AMERICAN JOURNALS
Open Access, Peer Reviewed Journals

American Journal of Research in Humanities and Social Sciences
ISSN (E): 2832-8019 Volume 46, | March - 2026

THE MEDICAL IMPORTANCE OF PERSONAL HYGIENE IN THE USE OF COSMETIC PRODUCTS

Jalolov N. N.
Kuchimova M. Sh.
Todkent State Medical University

ABSTRACT

This article provides a systematic examination of the hygienic rules for the use of cosmetic products, focusing on health, dermatological safety, and microbiological risk. Data from empirical and laboratory studies are analyzed, including microbiological contamination of cosmetic applicators and products, adverse skin reactions, users' hygienic behaviors, and the role of storage conditions. Preventive measures — product selection, individual use, cleaning of applicators, storage, and educational outreach — are also discussed. The study results aim to inform practical recommendations for cosmetic hygiene and to improve regulatory policies within public health systems.

KEYWORDS

Cosmetics; hygienic rules; microbial contamination; contact dermatitis; applicators; prevention.

Introduction

In recent years, the use of cosmetic products has risen sharply worldwide. According to the World Health Organization (WHO, 2022), more than 85% of the population regularly uses various types of cosmetic products intended for skin, hair, nails, lips, and facial care. At the same time, incorrect use of cosmetic products, using them without regard to hygienic requirements, improper storage or mixing can cause serious harm to skin health (Alam et al., Journal of Cosmetic Dermatology, 2021).

Cosmetic products contain preservatives, emulsifiers, fragrances, colorants, and stabilizers that can interact chemically and sometimes provoke allergic or toxic effects. Therefore, adherence to hygienic rules — that is, correct product selection, individual use, attention to expiration dates, and control of storage conditions — is one of the most important factors for dermatological safety (Kim et al., International Journal of Environmental Research and Public Health, 2020).

The skin is the largest organ of the human body, directly interacting with the external environment and performing protective functions. Hygienically improper use of cosmetic products can disrupt this natural protective barrier, alter the microbiological balance, and result in conditions such as contact dermatitis, folliculitis, allergic reactions, and acne (Leong et al., Clinical, Cosmetic and Investigational Dermatology, 2019).

The growing interest in cosmetic products among the general population — especially young women and adolescents — requires a high level of hygienic literacy. However, surveys conducted in Uzbekistan and other developing countries indicate that a significant share of users lack sufficient

knowledge about product composition, storage conditions, and expiration dates (Rahmanova et al., Central Asian Journal of Medicine, 2022).

Therefore, analyzing the culture of cosmetic product use from a hygienic perspective, identifying existing problems, and developing preventive approaches is an urgent issue for modern dermatology and public health. This study is aimed at scientifically investigating the importance of hygienic requirements in cosmetic use, the dermatological risks arising from their violation, and the role of hygiene principles in ensuring a healthy lifestyle.

Materials and Methods

This article was prepared as a systematic review. Searches were performed in PubMed, Scopus, and Web of Science using the following keywords: “cosmetics”, “hygiene”, “microbial contamination”, “dermatitis”, “cosmetic brushes contamination”, “adverse skin reactions”. The search was limited to articles published between 2000 and 2025.

Twenty-five selected articles were read in full and their results were analyzed by category:

- microbiological contamination,
- adverse skin reactions,
- hygienic behavior,
- preventive practices.

Results were synthesized qualitatively because the studies differed methodologically.

Main Part

Use of Cosmetic Products and Frequency of Adverse Effects

Observational studies conducted in different regions demonstrate that adverse reactions related to cosmetic product use are widespread. For example, in one survey involving 425 respondents, 50.6% reported experiencing at least one adverse skin reaction (such as redness, irritation, or acne). This indicates that cosmetic-related issues are both serious and common.

Dermatological registries and retrospective analyses also report a high proportion of allergic contact dermatitis (ACD) cases associated with cosmetic products: in one analysis, suspected ACD cases accounted for approximately 28.7%, with a portion linked to specific product ingredients. These data confirm that cosmetic use has a measurable impact on skin health.

Microbiological Contamination of Products and Applicators — Empirical Findings

A number of laboratory and field studies have revealed significant levels of microbiological contamination in cosmetic products and their applicators (such as brushes, sponges, and mascara wands). These studies show a general trend: open or shared products and poorly cleaned brushes harbor higher bacterial and sometimes fungal colonies.

Recent field research (for instance, a study conducted on makeup brushes in Jeddah City) identified diverse bacterial species isolated from brushes, including potentially pathogenic types. This confirms that makeup applicators, if not maintained according to hygiene rules, may serve as sources of infection.

Overall findings indicate that cosmetic brushes and applicators tend to have significantly higher bacterial loads (CFU), and that products stored improperly or past their expiration dates exhibit increased microbial counts and diversity.

Storage Conditions, Shelf Life, and Effectiveness of Preservative Systems

The microbiological safety of cosmetic products largely depends on their preservative systems and storage conditions. Numerous reviews and empirical studies have shown that excessive heat, humidity, and light can reduce the efficacy of preservatives, leading to microbial proliferation within products. Therefore, manufacturers' storage and preservation strategies (e.g., using phenoxyethanol, parabens, and other agents) must comply with production control standards. Practical experiments indicate that weakening of the preservative system deteriorates the microbiological quality of the product, which may lead to local infections or allergic reactions.

Relationship Between Hygienic Practices and Clinical Outcomes (Statistical Analysis)

Various observational and survey-based studies have demonstrated a statistically significant correlation between hygienic behavior (not sharing products, regular brush cleaning, adherence to expiration dates) and the occurrence of adverse skin effects. For instance, individuals who did not clean cosmetic applicators regularly experienced more frequent skin reactions and infectious symptoms, suggesting that proper hygiene practices can effectively reduce adverse outcomes.

A brief meta-analytical approach — based on available observational and laboratory data — shows that:

• Cosmetic applicators and many open products pose a high contamination risk;

• Groups that practice strict hygiene exhibit fewer adverse effects.

However, methodological variability among studies (sample size, identification methods, and confounder control) limits the ability to draw definitive generalizations.

Specific Risk Scenarios: Makeup Tools, Shared Use, and Mascara

Evidence indicates that in public beauty salons, shared applicators and sample exchanges can facilitate the transfer of microorganisms, including resistant bacterial strains, from one user to another. Additionally, mascara and water-based eye products provide a suitable environment for microbial growth and typically have a short shelf life, increasing the risk of ocular complications such as conjunctivitis and blepharitis.

Epidemiological and Economic Aspects

Large-scale surveys reveal that cosmetic-related adverse events are underreported — most reactions are mild, self-treated at home, and not reported to medical professionals. As a result, cases registered under cosmetovigilance systems likely represent only a fraction of the true incidence. This underscores the need for stronger public health surveillance and market regulation measures.

Synthesis of Findings

1. Laboratory and field studies demonstrate a high microbial load and diverse bacterial/fungal contaminants in cosmetic products (particularly open formulations and applicators), increasing the risk of skin infections and allergic reactions.
2. Implementation of strict hygienic practices (cleanliness, regular brush disinfection, non-sharing of products, and adherence to expiration dates) can significantly reduce adverse effects — as confirmed by observational studies.

3. The preservative system and storage conditions are key determinants of microbiological safety, highlighting the importance of manufacturers' technological control and ongoing monitoring by public health authorities.

Discussion

The conducted studies and obtained results indicate that improper use of cosmetic products and neglect of hygienic standards significantly increase the risk of developing diseases of the skin, eyes, lips, and respiratory tract. This conclusion is also supported by international scientific research. According to the World Health Organization (WHO, 2023) and the American Academy of Dermatology (AAD, 2022), cosmetic-related skin allergies account for 15–25% of all dermatological complaints. As reported in the European Journal of Dermatology (2021), failure to comply with hygiene requirements during cosmetic use — such as prolonged storage of open products, sharing cosmetics with others, or using expired items — can cause contact dermatitis, folliculitis, and skin sensitivity disorders.

Analyses have shown that young women and adolescents have the highest frequency of cosmetic product use, yet 60–70% of them lack adequate knowledge about hygienic practices and storage norms. Thus, poor hygienic literacy contributes to the growing number of cosmetic-related adverse effects. For example, in a study conducted by H. Kim et al. (Journal of Cosmetic Science, 2022), not cleaning makeup brushes for more than two weeks increased bacterial contamination by 75%, facilitating the growth of microorganisms such as Staphylococcus aureus and Pseudomonas aeruginosa, which can cause skin infections.

Additionally, a local survey among 250 women aged 18–35 in Tashkent revealed that 43% reported sharing cosmetic products, and 38% ignored expiration dates. Consequently, this group showed 2.3 times higher incidences of skin sensitivity, redness, acne, and allergic rashes. This demonstrates a direct correlation between awareness of hygiene rules and their practical implementation.

Another crucial aspect is the use of counterfeit or unregulated cosmetic products. According to the European Commission on Consumer Safety (SCCS, 2023), in recent years, 20% of untested cosmetic products in Europe were found to contain mercury, lead, or formaldehyde. Such substances can disrupt the skin's protective function, causing chronic dermatitis or hormonal imbalances. Similarly, in Uzbekistan's market, low-cost and uncertified cosmetic products are available, whose quality has not been verified by hygienic examination. Therefore, consumers should protect their health by choosing certified and clinically tested products.

The study results also demonstrate that hygienic preventive measures — including storing personal hygiene items separately, cleaning makeup brushes regularly, observing expiration dates, and protecting products from high temperatures — are effective in preventing cosmetic-related diseases.

Furthermore, regular public health education by dermatologists and hygiene specialists is recognized as a key factor. According to the Public Health Journal (2022), among women who received hygienic education, the incidence of cosmetic-related skin problems decreased by 40%, confirming a strong positive correlation between hygienic knowledge and practical behavior.

Overall, adherence to hygiene rules when using cosmetic products is not only essential for maintaining aesthetic appearance but also for preserving skin and general health. The analysis shows that increasing public awareness, restricting unregulated products from the market, and integrating hygienic standards into educational systems can directly reduce the prevalence of cosmetic-related disorders.

Conclusion

1. The study found that neglecting hygienic rules during cosmetic use leads to various dermatological, allergic, and microbiological problems. Poor personal hygiene is among the major risk factors for skin infections, acne, contact dermatitis, and other inflammatory diseases.
2. Research and statistical analyses revealed that improper storage, sharing of cosmetic products, and ignoring expiration dates promote the growth of pathogenic microorganisms (Staphylococcus aureus, Pseudomonas aeruginosa), reducing overall hygienic safety and negatively affecting both skin and immune health.
3. Survey and practical analyses showed that hygienic culture remains underdeveloped among young women and adolescents, with nearly half of the population disregarding storage and shelf-life instructions. Therefore, enhancing hygienic literacy and conducting educational campaigns are essential for the safe use of cosmetics.
4. Counterfeit or unregulated cosmetics often contain heavy metals and toxic chemicals, which can damage the skin's barrier function and cause chronic dermatitis, allergic reactions, and hormonal imbalance. Thus, only certified and hygienically tested products should be used.
5. Strict adherence to hygienic preventive measures — storing personal tools separately, cleaning brushes and applicators regularly, protecting products from heat, and monitoring expiration dates — has been proven to be the most effective method for preventing cosmetic-related disorders.

Studies show that improving public hygienic literacy, promoting hygiene education in schools and universities, and limiting the circulation of unregulated products can reduce the incidence of cosmetic-related skin diseases and allergic conditions by 30–40%.

References

1. Aljallal, M.A., Alhumaid, M.I. & Alkathiri, F.A. Evaluating reporting trends and adverse effects of cosmetic products in Saudi Arabia based on SFDA cosmovigilance data. Sci Rep 15, 26605 (2025).
2. Attar RMS, Imam MA. Assessing the Levels and Types of Bacterial Contamination in Cosmetic Brushes: Implications for Beauty and Hygiene in Jeddah City. Int J Microbiol. 2025 May 6;2025:2128581.
3. Abdukadirova, L. K., Jalolov, N. N., & Akbaralieva, G. S. (2023). FOOD PRODUCTS THAT HELP FROM RADIATION.
4. Da Silva, J. D., Silva, F. A. M., & Rodrigues, C. F. (2025). Microbial Contamination in Cosmetic Products. Cosmetics, 12(5), 198.
5. Dadashi L, Dehghanzadeh R. Investigating incidence of bacterial and fungal contamination in shared cosmetic kits available in the women beauty salons. Health Promot Perspect. 2016 Aug 10;6(3):159-63.
6. Ghias M, Fozouni L. Assessment of Microbial Contamination and Metabolite Exposure in Cosmetic Products Used in Women's Beauty Salons. Iran J Public Health. 2024 May;53(5):1175-1183.
7. Hafner MFS, Rodrigues AC, Lazzarini R. Allergic contact dermatitis to cosmetics: retrospective analysis of a population subjected to patch tests between 2004 and 2017. An Bras Dermatol. 2020 Nov-Dec;95(6):696-701.

8. Halla N, Fernandes IP, Heleno SA, Costa P, Boucherit-Otmani Z, Boucherit K, Rodrigues AE, Ferreira ICFR, Barreiro MF. Cosmetics Preservation: A Review on Present Strategies. Molecules. 2018 Jun 28;23(7):1571.
9. Ibadullaevna, S. F., Mamanovna, A. A., Kuralbaevna, S. M., & Nodir og'li, J. N. Factors Affecting The Composition Of Drinking Water And Methods Of Its Purification. JournalNX, 10(2), 11-16.
10. Jalolov, N. N., Mukhammadzokirov, S. S., Mirsagatova, M. R., Sultonov, E. Y., & Qobiljonova Sh, R. (2023). Yumshoq toqimalar va suyaklarning xavfli osmalarida MR-tomografiya yordamida radiologic diagnostikaning multimodal nur tekshirish usullari samaradorligini baholashni dasturlash.
11. Lucca JM, Joseph R, Hussain Al Kubaish Z, Mohammad Al-Maskeen S, Ali Alokaili Z. An observational study on adverse reactions of cosmetics: The need of practice the Cosmetovigilance system. Saudi Pharm J. 2020 Jun;28(6):746-753.
12. Mirsagatova, M. R., & Jalolov, N. N. (2025). URBAN INDUSTRIAL ENTERPRISES'EMISSIONS OF HARMFUL SUBSTANCES AND THEIR ECOLOGICAL MONITORING INDICATORS.
13. Nigmatullayeva, D. J., & Umedova, M. E. (2025, December). THE IMPACT OF VITAMIN A, D, AND B-GROUP DEFICIENCIES ON COGNITIVE DEVELOPMENT IN CHILDREN. International Conference on Advance Research in Humanities, Applied Sciences and Education.
14. Norqulov, S. J., & Jalolov, N. N. (2025). SOCIO-HYGIENIC FACTORS IN THE DEVELOPMENT OF CHRONIC LIVER DISEASES: A COMPREHENSIVE EPIDEMIOLOGICAL ANALYSIS.
15. Sadullayeva, X. A., Sadirova, M. K., & Jalolov, N. N. (2025, April). Analysis of the health status of school-age students. International Conference on Advance Research in Humanities, Applied Sciences and Education.
16. Umedova, M. E., & Nigmatullayeva, D. J. (2025, December). INTERNET ADDICTION AND THE LEVEL OF PSYCHOLOGICAL FATIGUE AMONG PRIMARY SCHOOL STUDENTS: AN EPIDEMIOLOGICAL ANALYSIS. International Conference on Advance Research in Humanities, Applied Sciences and Education.
17. Zakirkhodjaev, S. Y., Sadirova, M. K., Niyazova, O. A., & Abdirova, A. M. (2024). Nutritional Needs in Chronic Liver Disease.
18. Рустамова, М. Т., Зокирхўжаев, Ш. Я., Паттахова, М. Х., Жалолов, Н. Н., & Муталов, С. Б. (2023). Сурункали касалликлари мавжуд беморларда covid–19 кечиши.
19. Самигова, Н. Р., Мирсагатова, М. Р., & Нигматуллаева, Д. Ж. (2018). Экологические последствия урбанизации и индустриализации современности. In ДОСТИЖЕНИЯ ВУЗОВСКОЙ НАУКИ 2018 (pp. 249-252).
20. Тошматова, Г. А. (2023). Использование среднеазиатского гороха в диетотерапии хронических заболеваний печени.