Greenfort International Journal of Applied Medical Science
Abbreviated Key Title: Grn Int J Apl Med Sci
ISSN 3048-6904(P) | ISSN 2584-2420(O)
Journal homepage: https://gijams.in

Research Article DOI: 10.62046/gijams.2026.v04i03.013

Awareness, Attitudes, and Practices Related to Cosmetovigilance among Medical Interns and Postgraduates at a Tertiary Care Teaching Hospital

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Received: 28.12.2025 | Revised: 12.03.2026 | **Accepted:** 12.04.2026 | **Published:** 22.05.2026

Abstract: **Background:** Cosmetovigilance plays a crucial role in identifying, reporting, and preventing adverse events related to cosmetic products. However, awareness and practice of cosmetovigilance among healthcare professionals remain inadequately explored. **Objectives:** To assess and compare the knowledge, attitude, and practice (KAP) related to cosmetovigilance among interns and postgraduate students at a tertiary care teaching hospital. **Methods:** A prospective cross-sectional study was conducted from August to October 2025 at a tertiary care hospital. A total of 245 participants, comprising interns and postgraduate students aged 22 years and above, were enrolled after obtaining written informed consent. Data were collected using a structured questionnaire assessing knowledge, attitude, and practice related to cosmetovigilance. Associations between participant groups and KAP parameters were analyzed using the Chi-square test. **Results:** Interns demonstrated significantly higher knowledge regarding key aspects of cosmetovigilance, including awareness of cosmetic-related adverse effects, reporting mechanisms, headquarters of cosmetovigilance, and causality assessment methods ($P < 0.05$). Attitudes towards cosmetovigilance were largely comparable between the two groups, except for a significant difference regarding mandatory reporting of cosmetic-induced adverse events. Actual practice of cosmetovigilance was limited and similar among both groups; however, interns showed significantly greater interest in attending training and workshops related to cosmetovigilance ($P < 0.05$). **Conclusion:** The study highlights gaps in cosmetovigilance knowledge and practice among interns and postgraduate students, despite generally positive attitudes. Strengthening training programs and incorporating structured sensitization on cosmetovigilance may improve reporting practices and enhance patient safety.

Keywords: Cosmetovigilance, Pharmacovigilance, KAP, cosmetic products, attitude.

Citation: Akash Sinha *et al*. Awareness, Attitudes, and Practices Related to Cosmetovigilance among Medical Interns and Postgraduates at a Tertiary Care Teaching Hospital. Grn Int J Apl Med Sci, 2026 May-Jun 4(3): 204-209.

INTRODUCTION

The word cosmetic is taken from kosmeticos, a Greek word meaning to adorn. Materials used for beautification or enhancement of beauty have been in the category of cosmetics since the early days. People want to look beautiful and the concept of cosmetics is as old as humanity and history. The need to embellish one's own body to look beautiful has been an instinct in the human race ever since the Tribal Days [1].

Recently the spectrum of "- vigilance" broadened to include safety of herbal products and cosmetic products as well. Cosmetovigilance is an essential aspect of Pharmacovigilance, focusing on the detection, monitoring, and assessment of adverse effects related with the use of cosmetics [2]. Cosmetovigilance is a rapidly expanding area of research under pharmacovigilance in India. The term "cosmetovigilance" was coined in 1997, and it has been a growing trend since 2015 [3]. Cosmetovigilance, a term introduced to extend the concept of pharmacovigilance, pertains to the activities related to the collection, evaluation, and monitoring of adverse reactions resulting from the use of cosmetic products. While cosmetics are generally considered safe, their widespread use has led to an increasing number of reported adverse effects, including allergic reactions, dermatological issues, and systemic toxicity [4,5]. Despite the significance of these adverse events, underreporting remains a substantial challenge, primarily due to a lack of awareness among healthcare professionals [6].

Medical interns and postgraduates, as integral components of the healthcare system, play a crucial role in identifying and reporting adverse cosmetic reactions. However, studies have consistently shown that their knowledge and practice regarding cosmetovigilance remain limited. Awareness levels among medical trainees are often low, and active reporting practices are infrequent, despite a generally positive attitude towards the concept.

These findings underscore the necessity for integrating cosmetovigilance into medical curricula to enhance awareness and reporting practices. Educational interventions, such as workshops and training sessions, are essential to equip healthcare professionals with the knowledge and skills required to identify and report adverse cosmetic reactions effectively [7]. By fostering a culture of vigilance, the safety and well-being of cosmetic product users can be significantly improved.

Hence, this KAP (Knowledge, Attitude, and Practice) study is being undertaken to assess the current level of awareness, perceptions, and reporting behavior regarding cosmetovigilance among medical interns and postgraduates. The findings will help identify existing gaps and guide future educational strategies to strengthen cosmetovigilance practices.

STUDY OBJECTIVES

Primary Objective

1. To assess the knowledge, attitude, and practice (KAP) related to cosmetovigilance among interns and postgraduate students at a tertiary care hospital.

Secondary Objectives

1. To evaluate the association between participant category (interns and postgraduate students) and knowledge, attitude, and practice components of cosmetovigilance.
2. To compare awareness regarding adverse effects of cosmetic products and reporting-related aspects between interns and postgraduate students.

METHODOLOGY

This prospective cross-sectional study was conducted at a tertiary care teaching hospital. The study population comprised interns and postgraduate students. Approval was obtained from the Institutional Ethics Committee of D Y Patil Medical College and Hospital, Navi Mumbai, prior to commencement of the study (IECBH 2025/066).

Participants aged 22 years and above who provided written informed consent were included, while those unwilling to participate were excluded. The study was conducted over a period of three months, from August to October 2025. A total of 245 participants were enrolled in the study.

Procedure

The study adopted a structured survey-based approach using a pretested and validated questionnaire comprising 18 items designed to assess knowledge, attitude, and practice (KAP) related to cosmetovigilance. The questionnaire was administered electronically using Google Forms and shared with eligible participants.

Prior to participation, all respondents were briefed about the objectives and procedures of the study, and their responses were collected only after consent. Submitted forms were screened for completeness, and only fully completed responses were included for analysis.

Data were entered and analysed using Statistical Package for the Social Sciences (SPSS) software, version 20. Categorical variables, such as age and gender, were summarized as frequencies and percentages. The association of knowledge, attitude, and practice scores among the participant groups was evaluated using the Chi-square test, with a p-value < 0.05 considered statistically significant.

RESULTS

A total of 245 participants were included in the study, comprising 150 interns, and 95 postgraduate students. Distribution of participants is presented in Table 1. A majority of participants belonged to the 22–24-year age group, which included a substantial proportion of interns. Participants aged 25 years and above constituted a smaller segment of the study population, primarily representing postgraduate students. Regarding gender distribution, females comprised 158 participants (64.48%), while males accounted for 87 participants (35.51%), as illustrated in Figure 1.

Table-1: Distribution of Participants

Participants	Gender	No. (%)	Total No. (%)
Interns	Male	59 (39.33)	150 (61.22)
	Female	91(60.66)	
Postgraduates	Male	28 (29.47)	95 (38.77)
	Female	67 (70.52)	

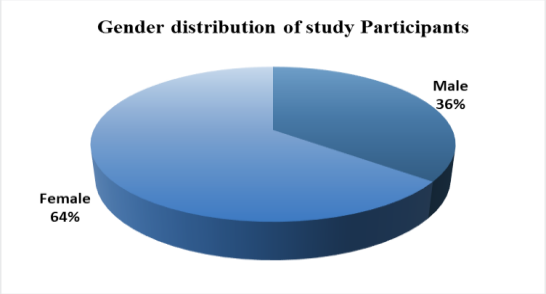

Fig-1: Gender distribution of Study Paricipants

Table-2: Association of knowledge levels between different groups of participants

Sr. no	Questions	Interns	Post-graduates	Total	Chisquare, P value
1.	Are you aware of the adverse effect caused by cosmetics?	82 (54.66)	40 (42.10)	122 (49.79)	4.12, 0.042
2.	Are you aware of where to report a cosmetic-induced adverse event?	76 (50.66)	34 (35.78)	110 (44.89)	5.87, 0.015
3.	Where is the headquarter of cosmetovigilance in India?	85 (56.66)	38 (40.0)	123 (50.20)	6.34, 0.012
4.	Who can report a cosmetic-induced adverse event?	90 (60.0)	44 (46.31)	134 (54.69)	3.96, 0.047
5.	Which component is present in hair color and can cause allergic contact dermatitis?	52 (34.66)	27 (28.42)	79 (32.24)	1.68, 0.195
6.	Which is the most common metal present in skin-lightening soaps and creams and can cause kidney damage?	83 (55.33)	37 (38.94)	120 (48.97)	4.89, 0.027
7.	What ingredient present in cosmetic product is prohibited by FDA regulations?	32 (21.33)	18 (18.94)	50 (20.40)	0.94, 0.332
8.	What is the causality assessment method used for adverse events caused by cosmetics?	70 (46.66)	30 (31.57)	100 (40.81)	5.21, 0.022

Table 2 depicts the association of knowledge levels between interns and post-graduate participants regarding cosmetovigilance. Significant differences were observed between the two groups for core operational aspects, including awareness of cosmetic-related adverse effects, knowledge of reporting mechanisms, the headquarters of cosmetovigilance, and eligibility to report adverse events ($P < 0.05$), with interns demonstrating higher knowledge levels. In contrast, knowledge related to specific cosmetic ingredients, such as hair-color components causing allergic contact dermatitis and FDA-prohibited cosmetic ingredients, did not differ significantly between interns and post-graduates ($P > 0.05$).

Overall, the Chi-square analysis indicates a significant association between participant group and knowledge levels for most core cosmetovigilance domains, suggesting true differences rather than chance variation. This highlights that interns possessed comparatively better awareness of key reporting-related aspects, whereas knowledge of specific cosmetic ingredients showed no meaningful group-wise difference.

Table-3: Association of attitude levels between different groups of participants

Sr. no	**Questions**	Scale	Interns (%)	Post-graduates (%)	Total	Chisquare, P value
1.	Do you feel that cosmetic-induced adverse events are	Strongly agree	63 (42)	37 (38.94)	100 (40.81)	
		Agree	72 (48)	51 (53.68)	123 (50.20)	
		Neutral	13 (8.66)	3(3.15)	16 (6.53)	
		Disagree	2 (1.33)	4 (4.21)	06 (2.44)	5.18, 0.159

	underreported?	Strongly disagree	0(0)	0(0)	0 (0)	
2.	Reporting of adverse cosmetic reactions is an essential component of cosmetovigilance.	Strongly agree	61 (40.66)	37 (38.94)	98 (40)	0.57, 0.752
		Agree	69 (46)	42 (44.21)	111 (45.30)	
		Neutral	20 (13.33)	16 (16.84)	36 (14.69)	
		Disagree	0 (0)	0(0)	0 (0)	
		Strongly disagree	0 (0)	0(0)	0 (0)	
3.	Do you agree that reporting cosmetic-induced adverse events can improve patient safety and should be encouraged?	Strongly agree	57 (38)	34 (35.78)	91 (37.14)	2.39, 0.495
		Agree	82 (54.66)	50 (52.63)	132 (53.87)	
		Neutral	11 (7.33)	10 (10.52)	21 (8.57)	
		Disagree	0(0)	1 (1.05)	01 (0.40)	
		Strongly disagree	0(0)	0(0)	0 (0)	
4.	Should reporting of cosmetic-induced adverse events be made compulsory?	Strongly agree	79 (52.66)	29 (30.52)	105 (42.85)	14.02, 0.003
		Agree	61(40.66)	50 (52.63)	111 (45.30)	
		Neutral	9 (6)	14 (14.73)	23 (9.38)	
		Disagree	1 (0.66)	2 (2.10)	3 (1.22)	
		Strongly disagree	0(0)	0(0)	0 (0)	
5.	Should cosmetovigilance be part of the curriculum in medical undergraduate and postgraduate courses?	Strongly agree	69 (46)	38 (40)	107 (43.67)	2.43, 0.489
		Agree	65 (43.33)	41 (43.15)	106 (43.26)	
		Neutral	14 (9.33)	13 (13.68)	27 (11.02)	
		Disagree	2 (1.33)	3 (3.15)	05 (2.04)	
		Strongly disagree	0(0)	0(0)	0 (0)	
6.	Are you willing to report cosmetic-induced adverse events?	Strongly agree	47 (31.33)	27 (28.42)	74 (30.20)	4.79, 0.310
		Agree	89 (59.33)	50 (52.63)	139 (56.73)	
		Neutral	9 (6)	11 (11.57)	20 (8.16)	
		Disagree	3 (2)	4 (4.21)	07 (2.85)	
		Strongly disagree	2 (1.33)	3 (3.15)	05 (2.04)	

Table 3 depicts the association of attitude levels between interns and post-graduate participants towards cosmetovigilance. Attitudes regarding underreporting of cosmetic-induced adverse events, the importance of reporting as a component of cosmetovigilance, and the role of reporting in improving patient safety did not differ significantly between the two groups ($P > 0.05$).

A statistically significant difference was observed only with respect to the opinion that reporting of cosmetic-induced adverse events should be made compulsory, indicating a contrasting attitude between interns and post-graduates ($P < 0.05$). Attitudes towards inclusion of cosmetovigilance in the medical curriculum and willingness to report adverse events were otherwise comparable between the groups. Overall, the Chi-square analysis **indicates** that interns and post-graduates shared similar attitudes towards cosmetovigilance, except for a significant divergence concerning mandatory reporting of cosmetic-induced adverse events.

Table-4: Association of practice between participants groups

Sr.no	Questions	Interns (%)	Post-graduates (%)	Total	Chisquare, P value
1	Has your patient ever experienced any adverse occurrence as a result of cosmetic use in your practice?	8 (5.33)	7 (7.36)	15 (6.12)	0.14, 0.709
2.	Have you ever reported	5 (3.33)	04 (4.21)	9 (3.67)	0.00, 0.994

	adverse events caused by cosmetics?				
3.	Have you ever published any case report or article related to cosmetic-induced adverse events?	7 (4.66)	7 (7.36)	14 (5.71)	0.37, 0.545
4.	Would you be interested in attending a workshop or training session on cosmetovigilance?	109 (72.66)	49 (51.57)	158 (64.48)	10.39, 0.001

Table 4 depicts the association of practice-related aspects of cosmetovigilance between interns and post-graduate participants. No significant difference was observed between the two groups with respect to experience of cosmetic-induced adverse events in clinical practice, reporting of such events, or publication of related case reports or articles ($P > 0.05$).

In contrast, a statistically significant difference was observed regarding interest in attending workshops or training sessions on cosmetovigilance, with interns showing greater willingness compared to post-graduates ($P < 0.05$). Overall, Chi-square analysis suggests that cosmetovigilance practices were limited and comparable across both groups; however, interns demonstrated significantly greater interest in training-related activities.

DISCUSSION

Cosmetovigilance serves as an important public health tool for identifying, monitoring, and preventing adverse effects associated with cosmetic products. However, underreporting of cosmetic-related adverse events continues to be a major challenge, particularly in clinical practice. The findings of this study provide insight into how future healthcare professionals perceive and engage with cosmetovigilance, revealing important differences in awareness and a persistent gap between knowledge and practical reporting.

The study demonstrated a significant association between participant group and knowledge of core cosmetovigilance concepts, with interns showing better awareness than postgraduate students regarding cosmetic-related adverse effects, reporting mechanisms, and regulatory aspects. Similar findings have been reported by Vora *et al*. [8], Hussain *et al*. [9], and Yohini *et al*. [10] highlighting better awareness among junior trainees, likely due to recent educational exposure. In contrast, Pereira *et al*. [11] reported no group-wise difference, emphasizing the role of sustained institutional training.

However, knowledge related to specific cosmetic ingredients, including hair-dye allergens and banned substances, did not differ significantly between groups. This aligns with studies by Gupta *et al*. [12], and Dhasmana *et al*. [13]**,** which reported uniformly low ingredient-specific knowledge across training levels. Overall, these findings suggest that while operational awareness of cosmetovigilance improves with recent training, detailed knowledge of cosmetic constituents remains inadequately addressed in the medical curriculum.

Attitudinal assessment showed that interns and postgraduate students shared largely similar views regarding the importance of cosmetovigilance, underreporting of cosmetic adverse events, and its role in patient safety. These findings are consistent with studies by Chakraborty *et al*. [14], and Rehan *et al*. [15]**,** which reported generally positive attitudes toward adverse event reporting among healthcare trainees. Similar observations have been reported by Toklu *et al*. [16]**,** suggesting that positive attitudes may not necessarily translate into active reporting.

A significant difference was observed regarding the perception that reporting of cosmetic-induced adverse events should be mandatory, with interns showing stronger agreement. Similar findings have been reported by Suganya *et al*. [17] and Yohini *et al*. [10] who noted greater regulatory awareness among junior trainees, likely due to recent academic exposure. In contrast**,** Toklu *et al*. [16] found no clear difference in reporting attitudes across professional levels, highlighting the role of institutional training. Despite adequate knowledge and positive attitudes, actual cosmetovigilance practices remained poor and comparable across groups, reflecting a persistent knowledge–practice gap reported by Trivedi *et al*. [18]. Underreporting of cosmetic adverse events has also been consistently highlighted in Indian and international studies by Sarma and Medhi [19] and Rathi *et al*. [20].

Similar trends have been noted in Indian and international studies, indicating that underreporting remain a global concern. Notably, interns showed greater willingness to participate in training programs, echoing findings by Vora *et al*. [8] and highlighting the potential benefit of targeted training during internship.

CONCLUSION

Interns demonstrated better knowledge of core cosmetovigilance concepts than postgraduate students, while attitudes were largely similar across both groups.

However, actual reporting practices were limited irrespective of training level, indicating a gap between knowledge and practice. Strengthening structured, hands-on cosmetovigilance training during internship and postgraduate education is essential to improve adverse event reporting and patient safety.

LIMITATIONS

This study was conducted in a single tertiary care teaching hospital, so the findings may not be applicable to all settings. The data were collected using a self-administered questionnaire, which may lead to recall or response bias. As this was a cross-sectional study, it reflects knowledge, attitude, and practice at one point in time and cannot assess changes after training. In addition, actual cosmetovigilance reporting was based on self-reported information and could not be independently verified.

Funding: No funding sources

Conflict of interest: None declared

Ethical Approval: Approval was obtained from the Institutional Ethics Committee of D Y Patil Medical College and Hospital, Navi Mumbai, prior to commencement of the study (IECBH 2025/066).

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