



Assessment of Awareness about Adverse Health Effects of Cosmetics among General Population

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ABSTRACT

Cosmetics are articles meant to be rubbed, poured, sprinkled, sprayed, introduced into or otherwise applied to the human body for cleansing, beautifying, promoting attractiveness or altering the appearance. There is a need to assess the cosmetic use among general public and also to measure awareness level of public regarding adverse effect of cosmetics. A community-based cross-sectional study was conducted to assess cosmetic use and awareness of its adverse effects among the general public. A well-designed questionnaire was used to collect data on age, sex, address, educational status, marital status, occupation, religion, types of cosmetics used, duration and frequency of use, purpose of use, and sensitivity testing preferences. The study involved 300 participants, with a majority aged 21-30 years of age. Women were the predominant users of cosmetics, mainly for beautification (42%), followed by cleansing and correcting body odour (29.3%). Facial cosmetics were most used (33%), followed by skin lightening products (20%), and perfumes/deodorants (19.3%). Adverse effects included skin rashes (35%) and eye irritation (14.7%). Despite the recommendation to test cosmetics for adverse effects, only 16.7% of participants practiced this. Furthermore, 53.75% believed cosmetic products should be disinfected regularly to prevent bacterial and viral contamination. Our study highlights the need for creating awareness for the safe use of cosmetics and regular testing for challenges and ADRs.

KEYWORDS: Appearance, Awareness, Cosmetics, Labelling, Utilization

INTRODUCTION

Cosmetics are articles meant to be rubbed, poured, sprinkled, sprayed, introduced into or otherwise applied to the human body for cleansing, beautifying, promoting attractiveness or altering the appearance. These include skin creams, lotions, perfumes, makeups, hair preparations, deodorants and others. Cosmetic products have become everybody's daily grooming habit, particularly the fashion following groups, young females who dwell in institutions. (Girish K et.al, 2022)

Cosmetic is the primary aspect of the human daily lifestyle in all generations and is spread among the people for numerous uses and purposes. The majority of cosmetic consumers are focused on short-term outcomes of the cosmetics on appearance rather than the long-term consequences on the whole body. It is believed that such products have reasonable degree of safety and tolerability. (Luca JM et.al, 2020)

The concurrent on-site analysis of various substances from a single sample, called multiplexed point of care testing has recently become particularly relevant for pathological or toxicological samples being quantified in vitro. Consequently, the technological advances in clinical sciences will help to identify ingredients in cosmetic preparations (Al-Ghamdi et.al, 2020).

In the western world, most countries have laws and regulations on cosmetic safety and labelling; however, in developing countries, including Ethiopia, cosmetics do not need marketing authorization unlike for medicinal the products. The drug regulatory system pays little attention to protecting the public against the harmful effects emanating from these products, as is also true in many other of countries. In addition, some consumers did not read labels in order to identify the ingredients and other useful information on the cosmetic products before deciding to use them (Bilal A et.al, 2017).

Although cosmetics can help consumers feel more beautiful, yet they can also be associated with various untoward effects (adverse events) including the following: sensitivities to specific ingredients or product formulations, microbial contamination, misuse due to inadequate labelling, colour additive violations, and addition of certain ingredients which are unsafe or hazardous. When



developing a cosmetic product, maintaining the stability of the product is of utmost importance, because it determines the period of time during which the product keep its physical, chemical, microbiological, and toxicological properties within established limits. If there is any change in the temperature, humidity. and luminosity of the product, then the ingredients may undergo chemical degradation and the cosmetic suffers from physical and physiochemical changes, consequently interfering in micro biological and toxicological quality (Serika J et.al, 2020).

There is a need to assess the cosmetic use among general public and also to measure awareness level of public regarding adverse effect of cosmetics. In this context the department of pharmacy practice as decided to carried out study entitled “**Assessment of Awareness About Adverse Health Effects of Cosmetics Among General Population.**” from August 2023 to October 2023.

MATERIALS AND METHODS

2.1. Study design and sample size

A community based cross-sectional survey was conducted among 300 participants for a period of 6 months. The participants who were willing to give consent and those were capable of giving information regarding the cosmetic use within the family were included in the study and those who were not willing to give consent were excluded from the study. The data was collected by using validated questionnaire.

Sample size calculation

$$n = z^2 * p (1-p)/d^2$$

$$z = 1.95/95\%$$

$$p = 0.4$$

$$d = 0.05$$

$$n = (1.95)^2 * 0.4 (1-0.5)/(0.05)^2$$

$$= 3.8025 * 0.4 * 0.5/0.0025$$

$$= 304.2 (300)$$

2.2. Ethical approval

Permission was obtained from Institutional Ethics Committee of Navodaya Medical College Hospital and Research Centre. The study was approved by the committee by issuing ethical clearance certificate.

2.3. Development of Questionnaire

A well-designed questionnaire-based interview form was developed and used for this study. The questionnaire form contains 3 sections, section A includes demographics of subjects, section B includes Knowledge regarding adverse reactions of cosmetics, section C includes Utilization pattern of cosmetics. The provisions to enter the details such as age, sex, address, educational status, marital status, Occupation, Religion, types of cosmetic use duration of cosmetic use, frequency of using cosmetics, Purpose of using cosmetics and preferring any sensitivity test also included in the questionnaire form.

2.4. Questionnaire distribution, collection and analysis of the data

Project team approached study participants and explained about the study purpose. Written consents were taken. Data were collected by distributing questionnaire. We adopted self-administered questionnaire for educated participants and interviewer administered questionnaire for participants who are aged, illiterate etc. Both open ended and close ended questions were asked for clarification or confirmation of data provided by the participants. We collected information regarding the knowledge about way of procuring cosmetics such as Types of cosmetics use, purpose of cosmetics, checking the expiry date of cosmetics before using, types of adverse reactions experienced, frequency of using cosmetics etc. We also gave them a small awareness regarding the safe way of using cosmetic products. The data collected were entered into Microsoft excel spreadsheet. Data were collected checked for completeness and consistency. Descriptive statistics like percentage and means were used to summarize the characteristics of a data.



RESULTS AND DISCUSSION

A community based cross-sectional study was carried out in 300 participants. It was found that majority of the users in our study were between 21-30 years with a mean age of 24.995 which is shown in table 1. It is evident that young people were more inclined to use cosmetics to improve their appearance.

Table 1: Age distribution of participants (n=300)

Age (in years)	Number of participants	Percentage (%)
18-20	22	7.33
21-30	229	76.33
31-40	38	12.66
41-50	11	3.66
Mean age	24.995	

As depicted in table 2, 42% of the participants were using cosmetics for the purpose of beautification followed by 29.3% for cleansing and correcting body odour and 27.7% of participants used cosmetics for skin lightening followed by 1% using perfumes and deodorants.

Table 2: Purpose of Cosmetic use (n=300)

Purpose of cosmetic use	Number of Participants	Percentage (%)
Beautification	126	42
Cleaning and correcting body odour	88	29.3
Protection	83	27.7
Enjoyment	03	1

Table 3 shows that 35% of the participants experienced skin rashes due to cosmetic use followed by eye irritation (14.7%). About 13.7% of participants complained of acne breakouts due to the use of cosmetics followed by 13.7% with lip reactions and 23% with hair damages. Testing of cosmetics prior to use is a recommended behaviour for all cosmetic consumers.

Table 3: Side effects experienced by the consumer (n=300)

Side effects	Number of participant	Percentage (%)
Skin rashes	105	35
Eye irritation	44	14.7
Acne breakouts	41	13.7
Lip reactions	41	13.7
Hair damage	69	23

When asked about the need for disinfecting cosmetics, 53.75 participants opined that cosmetic products should be disinfected regularly. This is because bacteria and viruses can line on surfaces and transfer when you touch them. While invisible to the eye, they will be wiped back on to the skin with the next use which is shown in table 4.

Table 4: Attitudes of consumer regarding regular disinfectant cosmetics (n=300)

Cosmetic products should be disinfected regularly	Number of participants	Percentage (%)
Yes	161	53.7
No	139	46.3



Table 5: Reading of ingredients on product label (n=300)

Reading of ingredients on product label	Number of participants	Percentage (%)
Yes	275	91.7
No	25	8.3

91.7% of the participants had the habit of reading ingredients in the product label which was shown in table 5. This is because majority of participants in the study were literate.

Table 6: Natural cosmetic products are better than chemical ones (n=300)

Natural cosmetic products are better than chemical ones	Number of participants	Percentage (%)
Yes	282	94
No	08	06

94% of the participants responded that natural cosmetics are better than chemical ones. This was shown in table 6.

Table 7: Opinion on disinfection of cosmetic products (n=300)

Cosmetic products should be disinfected regularly	Number of participants	Percentage (%)
Yes	161	53.7
No	139	46.3

As shown in table 7, 53.75% participants said that cosmetic products should be disinfected regularly. This is because bacteria and viruses can line on surfaces and transfer when you touch them. While invisible to the eye, they will be wiped back on to the skin with the next use.

CONCLUSION

We found that women were predominant users of cosmetics, driven by concerns for physical attractiveness and beauty. Participants primarily use cosmetics for beautification, cleaning, odour correction, skin lightening, and as perfumes and deodorants. Notably, adverse effects such as skin rashes and eye irritations are common, under scoring the importance of testing cosmetics for adverse reactions before use. Regular disinfection of cosmetic products is also essential to prevent bacterial and viral contamination. Overall, there is a critical need for creating awareness and education for safe use of cosmetics and preventive measures to be taken to avoid its adverse effects.

REFERENCES

1. Girish K, Vasundara K, Jyothi R, Arunnair V. Knowledge and practice towards cosmetics and their adverse reactions among general population. *Asian J Pharm clin res* 2022;15(9):118-22.
2. Lucca JM, Joseph R, Hussain AI, AI-Maskeen SM, Alokaili ZA. An observational study on adverse reactions of cosmetics: The need of practice the cosmetovigilance system. *Saudi Pharm J* 2020; 28:746-53.
3. AI-Ghamdi HS, Abukhelaif AE, Croft M, Yusif M, AI-Ghamdi HA, mangi AA. Assessment of prevalence, awareness and practices regarding cosmetics harmful effects Saudi female university students of Albaha;Saudi Arabia. *J Pharm Res Int* 2020; 32:184- 94.
4. Bilal A I, Tilahun Z, Osman E D, M Anwar, S Muktar, F B Derbew. Cosmetic use relted adverse events and determinants among jigjiga town residents, Eastern Ethiopia. *J cosmet Dermatol* .2017;7:143-53.
5. Shiraz A, Rahaman M. Study on awareness about adverse health effects of cosmetics among females of different age groups. *J.mrd.sci.clin.res.* 2019;7(11):503-10.
6. Mehaire BG, Ambaye AS, Yohannes MT, Sefye A. A Cross-sectional study on assessment of cosmetics utilization and self-reported adverse reactions among Wollo university dessie campus female students, North East Ethiopia. *Eur J Pharm Med Res.* 2014;2(2):49-63.
7. Serika J, Sebastian J, Shastry V. Cosmetovigilance in a tertiary care hospital: a prospective observational study. *J Cosmet.Dermatol.* 2020; 20(3):804-11.



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Conflict of Interest Statement: All authors have nothing else to disclose.

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