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Perspective

Social and Environmental Influences on Skin Microbial Balance in Underserved Urban Populations in the United States

Olivia Turner*

Department of Dermatology and Microbial Sciences, Lakeside State University, Chicago, Illinois, USA

DESCRIPTION

Skin Microbiome refers to the diverse population of bacteria, fungi and other microorganisms that reside on the surface of the skin. These microorganisms play an important role in maintaining skin health by supporting immune responses, preventing colonization by harmful organisms and contributing to the stability of the skin barrier. In the United States, growing scientific attention has focused on how social and environmental conditions influence the composition of the skin microbiome, particularly in low-income urban communities such as those found in Chicago, Illinois.

The skin microbiome is shaped by a variety of factors, including genetics, age, hygiene practices, climate and environmental exposures. In underserved communities, additional influences such as housing conditions, occupational exposures and access to healthcare can significantly affect microbial balance. Poor housing environments, for example, may increase exposure to dust, mold and pollutants, which can alter the microbial composition of the skin. These changes may contribute to increased susceptibility to skin conditions such as infections, irritation and chronic inflammation.

Access to clean water and hygiene resources is essential for maintaining a healthy skin microbiome. In some low-income neighborhoods, challenges related to water quality or limited access to hygiene products can affect daily skin care practices. While excessive washing with harsh soaps can disrupt beneficial microorganisms, inadequate hygiene may allow harmful microbes to proliferate. Achieving a balance in hygiene practices is important, but this can be difficult when resources are limited or inconsistent.

Economic factors also influence the types of personal care products used by individuals in underserved communities. Affordable products may contain strong detergents, fragrances or preservatives that can disturb the natural balance of the skin microbiome. Repeated use of such products may weaken the skin barrier and reduce the presence of beneficial microorganisms. Over time, this imbalance can lead to increased sensitivity and a higher risk of dermatological conditions.

Occupational exposure is another factor that affects the skin microbiome in low-income populations. Many individuals work in environments that involve frequent contact with chemicals, cleaning agents or industrial materials. These substances can disrupt the natural microbial community on the skin, leading to irritation or infection. Without adequate protective equipment, the risk of microbial imbalance increases, particularly for workers in manual labor or service industries.

Diet and nutrition also play a role in shaping the skin microbiome. A balanced diet supports overall health, including the immune system, which interacts closely with skin microorganisms. In low-income communities, limited access to nutritious foods may result in diets that lack essential vitamins and minerals. This can affect the body's ability to maintain a stable microbial environment on the skin, potentially leading to increased vulnerability to infections or inflammatory conditions.

Children growing up in underserved areas are exposed to environmental factors that can influence the development of their skin microbiome from an early age. Exposure to pollutants, allergens and crowded living conditions may alter the natural microbial balance. At the same time, limited access to pediatric dermatological care can delay the identification and management of skin conditions related to microbial imbalance. Early intervention is important for promoting long-term skin health.

Healthcare access is a critical component in understanding and managing changes in the skin microbiome. Dermatological services in low-income urban areas are often limited, with fewer specialists available and longer wait times for appointments. Individuals experiencing skin problems may rely on over-the-counter treatments or home remedies, which may not effectively address the underlying microbial imbalance. Improved access to professional care can help identify specific issues and guide appropriate treatment.

Correspondence to: Olivia Turner, Department of Dermatology and Microbial Sciences, Lakeside State University, Chicago, Illinois, USA, E-mail: olivia.turner.lsu@skinmicrobiomemail.org

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Public health initiatives in cities like Chicago have begun to recognize the importance of the skin microbiome in overall health. Community clinics and outreach programs provide education on proper skin care practices and the impact of environmental factors. These programs aim to increase awareness about maintaining a healthy microbial balance and reducing the risk of skin disorders. However, their reach is often limited and many individuals remain unaware of these concepts. Cultural practices and beliefs also influence how individuals care for their skin. Traditional remedies and locally available products may be used in place of commercial skincare items. While some of these practices may support skin health, others may inadvertently disrupt the microbial balance. Understanding cultural preferences and integrating them with evidence-based recommendations can improve the effectiveness of public health interventions. The skin microbiome plays a significant role in maintaining healthy skin, yet its stability is influenced by a wide range of external and internal factors. In low-income urban communities in the United States, addressing challenges related to housing, healthcare access, environmental conditions and education can help support a healthier microbial balance. By promoting awareness and improving access to resources, it is possible to enhance skin health and reduce the burden of related conditions in these populations.