

# Porcelain White or Bronze Tan? Conflicting Beauty Ideals among East Asian Americans and the Consequences of Skin-Altering Practices

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## ABSTRACT

Poor sun protection, extreme UV exposure, low outdoor activity hours, and use of toxic skin products are seen in people who want to achieve their preferred skin tone. Previous studies have found that different cultures have unique skin tone preferences. However, to our knowledge, limited studies have looked at the complexity of skin tone preference in East Asian culture in America and its implications for skin health. Historically, East Asian culture has favored lighter skin as a symbol of wealth and beauty. On the other hand, Western ideals prefer tanned skin as healthy and attractive. Acculturation to Western countries gives a complex internalization of beauty standards to East Asian immigrants caused by peer and family pressure of two contradicting ideals. This cultural dissonance tends to result in psychological distress, confusion, and rejection of one's self identity. To attain ideal skin tone, either bronze or pale, East Asian individuals often involve themselves in unhealthy beauty practices and skin products. In this review, we find that two beauty standards, grounded deeply in both history and contemporary culture, play a significant role in promoting practices to achieve ideal skin tone, which carry both benefits and serious health risks that require public health and clinical intervention.

**Keywords:** Asian Americans; Skin Pigmentation; Skin Whitening; Tanning; Acculturation; Public Health

## INTRODUCTION

Skin tone has long been a reflection of beauty and social status in human history. The prominent commercial and cultural influence of such perception is demonstrated through significant market trends. While the global market for skin whitening was valued at \$8.8

billion USD in 2022, the 2020 national survey reports that 33.7% of US adults reported intentional outdoor tanning in the last 12 months (1, 2). The popularity of these two opposing practices and beauty ideals – light skin and tanned skin – indicates that skin tone preference is not unilateral and is central to beauty standards in many cultures.

Beauty standards play a significant role in shaping individuals' ideas of beauty and perceptions of self-worth. In East Asian cultures, for example, Chinese culture has valued lighter skin especially for women as it has positive associations with beauty, social status, and femininity (3). Conversely, tanned skin has been associated with farmers and peasants, generally seen as

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inferior. Given the historical advantages traditionally conferred upon individuals with lighter skin, associated preferences have been transmitted across generations and contribute to contemporary colorism, which favors lighter skin within ethnic communities (4, 5). On the other hand, during the 1920s, Euro-American culture underwent a shift from valuing pale skin to seeing tanned skin as glamorous, sexy, and a sign of an active lifestyle (6-8).

However, different practices to achieve an individual's preferred skin tone often have detrimental side effects. Lightening skin is done with agents that block melanin production, often containing ingredients like hydroquinone, super potent topical steroids, or mercury (9). Many of these ingredients have high risks of serious local and systemic complications. Although moderate sun exposure can increase Vitamin D levels, intentional tanning, inadequate sun protection, and excessive sun exposure can raise an individual's risk of skin cancer (10).

With East Asian immigration to Western countries, cultural acculturation has resulted in a combination of beauty standards, especially in regards to skin tone. Research has shown that as Asian Americans adopt Western lifestyles, they tend to engage more in sun exposure activities (11). Peer pressure, such as the number of friends who seek tans, was a strong predictor of sun protection and tanning light use (11). On the other hand, peer pressure coming from their ethnic roots, such as family members, can lead individuals to prefer lighter skin tones, as shown in the report of low vitamin D status in East Asian Australian immigrants (12).

Consequently, East Asian individuals living in America often find themselves navigating conflicting standards surrounding skin tone, often accompanied by significant health risks. By critically analyzing the cultural, social, and historical factors influencing skin tone ideals in the East Asian community, this review aims to illuminate the complex intersectionality of self-identity, social norms, and health.

## **FAIR SKIN AS A SYMBOL OF PURITY AND VIRTUE IN EAST ASIAN CULTURE**

Historically, East Asian beauty ideals have been closely tied to social class, Confucian values, and symbolic meanings associated with skin tone. In agrarian communities of East Asia, skin color served as the most visible characteristic that separated workers and the upper class (13). Specifically, tanned skin was

often associated with peasants and laborers who had to spend long hours outdoors. On the other hand, the members of the upper class primarily avoided manual labor, which made their skin naturally lighter by staying indoors (13). This differentiation created a direct link between pale skin and desirable traits like purity and higher social standing, especially for women.

Japan offers strong historical evidence of how light skin became intertwined with beauty and virtue. Since the Edo period, using white face powder has been seen as a sign of moral discipline and proper conduct (14). Light skin and the color white came to symbolize spiritual purity and feminine elegance, reinforced by societal norms that tied appearance to character (13, 15). Even linguistic expressions in Asia, such as the proverb "a single whiteness can cover three kinds of ugliness," reveal how deeply embedded these values are in cultural beliefs (14).

In Korea, the desire for pale white skin has a historical continuity since the GoJoseon dynasty (2333-108 B.C.E.), the first dynasty in Korean history. Historical records describe the use of skin-enhancing agents such as miansoo lotions and honey dregs, applied in the pursuit of smooth, jade-like skin (14, 16). As in Japan, these Korean skin preferences were strongly influenced by Confucian principles that emphasize a woman's role within the home. A modest and delicate look characterized by flawless white skin symbolized beauty, virtue, obedience, and conformity to traditional gender roles (17).

These ideals have continued to shape the contemporary consumer culture, particularly in the popularization of skin-whitening products. For instance, Chinese cosmetics brands have promoted products with names such as "Blanc Expert," "White-Plus," "White Perfect," and "Snow UV," all of which promise consumers to achieve the highly desired "flawless milky skin" (18). Advertisements for these products consistently feature light-skinned individuals, reflecting long-standing associations between pale skin and attractiveness, class, and virtue (18).

While the preference for light skin originated independently of Western influence, globalization has introduced new dimensions to East Asian beauty norms. Traits associated with Western ideals – such as high eyebrows, large eyes, high cheekbones, a narrow face, and especially white skin – have become increasingly popular in East Asia (19). Although the preference for light skin predates Western contact, its continuation has in part been reinforced by global media and the

growing influence of Western beauty standards. As a result, light skin now serves as both a traditional marker of beauty and a modern trend aligned with international aesthetics in East Asia.

## **THE RISE OF BRONZE TAN IN WESTERN CULTURE**

The perception of tanned skin as a desirable attribute in Western culture has not been a long-standing aspect of its history. Rather, it represents a striking historical reversal grounded in recent changes in modern ideals of health, attractiveness, and sociocultural norms.

Historically, fair skin symbolized wealth and nobility, as it implied freedom from outdoor labor. In some cases, even illnesses like tuberculosis were romanticized for the aesthetic traits that they produced—rosy colored cheeks and lips and pale skin—features that aligned with the beauty ideals of the time (20). However, by the early 20th century, cultural and societal attitudes underwent a significant transformation. According to a study, a dramatic reversal of culture to favor cosmetic tanning occurred in 1928, a shift that has persisted for over four generations since then (8).

This transition was in part driven by the newly forged association between outdoor activity and physical health. As scientific discoveries in the early 1900s revealed the benefits of vitamin D, often called the “sunshine vitamin”, and its role in treating diseases like tuberculosis and rickets, sunlight acquired a positive medical and social reputation (5, 21). Likewise, a study demonstrated that between 75 and 92 percent of respondents reported that tanned skin is more attractive than untanned skin, and 79 percent feel better about themselves when tanned. This has established “tanned skin” as a symbol of beauty and health (22, 23). Having tanned skin became a representation of health because of the association with long UV exposure due to outdoor activities. As such, the new beneficial association of vitamin D helped create a healthful reputation of tanning that influenced both medical and social perception of sunlight.

As tanned skin gained association with a healthy lifestyle, media portrayals and peer pressure led to a widespread popularity of tanned skin. For instance, tanned skin was popularized by figures like Coco Chanel, who famously declared that “a golden tan is the index of chic,” and set a fashion trend that linked tanned skin with privilege, fashion, and liberation (21, 24). Furthermore, magazines and media influenced the general public by promoting celebrities and

individuals with a tanned appearance (25, 26). This social reinforcement has continued to influence public preferences through various media platforms, including social networking sites (SNS), films, dramas, and advertisements to this day.

With popularity gained through media exposures, pressure from peers and societal norms created a social reinforcement that actively continued this new beauty ideal. For instance, Western adolescents and young adults were found to be more likely to engage in tanning when family members express a preference for tanned skin and when peers are perceived to tan (27-29). This finding demonstrates that one’s skin preference is deeply influenced by one’s immediate social context and further supports a reinforcing cycle where the social ideals of tanned skin becomes more widespread and normalized. With tanned skin endorsed in the media, such ideals were actualized by the social circles that continued to reinforce the new beauty standard.

The current Western preference for tanned skin has shifted drastically from historical norms that once favored light skin as a symbol of wealth and beauty. This transition was driven by discoveries about sunlight and vitamin D, as well as shifting cultural values in the early 20th century. Today, tanning is continually reinforced by beauty standards grounded in broader societal, scientific, and cultural elements. This normalized behavior of Western culture has created a challenging social context that East Asian immigrants have to balance with their own cultural ideals and values.

## **ACCULTURATION, DISSONANCE, AND IDENTITY OF EAST ASIAN IMMIGRANTS**

Growing up in Western communities, East Asian immigrants often experience cultural dissonance when having to navigate contrasting beauty standards. As described above, while traditional East Asian cultures have long idealized light skin as a sign of purity, refinement, and social class, Western norms have more recently come to embrace tanned skin as a symbol of health, attractiveness, and social status. This creates a unique identity conflict for East Asian immigrants, as they are forced to balance the strong cultural values with the pressures of assimilation (30). Acculturation, the process of adapting to a new dominant culture, can create internal conflicts around skin tone, cultural belonging, and self-esteem and worth (31).

East Asian immigrants from countries such as Korea, Japan, and China are exposed to a standard that

contrasts with their ethnic values, where light skin is highly valued. However, traditional values often still persist, as shown by research in Australia that found first-generation Chinese and Korean immigrants frequently preferred fair skin and protecting the skin when outdoors (12). This finding shows that the East Asian Immigrants may continue to pursue their traditional beauty ideals even after moving to other countries with different ideals and peer perceptions.

Unfortunately, the cultural dissonance becomes problematic as immigrants continue to acculturate to the Western culture. Second generation immigrants are found to adopt more Western cultures and ideals, where individuals may begin to associate tanned or darker skin with attractiveness (32, 33). However, this acculturation doesn't come without its consequences. While family members discourage sun exposure and promote the preference for light skin, media portrayals and peer perceptions in Western social circles often encourage a tanned appearance (28). This cultural conflict, resulting in identity dissonance, can be especially problematic during childhood and adolescence during identity development (34). East Asian Americans face the danger of marginalization in their Western communities, yet this can also lead to criticism from their root East Asian communities (35, 36).

The tension between the two opposing cultural ideals negatively affects mental health, influenced by feelings of confusion and rejection of their self-identity. For example, East Asian women born in the United States tend to face more family conflict, especially when dealing with differences in acculturation and cultural expectations about appearance and beauty standards within their families (37). Furthermore, studies found that exclusion from ethnic communities based on skin tone creates uncomfortable emotional states that can even lead to psychological trauma (33). These findings suggest that young East Asian individuals in Western society are exposed to significant internal conflict over which beauty ideal to pursue, leading to constant frustration and confusion about what they genuinely find beautiful versus what they feel pressured to value.

The convergence of Western and East Asian standards of beauty shows the multifaceted, often painful, identity negotiations involved for East Asian immigrants and descendants. While a lighter skin tone may offer social and economic privileges in many East Asian contexts, it may also create feelings of inauthenticity and exclusion in Western contexts with a cultural proclivity for tanned skin (36). These

contradictions may lead to psychological stress, identity confusion, and cultural disconnection. As media portrayals, peer pressure, and developmental differences influence perceptions of beauty, it is important to establish how extensively these ideals affect not only a person's appearance but their emotional well-being and thus sense of cultural belonging. Furthermore, the persistent frustration with one's skin tone creates a powerful drive to alter one's skin tone, stemming from rejecting one's self-identity (38).

## **BENEFITS AND HEALTH CONSEQUENCES OF TANNING**

Skin darkening practices can take place in Western cultures in a variety of ways, including sitting outside in the sun for extended periods, using indoor tanning beds, and using self-tanning products, all significantly popularized in Western cultures. The common use of these methods reflects a desire to obtain a bronzed appearance that is congruent with modern beauty expectations. While these practices can temporarily boost self-esteem and confidence by helping individuals align with beauty standards, they also carry serious health risks. The tension between appearance-based rewards and long-term medical consequences reflects the complex nature of tanning culture and its psychological impact on individuals.

Moderate outdoor sun exposure is essential in maintaining good health. Most importantly, exposure to sunlight is essential for sufficient vitamin D synthesis, as vitamin D deficiency is becoming an increasingly common issue (39). The increased sunlight exposure also results in increased serotonin secretion, the hormone that contributes to mood enhancement. The production rate of serotonin within the brain was directly correlated with the prevailing duration of bright sunlight, exhibiting a rapid increase with increased light (40).

However, to achieve tanned bronze skin, individuals often avoid UV protection for intense tanning results, causing significant skin damage. A study found that individuals who prefer tanned skin tone tend to never use sunscreen and have longer outdoor tanning time (41). Poor UV protection significantly increases the risk of basal cell carcinoma (BCC), squamous cell carcinoma (SCC), and melanoma (42). Furthermore, unprotected exposure to UV radiation can lead to sunburn, pigmentation, suppression of acquired immunity, and enhancement of innate immunity (43).

More recently, people have been seeking alternative

methods to achieve a tanned skin tone. Indoor tanning is an alternative to outdoor tanning, but it has its own set of side effects. However, indoor tanning comes with significant risk of melanoma and keratinocyte carcinoma, which is estimated to cost billions in healthcare costs (44). Another alternative that has emerged in the market is fake tan products such as dihydroxyacetone (DHA), which have become a mainstay in the Western beauty market. Improper DHA use may result in skin irritation, unpleasant odors, skin thickening, skin lesions, and a reduction in skin elasticity due to the crosslinking of melanoidin polymers (45, 46). Likewise, actively altering one's skin tone to achieve an ideal skin tone can provide short-term psychological reward but inevitably cost unexpected biological harms from UV radiation and harmful chemicals.

Even if an individual acknowledges the possible harms of skin darkening behaviors, it is hard to quit skin darkening practices because of the psychological aspects of peer pressure and societal perception. Frequent tanners often expose themselves to excessive UV light, using more than needed to achieve and keep their desired skin tone (47). This behavior suggests a level of addiction and dependency that makes it tough for them to quit, even if they see the risks to their health as a reason to stop (48). Whether through sunbathing, indoor tanning, or chemical products like DHA-based tanners, individuals often prioritize short-term appearance over long-term health. Addressing this issue requires more than just raising awareness of medical risks; it requires confronting the societal pressures and internalized beliefs that make tanning behaviors difficult to abandon.

### **BENEFITS OF UV PROTECTION AND HEALTH CONSEQUENCES OF ACTIVE SKIN WHITENING**

In many East Asian cultures, having fair skin changes embodied practices of everyday living, which can lead to broader health outcomes. Those with preferences for paler skin learn to avoid the sun and establish very intentional sun protection practices, which are associated with reduced development of skin cancer, skin damage, premature aging, and associated skin diseases. However, these behaviors, while protective in some ways, also contribute to unintended health consequences, such as vitamin D deficiency. Additionally, the excessive desire for lighter skin often leads to the widespread use of whitening products,

many of which contain harmful chemicals that pose serious dermatological and systemic risks.

Sun avoidance and the widespread use of chemical lightening products, both driven by cultural ideals of fair skin, have contributed to the public health concerns in East Asian societies. A study found that women in cultures where fair skin is idealized often avoid sun exposure due to aesthetic preferences for lighter skin, concerns about aging, and cultural norms that associate fair skin with beauty and higher social status. This avoidance has contributed to significant vitamin D deficiency being observed in women of all age groups in China and South Korea (49, 50).

The beauty markets in fair-skin-valuing cultures heavily advertise skin-whitening products, which contain toxic chemical ingredients. Skin whitening products often use depigmenting agents intended for medical conditions like hyperpigmentation. However, the inappropriate and prolonged use of these products—many containing hydroquinone, corticosteroids, and mercury—leads to severe dermatological and systemic complications, including skin thinning, infections, and organ toxicity (51). Hydroquinone, the most widely used and recognized skin bleaching agent, can raise the risk of melanoma and non-melanoma skin cancers by over 3 times (52).

Together, these behaviors reveal extensive skin tone modification practices driven by the identity conflict and psychological stress of East Asian Americans. From chemical whitening and sun avoidance to various forms of tanning, each practice poses a significant risk to dermatologic and systemic health. The major practices, perceived benefits, and associated risks are summarized in Table 1.

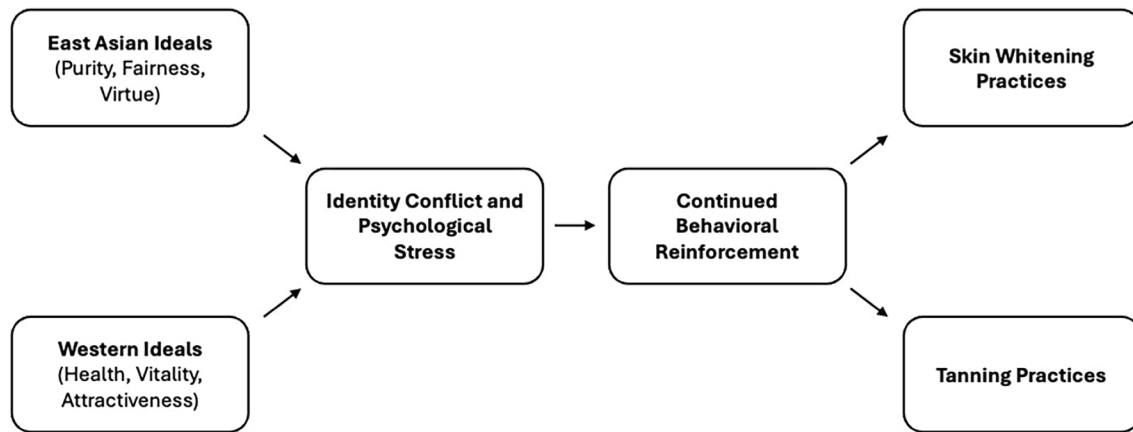
### **CONCLUSION**

By examining the cultural, social, and historical influences on skin tone ideals, our review explored the complex intersectionality of self-identity, social norms, and finally one's health of East Asian Americans. We find that the divergent beauty standards of light and tanned skin of Eastern and Western cultures create a significant cultural conflict in East Asian Americans, manifesting in psychological distress and medical consequences that range from colorism to harmful skin whitening and tanning practices (Figure 1).

East Asian individuals living in America often find themselves experiencing identity conflict while having to navigate differing standards surrounding skin tone.

**Table 1.** Summary of practices, perceived benefits, and health consequences of skin whitening and tanning

Category	Practice Type	Common Methods	Perceived Benefits	Health Risks / Consequences
Skin Whitening	Use of Skin-Whitening Products	Hydroquinone, corticosteroids, mercury-based creams	Lighter skin tone associated with refinement, femininity, and higher social standing	Skin thinning, dermatitis, infections, mercury and steroid toxicity, carcinogenic potential
	Sun Avoidance and UV Protection	Daily sunscreen use, avoidance of outdoor activity	Reduced UV damage and preservation of fair complexion	Vitamin D deficiency, reduced serotonin synthesis, impaired bone health
Tanning	Outdoor Tanning	Intentional sun exposure, limited sunscreen use	“Healthy glow,” social acceptance, and higher vitamin D levels	Sunburn, photoaging, DNA damage, increased risk of skin cancer
	Indoor Tanning	Use of UV tanning beds and lamps	Year-round tan, “Healthy glow,” social acceptance, and higher vitamin D levels	DNA damage, increased risk of skin cancer
	Chemical Tanning	Dihydroxyacetone	UV-free aesthetic improvement resembling natural tan	Skin irritation, oxidative stress, DNA damage



**Figure 1.** The bicultural pressures experienced by East Asian Americans leading to skin-altering behaviors.

However, these internal conflicts cannot be disregarded as individual experiences or choices. They are deeply intertwined with the historical basis of societal values, as East Asian Americans often face conflicting beauty standards from their traditional cultural preference for fair skin and Western ideals that favor tanned skin. This cultural dissension leads to struggles with identity, family conflict, and emotional strain, which often leads to extensive skin-altering practices.

Both tanning and whitening practices are commonly used by Asian Americans and carry significant health risks. Skin-darkening practices like intentional tanning and fake tan products have been found to contribute to skin cancer, immune suppression, and genotoxic effects

from chemicals like DHA. Despite the known dangers, many people continue tanning due to peer pressure, societal expectations, and addiction-like behavior. Conversely, light or fair skin practices can cause vitamin D deficiency and usually involve the use of toxic skin-lightening agents such as hydroquinone that can result in serious health consequences, such as cancer and organ toxicity. Likewise, the harms from skin-altering practices often far exceed the perceived benefits.

These serious mental and health risks call for systemic regulation and policies that can better prevent and resolve identity conflicts. Media platforms, including social networking sites (SNS), films, dramas, and advertisements, play a significant role in shaping

an individual's skin tone preferences through the pressure of sociocultural norms. For instance, social media algorithms feed users more content related to their ideal skin tone, which can worsen anxiety and negative self-image (53). Media can foster skin tone dissatisfaction, specifically leaving a detrimental impact on adolescents' mental health. The negative outcomes of various skin practices and dissatisfaction with skin tone underscore the need for better education and regulation. There is a need to diversify the skin tones represented in the media, which often promote social beauty standards of tanned or white appearances. Social media content should also focus on embracing diverse skin tones and promoting skin health, rather than perpetuating harmful standards. Public education should also teach children and adolescents about the risks of skin lightening and tanning, enabling teens to prioritize skin health over beauty ideals.

Health care providers, including dermatologists, primary care providers, and mental health specialists, need to understand how culturally derived standards for beauty can influence patients' perceptions of skin tone. They also need to be equipped to thoughtfully and openly discuss related topics and allow for patients to discuss and negotiate harmful or dangerous social pressures without reinforcing unhealthy views. Providers should also be careful not to recommend unsafe methods, such as the use of hydroquinones, and be aware that these products are not regulated in many locations around the world. Moreover, policies regulating chemical agents and artificial tanning devices need to be enforced in many contexts, and these practices are not without their risk of long-term health effects. For these reasons, the practice of routine screening for skin cancer and vitamin D deficiency should also be encouraged to promote reasonably balanced skin care practices. Finally, there needs to be improvement in access to culturally appropriate and affordable mental health services because most dissatisfaction related to skin tone can often be an extreme source of distress related to a broader sense of self or social comparison.

As a review paper, this study is limited by the nature of secondary research. First, the study does not include original data, which restricts the ability to capture current or evolving trends of skin tone preference or aesthetic practices. Second, studies referenced in this study mainly focused on Korean, Japanese, and Chinese individuals, and therefore, other East Asian countries or subgroups were not adequately represented. Additionally, most of the studies referenced in the study

often excluded the male and older population, focusing on the female and younger generations, which can lead to potential bias. Furthermore, mental health outcomes resulting from peer pressure and societal pressure to achieve an ideal skin tone, as well as the potential benefits of practices used to achieve fair or tanned skin, require further research.

In our review, we find that the differing beauty standards of light and tanned skin in Eastern and Western cultures cause cultural conflict for East Asian Americans, leading to psychological distress and health risks. To help individuals protect self-esteem and confidence, as well as mental well-being, there is a need for public policies and awareness campaigns that promote acceptance of diverse skin tones and challenge narrow beauty standards. Specifically, the public and the medical community should respond with education that values skin health and provides culturally appropriate care and accessible mental screening to Asian American adolescents, who are sensitive to social norms and peer pressure.

## CONFLICT OF INTERESTS

The author declares that there are no conflicts of interest to disclose.

## REFERENCE

1. Cancer Trends Progress Report National Cancer Institute, NIH, DHHS, Bethesda, MD, April 2025, <https://progressreportcancergov>, (accessed on 2025-04-30).
2. Arora N, Amin S. Analyzing Global Interest in Skin Whitening by Geographic Region. *Proc (Bayl Univ Med Cent)*. 2024; 37 (3): 505-7. <https://doi.org/10.1080/08998280.2024.2328448>
3. Glenn EN. Yearning for Lightness: Transnational Circuits in the Marketing and Consumption of Skin Lighteners. *Gender & Society*. 2008; 22 (3): 281-302. <https://doi.org/10.1177/0891243208316089>
4. Glenn E. Shades of Difference: Why Skin Color Matters edited by Evelyn Nakano Glenn. *Signs: Journal of Women in Culture and Society*. 2011; 36 (3): 764-6. <https://doi.org/10.1086/657512>
5. Jablonski NG. Living color: The biological and social meaning of skin color. *Berkeley: University of California Press*; 2012. xiii, 260-xiii, p. <https://doi.org/10.1525/9780520953772>
6. Keesling B, Friedman HS. Psychosocial factors in sunbathing and sunscreen use. *Health Psychol*. 1987;

- 6 (5): 477-93. <https://doi.org/10.1037/0278-6133.6.5.477>
7. Keith VM, Herring C. Skin tone and stratification in the Black community. *American Journal of Sociology*. 1991; 97 (3): 760-78. <https://doi.org/10.1086/229819>
  8. Martin J, Ghaferi J, Cummins D, Mamelak A, et al. Changes in skin tanning attitudes. Fashion articles and advertisements in the early 20th century. *American journal of public health*. 2009; 99: 2140-6. <https://doi.org/10.2105/AJPH.2008.144352>
  9. Olumide YM, Akinkugbe AO, Altraide D, Mohammed T, et al. Complications of chronic use of skin lightening cosmetics. *Int J Dermatol*. 2008; 47 (4): 344-53. <https://doi.org/10.1111/j.1365-4632.2008.02719.x>
  10. Holick MF. Sunlight and vitamin D for bone health and prevention of autoimmune diseases, cancers, and cardiovascular disease. *Am J Clin Nutr*. 2004; 80 (6 Suppl): 1678s-88s. <https://doi.org/10.1093/ajcn/80.6.1678S>
  11. Bowers JM, Hamilton JG, Wu YP, Moyer A, Hay JL. Acculturation, Sun Tanning Behavior, and Tanning Attitudes Among Asian College Students in the Northeastern USA. *Int J Behav Med*. 2022; 29 (1): 25-35. <https://doi.org/10.1007/s12529-021-09993-x>
  12. Jang H, Koo F, Oo L, Clemson L, et al. Culture and Sun Exposure in Immigrant East Asian Women Living in Australia. *Women & health*. 2013; 53: 504-18. <https://doi.org/10.1080/03630242.2013.806386>
  13. Dixon AR, Telles EE. Skin Color and Colorism: Global Research, Concepts, and Measurement. *Annual Review of Sociology*. 2017; 43 (Volume 43, 2017): 405-24. <https://doi.org/10.1146/annurev-soc-060116-053315>
  14. Li E, Min HJ, Belk RW, Kimura J, Bahl S. Skin lightening and beauty in four Asian cultures. *Advances in Consumer Research*. 2008; 35: 444-9.
  15. Ashikari M. Urban Middle-Class Japanese Women and Their White Faces: Gender, Ideology, and Representation. *Ethos*. 2003; 31 (1): 3-37. <https://doi.org/10.1525/eth.2003.31.1.3>
  16. Jeon W. *The Cultural History of Make-up in Korea*. Seoul, Korea: Yeolhwadang. 1987.
  17. Lotti V. The Image of the Beautiful Woman: Beauty Ideals in Modern Urban China. *ASIEN*. 2018: pp. 92-105.
  18. Bray F. Gender and Technology. *Annual Review of Anthropology*. 2007; 36 (Volume 36, 2007): 37-53. <https://doi.org/10.1146/annurev.anthro.36.081406.094328>
  19. Holliday R, Elfving-Hwang J. Gender, Globalization and Aesthetic Surgery in South Korea. *Body & Society*. 2012; 18 (2): 58-81. <https://doi.org/10.1177/1357034X12440828>
  20. Giannotta V. Drop Dead Gorgeous: Beauty and Whiteness in Victorian England. *The General: Brock University Undergraduate Journal of History*. 2023; 8: 73-92. <https://doi.org/10.26522/tg.v8i.4201>
  21. Chen H-Y, Yarnal C, Chick G, Jablonski N. Egg White or Sun-Kissed: A Cross-Cultural Exploration of Skin Color and Women's Leisure Behavior. *Sex Roles*. 2018; 78: 1-17. <https://doi.org/10.1007/s11199-017-0785-4>
  22. Sahn RE, McIlwain MJ, Magee KH, Veledar E, Chen SC. A cross-sectional study examining the correlation between sunless tanning product use and tanning beliefs and behaviors. *Arch Dermatol*. 2012; 148 (4): 448-54. <https://doi.org/10.1001/archdermatol.2011.2072>
  23. Tara Bronsick BKR. Unsightly Pictures: Tanning, Attractiveness, and Behavior. *prACTICAL Derm ATOLOGY*. 2013: 53-9.
  24. Randle HW. Suntanning: differences in perceptions throughout history. *Mayo Clin Proc*. 1997; 72 (5): 461-6. <https://doi.org/10.4065/72.5.461>
  25. Jackson KM, Aiken LS. A psychosocial model of sun protection and sunbathing in young women: the impact of health beliefs, attitudes, norms, and self-efficacy for sun protection. *Health Psychol*. 2000; 19 (5): 469-78. <https://doi.org/10.1037/0278-6133.19.5.469>
  26. Choi K, Lazovich D, Southwell B, Forster J, et al. Prevalence and Characteristics of Indoor Tanning Use Among Men and Women in the United States. *Archives of Dermatology*. 2010; 146 (12): 1356-61. <https://doi.org/10.1001/archdermatol.2010.355>
  27. Hoerster KD, Mayer JA, Woodruff SI, Malcarne V, et al. The influence of parents and peers on adolescent indoor tanning behavior: findings from a multi-city sample. *J Am Acad Dermatol*. 2007; 57 (6): 990-7. <https://doi.org/10.1016/j.jaad.2007.06.007>
  28. Cafri G, Thompson JK, Roehrig M, Rojas A, et al. Appearance motives to tan and not tan: evidence for validity and reliability of a new scale. *Ann Behav Med*. 2008; 35 (2): 209-20. <https://doi.org/10.1007/s12160-008-9022-2>
  29. Yoo JJ, Kim HY. Adolescents' body-tanning behaviours: Influences of gender, body mass index, sociocultural attitudes towards appearance and body satisfaction. *International Journal of Consumer Studies*. 2012; 36 (3): 360-6. <https://doi.org/10.1111/j.1470-6431.2011.01009.x>
  30. Suinn RM. Reviewing acculturation and Asian Americans: How acculturation affects health, adjustment, school achievement, and counseling. *Asian American Journal of Psychology*. 2010; 1 (1): 5-17. <https://doi.org/10.1037/a0018798>
  31. Mok TA. Getting the message: Media images and stereotypes and their effect on Asian Americans.

- Cultural Diversity and Mental Health*. 1998; 4 (3): 185-202. <https://doi.org/10.1037/1099-9809.4.3.185>
32. Webster M, Driskell J. Beauty as Status. *American Journal of Sociology*. 1983; 89: 140-65. <https://doi.org/10.1086/227836>
  33. Hunter M. The Persistent Problem of Colorism: Skin Tone, Status, and Inequality. *Blackwell Publishing Ltd Sociology Compass Espino and Franz Hill Hughes and Hertel Keith and Herring Murguia and Telles*. 2007; 100006: 237-54. <https://doi.org/10.1111/j.1751-9020.2007.00006.x>
  34. Phinney JS. Ethnic identity in adolescents and adults: Review of research. *Psychological Bulletin*. 1990; 108 (3): 499-514. <https://doi.org/10.1037/0033-2909.108.3.499>
  35. Sue DW, Sue D, Neville HA, Smith L, John Wiley & Sons. *Counseling the culturally diverse: theory and practice*. Hoboken, NJ: Wiley;; 2022.
  36. Berry J. Berry JW. Acculturation: living successfully in two cultures. *Int J Intercult Relat*. 2005; 29 (6): 697-712. *International Journal of Intercultural Relations*. 2005; 29: 697-712. <https://doi.org/10.1016/j.ijintrel.2005.07.013>
  37. Castillo LG, Zahn MP, Cano MA. Predictors of familial acculturative stress in Asian American college students. *Journal of College Counseling*. 2012; 15 (1): 52-64. <https://doi.org/10.1002/j.2161-1882.2012.00005.x>
  38. Kaw E. Steven Polgar Prize Essay (1991). Medicalization of racial features: Asian American women and cosmetic surgery. *Medical anthropology quarterly*. 1993; 7 (1): 74-89. <https://doi.org/10.1525/maq.1993.7.1.02a00050>
  39. Norval M, Wulf HC. Does chronic sunscreen use reduce vitamin D production to insufficient levels? *Br J Dermatol*. 2009; 161 (4): 732-6. <https://doi.org/10.1111/j.1365-2133.2009.09332.x>
  40. Lambert GW, Reid C, Kaye DM, Jennings GL, Esler MD. Effect of sunlight and season on serotonin turnover in the brain. *Lancet*. 2002; 360 (9348): 1840-2. [https://doi.org/10.1016/S0140-6736\(02\)11737-5](https://doi.org/10.1016/S0140-6736(02)11737-5)
  41. Sacksner JP, Kaundinya T, Daftary K, Jackson KL, Kundu RV. Skin tone preferences and their influence on skin care behaviors. *Arch Dermatol Res*. 2022; 314 (10): 961-6. <https://doi.org/10.1007/s00403-021-02320-0>
  42. Armstrong BK, Krickler A. The epidemiology of UV induced skin cancer. *J Photochem Photobiol B*. 2001; 63 (1-3): 8-18. [https://doi.org/10.1016/S1011-1344\(01\)00198-1](https://doi.org/10.1016/S1011-1344(01)00198-1)
  43. Young A, Claveau J, Rossi A. Ultraviolet radiation and the skin: Photobiology and sunscreen photoprotection. *Journal of the American Academy of Dermatology*. 2016; 76. <https://doi.org/10.1016/j.jaad.2016.09.038>
  44. Gordon LG, Rodriguez-Acevedo AJ, Køster B, Guy GP, Jr., et al. Association of Indoor Tanning Regulations With Health and Economic Outcomes in North America and Europe. *JAMA Dermatol*. 2020; 156 (4): 401-10. <https://doi.org/10.1001/jamadermatol.2020.0001>
  45. Gallagher M. Exposure to Dihydroxyacetone in Sunless Tanning Products: Understanding the Risks. *Journal of the Dermatology Nurses' Association*. 2017; 10: 1. <https://doi.org/10.1097/JDN.0000000000000366>
  46. Petersen AB, Wulf HC, Gniadecki R, Gajkowska B. Dihydroxyacetone, the active tanning ingredient in sunless tanning lotions, induces DNA damage, cell-cycle block and apoptosis in cultured HaCaT keratinocytes. *Mutat Res*. 2004; 560 (2): 173-86. <https://doi.org/10.1016/j.mrgentox.2004.03.002>
  47. Nolan BV, Taylor SL, Liguori A, Feldman SR. Tanning as an addictive behavior: a literature review. *Photodermatol Photoimmunol Photomed*. 2009; 25 (1): 12-9. <https://doi.org/10.1111/j.1600-0781.2009.00392.x>
  48. Heckman CJ, Darlow S, Kloss JD, Cohen-Filipic J, et al. Measurement of tanning dependence. *J Eur Acad Dermatol Venereol*. 2014; 28 (9): 1179-85. <https://doi.org/10.1111/jdv.12243>
  49. Mithal A, Wahl DA, Bonjour JP, Burckhardt P, et al. Global vitamin D status and determinants of hypovitaminosis D. *Osteoporos Int*. 2009; 20 (11): 1807-20. <https://doi.org/10.1007/s00198-009-1030-y>, <https://doi.org/10.1007/s00198-009-0954-6>
  50. Lips P, Hosking D, Lippuner K, Norquist JM, et al. The prevalence of vitamin D inadequacy amongst women with osteoporosis: an international epidemiological investigation. *J Intern Med*. 2006; 260 (3): 245-54. <https://doi.org/10.1111/j.1365-2796.2006.01685.x>
  51. Dadzie OE, Petit A. Skin bleaching: highlighting the misuse of cutaneous depigmenting agents. *J Eur Acad Dermatol Venereol*. 2009; 23 (7): 741-50. <https://doi.org/10.1111/j.1468-3083.2009.03150.x>
  52. Miles B, Wilkerson M. The dark side of hydroquinone for skin lightening: 3-fold increased risk of skin cancer - a cohort study. *Journal of Investigative Dermatology*. 2022. <https://doi.org/10.1016/j.jid.2022.05.936>
  53. Le T-T, Jin R. How East Asian colorism influences the use of skin-whitening products: The case of Chinese adolescents. *Social Behavior and Personality: an international journal*. 2024; 52 (12): 1-13. <https://doi.org/10.2224/sbp.13704>