

**RESEARCH ARTICLE****ASSESSMENT OF COSMETIC USE AND ITS SKIN REACTION AMONG POST GRADUATE STUDENTS IN UNIVERSITY OF GONDAR, GONDAR, NORTH EAST ETHIOPIA****GASHAW BINEGA^{1*}, GOBEZIE TEMESEGEN TELEGNE², BELAYNEH KEFALE GELAW², AMSALU DEGU DEFERSHA²**¹Lecturer in department of pharmacy, university of Gondar²College of medicine and health science, department of pharmacy, Ambo university*Corresponding author e-mail: Gob.ju2006@gmail.com**Abstract**

Background: Cosmetics are pharmaceutical products, used for cosmetic and dermatological purposes. Though these agents are used for different purposes, they can cause skin reaction. The objectives of this study are to assess prevalence of cosmetic use and its skin reaction among post graduate students of university of Gondar. **Methods:** cross sectional study design and structured questionnaire were used. Descriptive analysis was employed. The results were presented in tables. **Result and discussion:** Eighty five percent of the respondents were using at least one type of cosmetics. Skin rash was the predominant sign associated with cosmetic induced skin reactions. Mostly, cosmetics were used as moisturizing agent and for deodorant purpose. According to the prevalence rate of each cosmetic induced dermatitis: skin rash was the leading problem (15.7%). Most of the students (78%) were young (between 10 -29 years) while in India there were 85.12% (Albert Kligman, 1980). In studies conducted in US, the prevalence of cosmetics induced dermatitis in women was 20% and Men 10%. On the other hand, the result of this study showed the prevalence of cosmetics induced dermatitis in women were 30.16% and in men 69.83% (Fern P, 1988).

Keywords: cosmetics, contact dermatitis, allergy, Gondar.**Introduction**

Cosmetic is defined as products of Chemical or natural origin specifically for topical application on the skin in the form of creams and lotions. Skin is the largest organ of our body, structurally; the skin consists at two principal parts: the outer (epidermis) and the inner (dermises). The epidermis is attached to the inner, thicker, and connective tissue called the dermis. The skin performs many vital functions and has a complex structure in which most people are unaware of. Our skin regulates of body temperature, protects (barrier), sense, excretes, blood reservoir and synthesise vitamin D. since our skin is exposed to the external environment, it has the tendency to be affected by natural and man made hazardous and harmful practice (1).

A cosmetic is defined as products of chemical or natural origin specifically for topical application on the skin in the form of creams and lotions. This study mainly focused on chemicals that are used for cosmetic purpose and their dermatological effect. Products such as moisturizers, shampoos, deodorants, make up colognes and other cosmetics are becoming part of our daily grooming habits. Although cosmetics can help us feel more beautiful, but they can cause skin irritation or allergic reaction due to certain ingredients used in cosmetics, such as fragrances and preservative, can act as antigens, substances that trigger allergic reactions (2).

There are two reactions that might occur following exposure to cosmetic irritant, contact dermatitis and allergic contact dermatitis. Contact dermatitis is a condition marked by areas of inflammation (redness, itching & swelling). Contact dermatitis: - is more common than allergic contact dermatitis. It develops when an irritating or harsh substance actually damages the skin. Irritant contact dermatitis usually begins by forming patches of itchy, scaly skin or red rash, but can develop in to blisters that ooze especially. Allergic contact dermatitis occurs in people who are allergic to a specific ingredient in a product. The symptoms include redness, swelling, itching, and hives-like breakouts. In some cases the skin becomes red and raw. The face, hips, eyes, ears, and neck are the most common sites for cosmetic allergies, although reactions may appear anywhere on the body (3).

Clinical symptoms associated with reactions to cosmetics include irritation, allergic contact dermatitis, photo toxic and photo allergic reactions, acne type reactions, malaria, granulomatous, pigmentary changes, erythemas, urticaria, sublingual hyperkeratosis, onycholysis and hair damage.(4)

Statement of Problem

Studies suggest that up to 10% of the population will have some types of skin reaction to a cosmetic over the course of a life time. With irritant contact dermatitis, the skin breaks down when it comes in to contact with harsh substances. Reactions to cosmetics occur more often in women, because women tend to use cosmetics more frequently than men.

Cosmetic products are recognized to be substrates for the survival and development of large variety of micro organisms, since they possess nutrients that facilitate the growth of micro organisms such as lipids, polysaccharides, alcohol, proteins, amino acids, glycoside, steroids, peptides, and vitamins (5).

Cosmetics cause health related problems in women who use chemical relaxers to straighten their hair. Manufacturers need not list all of the ingredients they use in cosmetics (as considered as trade secrets) (6).

In reality, most people are exposed to cosmetics. However, the suspected rate should not be evaluated carefully and scientifically (7).

Cosmetic products are recognized to be substrates for the survival and development of a large variety of micro organisms, since they possess some of the nutrients that facilitate growth such as lipids, polysaccharides, Alcohol, proteins, Amino acids, glycosides, steroids, peptides, and vitamins (8). The magnitude of problems of cosmetic associated allergies rose from:-

Most cosmetics that are also drugs are over the counter drugs.

There is no regulation that requires cosmetic firms to register with the FDA or to tell the agency about their existence in the given country.

There is no regulation requiring cosmetic manufacturers to do any long range testing of ingredients for safety before the products are marketed.

There is no regulation requiring cosmetic manufacturers to test ingredients for effectiveness before being included in products that are marketed.

There is no clear regulation requiring cosmetic manufacturers to release their chemical formulas to the FDA.

There is no regulation requiring cosmetic manufacturers to report adverse reactions to their products to the FDA. (8)

Objective

General Objective

To know the prevalence of cosmetics induced dermatitis in GCMHS post graduate students in 01-30 June 2013.

Specific Objectives

To assess prevalence of cosmetics induced dermatitis

To know factors which enforce students to use cosmetics

Materials and Methods

Study Area and Period

The study was done in Gondar, which is 748 Kms from the capital of Ethiopia. The study was carried out in 01-30 June, 2013.

Study Design

Cross sectional study technique was used.

Populations**Source and study Population**

Regular graduating students of GCMHS

Study Population

Regular graduating students of GCMHS.

Inclusion and exclusion criteria**Inclusion criteria**

Regular graduating students.

Exclusion criteria

Summer students

Sampling Technique and Sample Size Determination

Convenient sampling was used to select study participants. The total number of participants in this study was 655 regular graduating students, of which 533 were males and 122 were females who were involved in various departments for graduate study.

1. The level of confidence 95%
2. The marginal error tolerated is 5%
3. N= the number of regular graduating students 655

Formulas to set the sample size

$$n = \frac{Z^2 p (1-p)}{w^2}$$

$$n = \frac{(1.96)^2 (0.5)^2}{(0.05)^2}$$

$$n = 384$$

Since the source population was < 10,000, reduction formula was used.

$$n_f = 242$$

Where:-

Z= the value obtained from table with a value of 0.05, which is 1.96

W= the marginal error (5%)

10% for pretest

n= initial sample size

5% for contingency

N= source population

n_f= final sample size after correction

The total number of study participants was 278 graduating students.

Study Variables**Dependent Variables**

Prevalence of cosmetic use

Independent variables

Age

Marital status

Sex

Religion

Year of study

Pretest

Pretest was conducted to evaluate the clarity of questions on 10% of the study population, who are not included in the actual sample of the study.

Data Collection procedures

Structured questionnaire having both open and closed ended questions were used and pretested for correction. It was distributed for regular graduating students of university of Gondar. The data collection was done by fourth year pharmacy students.

Data Analysis and Interpretation

Data was collected by using self administrative questionnaire. It was analyzed, interpreted and summarized in to table.

Ethical Consideration

An official permission letter was obtained from Gondar University ethical research review board. Verbal consent was obtained. Brief and clear information was provided to the respondents about the aim of the study and its common benefits. Special care for all ethical principle like freedom, autonomy, justice, veracity, comfort, privacy and other sensitive issues regarding culture and religion were considered. No one was imposed to tell his name. Any practice that made our respondents feel discomfort was avoided.

Operational Definitions

Cosmetics: - are products of chemical or natural origin specifically for topical application on the skin in the form of creams, powders and lotions.

Dermatitis: - is an inflammation of the skin.

Moisturizes and creams: - emollients applied to "dry" skin "aging" skin or "ashy" skin. "**Hypo allergenic**" This simply means that the manufacturer thinks that the product has fewer allergens than most cosmetics.

Preservatives: - additives used to prevent microbial growth.

Provocative agents: - agents which aggravate skin reactions.

Post graduate students are graduate students.

Results

A total of 242 respondents were involved. Of which, 69.8 % (169) were males.

More than eighty five percent of the respondents were using at least one type of cosmetics and experience either of one of the symptoms of cosmetics induced dermatitis. 15.7 % (38) had skin rash, 14.8 % (36) had inflammation, 7.8 % (19) had itching, and 7.4% had skin discoloration. The prevalence of cosmetics induced dermatitis in females was 30.16% while in male were 69.83%.

During the study period the extent of different cosmetics induced dermatitis was identified. Skin rash was the predominant problem.

Cosmetics were used for moisturizing (50%), deodorant purpose (30%), attraction (5%), and for both moisturizing and deodorant purpose (15%). All cosmetics used by students were applied topically. The average duration of cosmetic use was 3 years period.

Discussion

The prevalence of cosmetic induced dermatitis in this study was high (85.12%) when compared with findings of US (30%), India (78%) (4). this could be probably because of our society had no detail awareness about harmful effect of cosmetic products, where as the people of advanced countries had good information on harmful effects of cosmetics.

According to the prevalence rate of each cosmetic induced dermatitis: skin rash was the leading problem (15.7%). Most of the students (78%) were young (between 10 -29 years) while in India there were 85.12% (5).

In studies conducted in US, the prevalence of cosmetics induced dermatitis in women was 20% and Men 10%. On the other hand, the result of this study showed the prevalence of cosmetics induced dermatitis in women were 30.16% and in men 69.83% (Fern P, 1988). The prevalence rates in female were reduced since they are small in number from the source population. But one can suggests that, prevalence of cosmetics induced dermatitis was increasing from time to time.

Strength and Limitation

Strength

Dermatologist was consulted.

Limitation

Shortage of literatures done on this topic.

The source population for our study was mostly males.

Conclusion

Most of the students used at least one type of cosmetics and experience either of one of the symptoms of cosmetics induced dermatitis. Skin rash and itching were the common signs experienced by students with cosmetics induced dermatitis. Cosmetics were commonly used for moisturization and deodorant purpose.

Recommendation

Based on the result the following recommendations were forwarded:

FMHACA: to prepare cosmetic act.

Users: to use cosmetics cautiously.

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Table 1 Socio –demographic characteristics of regular graduating GCMHS students June, 2013.

Tomorrow			
Characteristics		Number	Percent(%)
Age group	16-20	46	26.45
	21-25	139	57.45
	26-30	39	16.12
Sex	Male	169	69.83
	Female	73	30.16
Religion	Orthodox	148	61.16
	Muslim	60	24.79
	Protestant	24	9.9
	Others	10	4.13
Ethnicity	Tigre	8	3.30
	Oromo	60	24.79
	Amhrara	170	70.25
	Others	4	1.65
Marital status	Single	229	94.63
	Married	12	4.95
	Divorced	-	-
	Widowed	1	0.41

Table 2 the extent of cosmetics induced dermatitis in GCMHS regular graduating students, June, 2013, Gondar.

Category	Extent		
	Symptoms	Number	%
Regular students	Skin rash	38	15.7
	Inflammation	36	14.88
	Itching	19	7.85
	Skin discoloration	18	7.44
	Others	95	39.26
	Total	206	85.12

Competing of interest: None declared

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