service regulation and risk assessment for public health could benefit from continuous monitoring of human data regarding cosmetic exposures and the health outcomes associated with them. Additionally, providing such information will aid in drawing in customers who are more vulnerable to the harmful effects of chemicals found in cosmetic products. There are insufficient studies on the pattern of cosmetic use and cosmetic related adverse reaction. Therefore, the purpose of this study was to estimate the point prevalence of cosmetic use among university students and to identify the factors that influence it as well as potential adverse effects.

MATERIAL AND METHODS

This survey based cross sectional study was conducted in Adesh University in the Department of Dermatology of Adesh Hospital, Bathinda after procuring approval from the Ethics Committee of Biomedical and Health Research, Adesh University. A written consent in Hindi/Punjabi/English known to the university students was taken before the study was conducted. The data was collected through a google form from the students who were exposed to cosmetic/ hair products in the past and experienced cosmetic induced dermatitis. The study was conducted for a period of six months and a total of 620 male and female participants according to selection criteria were included in the study. The selection of the study participants was done based on inclusion and exclusion criteria. Students of age above 18 years were included and the rest were excluded.

Method of data collection

The data was collected using a pre-designed Questionnaire tool. It was used to evaluate the cosmetic induced dermatitis QoL with 22 questions. Questions were based on use of cosmetic products on the students' daily lives and the quality of cosmetic induced dermatitis. The purpose of the study, the contents of the data collection form, and the questionnaire was clearly explained to the selected subjects and they were ensured about confidentiality of their data. A written consent form was obtained from the subjects who were willing to participate in the study. 620 students who reported using skin and hair care products were enrolled in this study. All the data was recorded and analyzed by using IBM SPSS version 22.0 ® where Chi-square test was applied with p-value < 0.05.

RESULT

The frequency and percentage were used to evaluate the prevalence and quality of life of the cosmetic induced dermatitis and Chi-square test was used to find out the association between quality of life and

others factors. The confidence interval of study has selected as 95% with cut off interval ($p=0.05$) as significant level.

Aim & Objectives

- To assess prevalence of cosmetics induced dermatitis in university students.
- To know the factors which enforce students to use cosmetics.
- To determine the impact of cosmetic induced skin reactions on their quality of life.

According to the study the prevalence of cosmetic induced skin and hair damage was 83%. Females are more likely than male to develop this cosmetic induced dermatitis because most women use makeup to look good on a daily basis.

Demographic Details

Age	Male	Female	Total	Percentage
18-20	40	74	114	18.4
21-23	68	160	228	36.8
24-26	59	157	216	34.8
27-30	49	13	62	10
Total	216	404	620	
Normal skin	111	66	177	28.5
Oily Skin	102	123	225	36.3
Dry Skin	98	120	218	35.2

All the 620 students have used skin or hair care products in their lives. 520 (83.9%) students have faced cosmetic induced reactions and 100 (16.1%) students did not face any cosmetic induced reactions.

Skin related symptoms	Frequency	Percent age	Hair related symptoms	Frequency	Percent age
Rashes (Skin lesions)	231	44.4	Hair loss	236	45.4
Pimples (Acne)	58	11.2	Gray hair	42	8.1
Redness (Erythema)	93	17.9	Trichoptilosis	23	4.4
Swelling (Edema)	3	0.6	Hair dryness	146	28.1
Itching (Pruritus)	49	9.4	Hair breakage	73	14
Pigmentation	86	16.5			
Skin products commonly used	Frequency	Percent age	Hair products commonly used	Frequency	Percent age
Face cream	183	35.2	Hair colour	98	18.8
Soap	26	5	Hair straightening cream	112	21.5
Facewash	77	14.8	Hair gel	31	6
Body powder	5	1	Hair wax	26	5
Foundation	62	11.9	Hair spray	22	4.2
Bleach	154	29.6	Keratin treatment	69	13.3
Others	13	2.5	shampoo	162	31.2

Out of 520 students 117(22.5%) students selected products recommended by their friends or relatives, 90(17.3%) selected product based on the brand, 34(6.5%) according to the recommendations made by their dermatologist, 139(18.5%) selected based on the pricing of product, 96(18.5%) students selected based on the product ingredient and 44(8.5%) students said they selected the product on the basis of advertisement.

29(5.6%) students use these products rarely, 117(22.5%) frequently, 94(18.1%) very frequently, and 280(53.8%) students daily. According to time duration since students experiencing problems due to cosmetic products categorised as 3months, 6months, 9months and 1 year. 231(44.4%) started experiencing problems due to cosmetics in 3months, 221(42.5%) students said they faced the problems in 6months, 51(9.8%) students in 9months and 17(3.3%) students said they started experiencing problems since the past 1 year.

399(76.7%) students did not visited dermatologist for this problem whereas only 121 (23.3%) students said they consulted a dermatologist for their problems. only 122(23.5%) students went of treatment, In which 101(19.4%) students said they had successful therapy while 21(4%) said treatment failed. 120 (23.1%) said their cosmetic induced problems didn't bother them, while 187 (36%) said that they felt low confidence because of their skin issue, 2 (0.4%) said they felt neglected, 33 (6.3%) said they felt uneasy in public because of their

skin issue, 137 (26.3%) said they were pessimistic, and 41 (7.5%) said they avoided social situations. When students were asked if they ever felt self-conscious because of skin or hair issues. Out of 520 students, 130 (25%) said not at all while 300(57.7%) said sometimes and 90(17.3%) said very much. When asked about how their skin affects their social interactions, 170(32.7%) students said not at all while 350(67.3%) students said sometimes. When this question asked to students have they ever faced any social stigma due to this skin problem out of 520 students, 221(42.5%) said yes while 299(57.5%) students said no.

When students were asked how much money they spent each month on their skin and hair care, 70(13.5%) students answered less than 500/- where as 330(63.5%) students said between 500-2000/- and 120(23.1%) students said more than 2000/-. When students was asked about negative comments faced due to skin issues, out of 520 students, 360(69.2%) students said yes while only 160(30.8%) students said no for this.

Students reveals that when asked if they had ever had psychological issues as a result of skin or hair issues, out of 520 students, 300 (57.7%) said they had experienced stress, 73 (14%) said they had suffered from depression, and only 147 (28.3%) said they had not faced any psychological issues.

Correlation between cosmetic Induced skin or hair damage and psychological issues experienced by student. Out of 620 students, 520 had cosmetic-induced dermatitis, and 100 had no psychological effects from skin problems despite not reporting any reactions to cosmetic products. While out of 520 students, 300 experienced severe stress and 73 experienced depressions as a result of a skin condition. therefore, the correlation between cosmetic-induced skin and hair damage and the psychological impact on students is therefore significant.

Variable	Cosmetic Induced skin or hair damage		Total
Psychological issues experienced	No	Yes	
	No	100	47
	Stress	0	300
Total	Depression	0	73
		100	420
520			

Statistical Analysis		
2	p value	Significance
314.15	0.000	Highly Significant

Correlation between psychological issues experienced and Negative comments from society. 373 experienced psychological problems as a result of cosmetic-induced dermatitis, and 360 of these individuals were impacted by cruel and humorous comments from society, therefore the correlation between negative comments from society and the psychological impact on students is highly significant.

Variable	Negative comments from society		Total
Psychological issues experienced	No	Yes	
	No	147	0
	Stress	0	300
Total	Depression	13	60
		160	360
520			

Statistical Analysis		
2	p value	Significance
469.8	0.000	Highly Significant

There is a significant association between cosmetic Induced skin or hair damage and psychological issues experienced by student (p value-0.000). Correlation between psychological issues experienced and Negative comments from society (p value-0.000).

DISCUSSION

The study was conducted for about 6 months and the data was collected from 620 respondents through questionnaires. To achieve the objectives of the study, the data was expressed as mean $\pm$ SD Frequency and the percentage was considered statistically significant. All the data was analyzed using IBM SPSS version 22.0.

The prevalence of cosmetic induced skin and hair damage in this study was 83.9%. Our prevalence is 83.9% when compared it with US readings the prevalence was 30%. This could likely be due to the limited societal awareness about the harmful effects of cosmetics in India compared to other developed countries. People in developed countries are more aware and show concern for data and prevalence of cosmetics induced dermatitis. According to findings of this study,

women (65.2%) are more likely than men (34.8%) to experience cosmetic-induced skin and hair damage. In the studies conducted in US the prevalence of cosmetic induced dermatitis in women was 20% and in men it was 10%. In another study, the prevalence of CID in women was 65.2% and in men it was 34.8%. The prevalence of CID is more in women compared to men because men do not use cosmetic that often in India. Women show more willingness to use cosmetics for better looks compared to men therefore, these are the causes the prevalence of CID in women has been increasing.

There is a social stigma related to women's appearance in every part of the world. In particular when we address the prevalence of CID in these studies, we see a lot of social stigmas associated with fair complexion and good looks which pushes especially women to use more cosmetic without properly researching about which one is better suited for their skin. Advertisements on television or social media with popular celebrities promoting a particular skin or hair product, impacts how society behaves in terms of prevalence of cosmetic use. Most of the people are unaware about that their CID can be cured or catered by specialist or a dermatologist is another issue that needs to be addressed. It is noted in this study that the fear of expensive prescriptions by the dermatologists pushes people to consult with their family member or a friend for recommendation of popular products instead of consulting with dermatologist, which is not the best way to addressing these issues.

More than 83% of the respondents used at least one kind of cosmetic and reported having one or more dermatitis-related symptoms as a result of using cosmetics. The subjects experienced hair damage complained about hair loss (45.4%), hair dryness (28.1%), hair breakage (14.0%), gray hair (8.1%) and split ends (4.4%). Nearly 85% of the participants enrolled experienced cosmetic induced skin damage with symptoms like rashes (44.5%), redness (17.9%), pigmentation (16.5%), pimples (11.2%), itching (9.4%), swelling (6%). Major factors influencing the selection of products for skin or hair care are, pricing (26.7%), friends' recommendation (22.5%), product ingredients (18.5%), and brand (17.3%). Maximum participants experienced skin and hair related problem from three to six months, out of total participants 23.3% consulted dermatologist in which 19.4% achieved success in their therapy, while remaining 76.7% did not visited dermatologist for their problem. The majority of participants reported that their skin issues affected their daily lives and made them feel under confident and pessimistic, while only 23% of participants said they didn't care. 75% of the participants felt self-conscious while remaining 25% does not felt self-conscious about the problems. Stress and depression were seen in the participants with percentage of 57.7% and 14% respectively. 31.7% of the total participants consumed over the counter products for their problem.

CONCLUSION

The study has concluded that, according to data students experiencing cosmetics induced skin and hair damage in the Adesh University reported poor quality of life. Out of all the students involved in this study, the quality of life of women was more negatively affected than that of men because they are more concerned about their appearance. This study found that prevalence of cosmetic induced dermatitis in Adesh university was 83.9%. The majority of the students used at least one type of cosmetic and had dermatitis brought on by using cosmetics. Common symptoms of dermatitis triggered on by cosmetics in students included skin rash, pimple, pigmentation and itching. Facewash, face cream, shampoo for coloured hair, cream for straightening hair, and hair wax were all common uses for cosmetics. In this study QoL of students measured on the basis of various scales, such as, students' mental, physical and monetary health was impacted by the social stigma associated with skin and hair damage, the cost of skin and hair care, and both critical and humorous comments made by others.

Recommendation

- It is essential that we develop educational initiatives to educate women as well as men about potential hazards of using cosmetics for an extended period of time.
- It is better to psychologically tackle this issue and encourage everyone to value their inner beauty than to spend money on cosmetics in order to look confident.
- To use cosmetics cautiously.

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