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Original Contribution

STUDY OF EYE HEALTH RISKS ASSOCIATED WITH DECORATIVE COSMETICS AND AESTHETIC PROCEDURES

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ABSTRACT
INTRODUCTION: The cosmetic industry has seen significant growth, with an increasing number of men utilizing procedures and rejuvenation therapies. This shift has expanded the consumption of cosmetic services but also raised concerns about risks affecting eye health. Cosmetic products and procedures can cause irritation, allergies, and infections, posing serious health risks. AIMS: This study analyzes trends in the use of cosmetic products and facial procedures, aiming to assess their potential risks to eye health. METHODS: A documentary method was applied, involving a systematic review of literature from electronic databases such as PubMed, Scopus, Web of Science, and Research Gate using specialized software. The analysis focused on existing trends and risks related to cosmetic procedures, with keywords including "dry eye," "eye cosmetics," "safety," "cosmeticians," and "opticians." A sociological method was also employed through a survey conducted in November 2024 among students (n=53) and faculty members (n=5). RESULTS: Survey data indicated that 55.2% (n=32) of participants experienced burning or irritation in their eyes after procedures such as chemical peels and micropigmentation. More severe reactions, such as allergies or burns, were reported by 10.3% (n=6) of respondents. The findings highlight the need for educational campaigns to promote safe cosmetic practices. CONCLUSION: Improved health awareness among medical professionals and consumers about the risks of cosmetic procedures is essential. Educational campaigns targeting both consumers and professionals are recommended. Systematic information on the safety of these procedures is needed.

Key words: dry eye, eye cosmetics, safety, cosmeticians, opticians

INTRODUCTION

In recent years, the market for cosmetic products and procedures has experienced substantial growth. Trends reveal that the use of decorative cosmetics and facial cosmetic services is no longer exclusive to women. Increasingly, men are opting for procedures such as chemical peels, facial massages, and rejuvenation treatments (1). This social dynamic significantly alters the industry, expanding its consumer base while raising new challenges concerning safety and efficacy.

The growing use of cosmetics and facial procedures, particularly in the periocular area, is critical as these sensitive zones demand special care (2). Such products and procedures may impact eye health, causing side effects like irritation, allergies, infections, or damage to the ocular surface. Complications such as dry eye syndrome or even vision loss underscore the relevance of this issue for healthcare professionals (3).

Medical professionals must be well-informed about the risks associated with cosmetic products and procedures. They need to identify

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both immediate and long-term effects on vision and provide adequate advice to ensure patient safety (4). Collaboration between the medical and cosmetic communities is vital to mitigate risks and protect eye health.

AIM

This study examines trends in the use of cosmetic products and facial procedures to evaluate potential risks to eye health and assess the awareness and experience of medical professionals and cosmeticians regarding the safety of these products and procedures.

MATERIALS AND METHODS

A **documentary method** was employed, involving a systematic review of literature from databases such as PubMed, Scopus, Web of Science, and Research Gate using specialized software. The study focused on existing trends and risks associated with cosmetic procedures, with keywords including "dry eye," "eye cosmetics," "safety," "cosmeticians," and "opticians."

A **sociological method** was also applied through a survey conducted in November 2024 among students (n=53) and faculty members (n=5) from the Medical College – Varna. Participants included 25 third-year students in the "Medical Cosmetician" program, 23 second- and third-year students in the "Medical Optician" program, and 5 faculty members specializing in ophthalmology.

Data collection occurred at the Medical College and the University Specialized Hospital for Active Treatment of Ophthalmic Diseases – Varna, with participation from educators in the "Medical Cosmetician" and "Medical Optician" specialties. The survey tool included a 25-item questionnaire with open-ended, closed-ended, and multiple-choice questions. Anonymous data were processed using MS Office Excel, and specialized statistical packages such as SPSS were applied for analysis.

RESULTS

The study analyzed trends in the use of cosmetic products and facial procedures, examining risks, complications, frequency of use, and awareness levels. A total of 58 participants (53 students/practitioners and 5 faculty members) were surveyed, with a gender distribution of 75.9% women (n=44) and 24.1% men (n=14). The average participant age was 35 ± 12 years.

Frequency of Cosmetic Use and Procedures

Decorative cosmetics use was highly prevalent among participants, particularly eye cosmetics. A significant 76% reported regular use of products such as mascara, eye shadow, and eyeliner. Additionally, 87% of participants, both men and women, engaged in cosmetic procedures such as micropigmentation, chemical peels, and facial massages, often seeking these services for aesthetic enhancement and anti-aging purposes.

Risks and Complications

Despite the popularity of cosmetic products and procedures, a considerable proportion of participants reported adverse effects. Irritation after using eye cosmetics was reported by 65%, with 5% experiencing discomfort "always." Around half of the respondents noted burning or irritation following procedures like chemical peels and micropigmentation. Severe reactions, such as allergies or burns, were reported by 10% of participants, who sought specialized medical care. Only 35% of respondents reported no adverse reactions.

Complications related to eye and facial cosmetics were reported by three-quarters of participants **(Figure 1).**

Health Awareness and Knowledge

The study results reveal significant variations in health awareness and knowledge among participants. Most medical professionals possess a solid understanding of the risks associated with cosmetic products, yet gaps remain in their knowledge, particularly regarding new cosmetic procedures such as micropigmentation. Among medical cosmeticians and opticians, awareness of the safety of basic cosmetic products is higher, but they lack sufficient training regarding the risks of more complex procedures and their impact on eye health. There is a clear need for additional training and enhanced health awareness among professionals working in the fields of cosmetics and eye care.

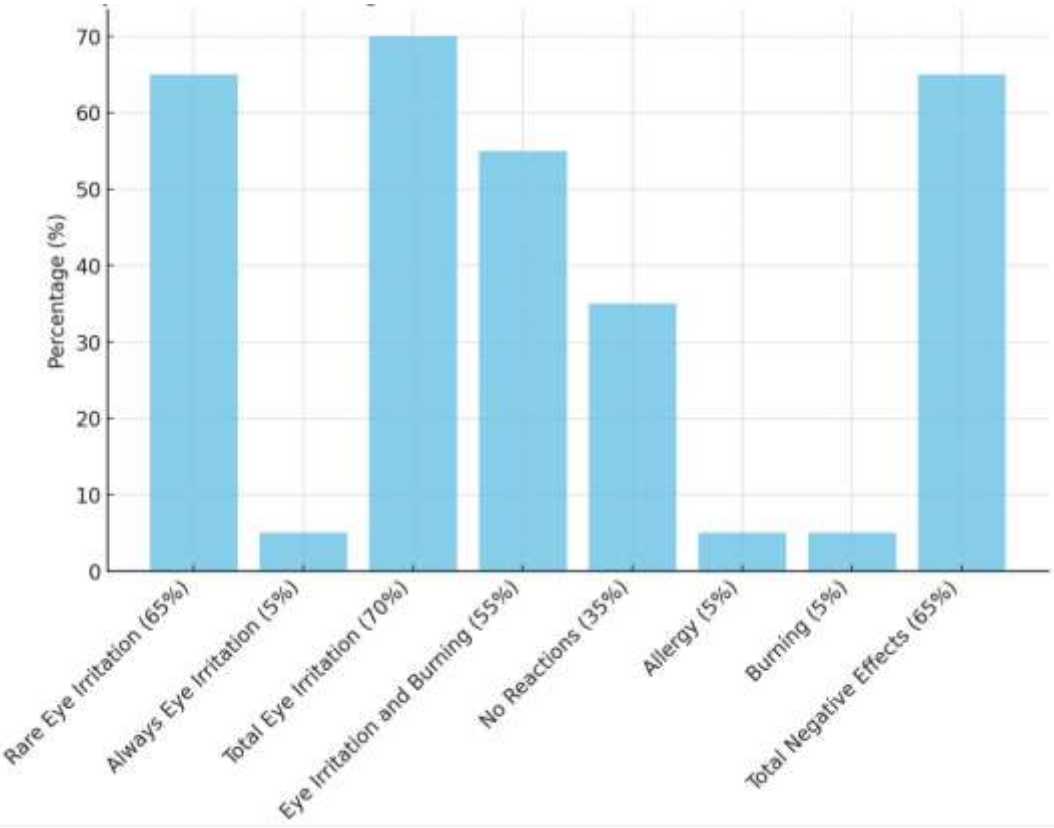

Figure 1. Results of a survey related to complications after the use of cosmetics and facial treatments

DISCUSSION

The findings of this study underscore the critical role of education and awareness among medical professionals regarding the potential risks associated with cosmetic products and procedures. As eye cosmetics and facial treatments gain popularity across diverse demographic groups, it becomes increasingly important to recognize their potential adverse effects. Improper use or exposure to certain chemicals in cosmetics can lead to significant health concerns, including ocular irritation, allergic reactions, and even long-term visual impairment. A 2023 study by Sullivan et al. confirmed similar severe complications, demonstrating the negative impact of cosmetic procedures on the visual system (5).

Recent research has categorized cosmetic risks based on their physical, pathogenic, and chemical components. Yazdani et al. (2024) emphasized the need for extensive studies assessing the long-term effects and potential toxicity of cosmetic ingredients (6). Their findings indicate that beyond immediate reactions like inflammation or redness, prolonged exposure to certain chemicals can lead to more severe complications, including cumulative ocular damage.

A key aspect of mitigating these risks is equipping healthcare professionals with the knowledge to identify early symptoms of irritation, allergies, and chemical burns. Timely intervention can prevent more severe conditions, such as chronic eye diseases. However, the lack of standardized safety guidelines and improper application techniques pose a challenge. Many consumers remain unaware of the dangers posed by specific ingredients, particularly those in products applied near the eyes. Inadequate labeling and inconsistent regulatory oversight further contribute to these issues, highlighting the need for stricter regulations.

Advancements in cosmetic technology, such as nanocosmetics, have introduced both benefits and potential risks. Gupta et al. (2022) examined the impact of nanoparticles in beauty products, highlighting their ability to enhance product efficacy while raising concerns about their long-term safety (7). Without proper testing and regulatory approval, these

innovations may pose unknown risks to consumers, reinforcing the need for strict guidelines, mandatory clinical testing, and clear risk labeling.

The cosmetic industry has made strides toward safer formulations, but challenges remain. Bom et al. (2019) proposed sustainable solutions, advocating for natural ingredients, eco-friendly production, and responsible packaging (8). These initiatives not only align with global sustainability goals but also contribute to safer cosmetic formulations. However, the adoption of such measures remains inconsistent across different brands and markets, emphasizing the necessity for regulatory intervention.

Greenberg (2021) further highlighted the importance of professional training to ensure consumer safety (9). Mandatory certification for cosmeticians and dermatologists, particularly in the proper application of facial procedures and cosmetic products, is an essential step in minimizing health risks. By integrating standardized education programs, professionals can be better equipped to recognize and address complications, ultimately improving consumer safety.

In conclusion, this study emphasizes the urgent need for increased awareness and regulation surrounding the safe use of cosmetic products. Healthcare and cosmetic professionals must prioritize consumer safety by promoting education, stricter regulations, and evidence-based practices. The implementation of clear safety standards, product testing, and professional training will contribute to minimizing risks and ensuring long-term ocular health for consumers.

CONCLUSION

Improved health awareness and knowledge among medical professionals and consumers about the risks of cosmetic products and procedures are crucial. The study results indicate that cosmetic products and procedures can pose serious health risks, especially to eye health. Therefore, systematic information about the safety of these procedures is needed. Educational campaigns targeting both consumers and professionals are recommended, focusing on risk prevention and complication management. Training medical professionals in innovative cosmetic products and procedures is vital to preventing adverse effects. This collaboration will help reduce risks and improve consumer health and safety.

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