

# Colorism attitudes and use of skin lightening agents in the United States

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## ABSTRACT

**Background:** Skin lightening (SL) is a practice involving the use of chemicals to lighten the skin that is more common among skin of color (SOC) individuals, particularly women, and can lead to adverse health consequences.

**Objective:** In this study, we examine SL habits, including both general lightening and lightening for the treatment of a skin condition, among SOC individuals in the United States and the role of colorism in motivating these behaviors.

**Methods:** A cross-sectional survey was administered to SOC individuals through ResearchMatch, an online national health registry. Demographics, rates of SL, SL habits, and perceived colorism among SL users and nonusers were collected and analyzed with  $\chi^2$ , Fisher's exact, Analysis of variance (ANOVA), Spearman correlation, and *t* tests.

**Results:** A total of 455 participants completed the survey. Ninety-seven participants (21.3%) reported using SL agents: 73.2% (71/97) used SL agents for the treatment of a skin condition and 26.8% (26/97) used the products for general SL. Only 22.6% (22/97) of SL users consulted a medical provider before using the products. Forty-four participants (45.4%) were unaware of their SL product ingredients, and 35.1% (34/97) reported using hydroquinone-based products. Composite colorism scores were significantly higher in SL users than nonusers (20.03 vs 18.20; *P* < .001).

**Limitations:** This study used self-reported racial/ethnic groups to characterize those with SOC rather than assessing actual skin tones of participants, which could have led to variability.

**Conclusion:** SL among SOC individuals is prevalent in the U.S. and poses a health risk, as many SL users are unaware of product ingredients, do not consult a medical provider before use, and have access to potentially unsafe formulations. Dermatologists should address skin tone and pigmentary concerns with their SOC patients.

**Keywords:** colorism, skin bleaching, skin lightening, skin of color

## Introduction

Skin lightening (SL) and bleaching—the use of chemicals to lighten the skin—is an expanding and largely unregulated multi-billion-dollar global industry that is influenced by colorism, the system of inequality that affords opportunities and privileges to lighter-skinned individuals across racial/ethnic groups.<sup>1,2</sup> Women, in particular, are vulnerable as media and popular culture propagate beauty standards that lighter skin can elevate their physical appearance and social acceptance.<sup>1,3</sup> SL poses a potential threat to consumers and raises challenges for dermatologists due to products containing ingredients that

may lead to adverse health consequences, particularly with prolonged use and lack of medical consultation.<sup>4</sup> Rates of SL

### What is known about this subject in regard to women and their families?

- Skin lightening (SL) is the practice of using chemicals to lighten dark areas of skin or achieve a generally lighter skin tone. Studies in multiple Asian and African countries have found that SL is prevalent among those with skin of color (SOC).
- Attitudes of colorism—the system of inequality that views lighter skin as more beautiful and advantageous—are often propagated by social media and popular culture, driving individuals to participate in potentially risky SL behaviors.

### What is new from this article as message for women and their families?

- Although we found no differences in SL use between the genders, our sample consisting of largely women (80%) demonstrated that SL is a prevalent practice among SOC individuals in the U.S.
- Those that use SL products reported stronger perceived colorism than nonusers.
- SL poses a health risk since many users are unaware of the ingredients in their products, have access to potentially unsafe formulations, and do not consult a medical provider before use.

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vary globally from 27% in South Africa to 77% in Nigeria and 40% in China and South Korea; however, little is known about SL prevalence and habits within the United States (U.S.).<sup>5</sup> The objective of this study is to examine SL habits among skin of color (SOC) individuals in the U.S. and the role of colorism in motivating these behaviors.

## Methods

This cross-sectional survey study was exempted by the Northwestern University Institutional Review Board. An anonymous, electronic, 19-item questionnaire was distributed to participants through ResearchMatch, a national online health volunteer registry supported by the US National Institutes of Health. Individuals were contacted directly through messaging on the ResearchMatch platform. Only SOC individuals were contacted, defined as those self-identifying as American Indian or Alaska Native, Asian, Black or African American, Native Hawaiian or other Pacific Islander, multiracial, Hispanic, or other race.

The survey collected information on participant demographics, colorism attitudes, skin tone satisfaction, and if applicable, SL habits. To assess colorism attitudes, participants were asked to score 6 statements adapted from Hamed et al.<sup>6</sup> on a Likert scale of 1 (strongly disagree) to 5 (strongly agree). The scores were summed into a composite colorism score ranging from 6 to 30, with higher scores signifying stronger perceived colorism. Likewise, skin satisfaction levels were scored on a Likert scale of 1 (very unsatisfied) to 5 (very satisfied). Data were analyzed with  $\chi^2$ , Fisher's exact, Analysis of variance (ANOVA), Spearman correlation, and *t* tests using R version 4.2.1. A Bonferroni-adjusted *P* value of < .001 was considered statistically significant.

## Results

In total, 578 participants were contacted, and 455 completed the survey for a response rate of 78.7%. The respondents identified as Black or African American (52.3%; *n* = 238/455), Asian (18.2%; *n* = 83/455), multiracial (18.5%; *n* = 84/455), Hispanic (6.8%; *n* = 31/455), American Indian or Alaska Native (3.1%; *n* = 14/455), and other (1.1%; *n* = 5/455). Regarding immigration status, 14.7% (67/455) identified as first generation (foreign-born individuals) and 31.2% (142/455) as second generation (US-born individuals with at least 1 foreign-born parent). Additional demographics are summarized in Table 1.

Ninety-seven participants (21.3%) reported using SL agents. Of that group, 73.2% (71/97) used SL agents for the treatment of a skin condition, such as acne, melasma, or post-inflammatory hyperpigmentation, whereas 26.8% (26/97) used the products for general SL (Table 2). Only 22.6% (22/97) of SL agent users consulted a medical provider before using products. Forty-four participants (45.4%) could not identify the active ingredient in their SL products. Of the reported active ingredients, hydroquinone (35.1%; 34/97), ascorbic acid (21.6%; 21/97), glycolic acid (18.6%; 18/97), salicylic acid (16.5%; 16/97), and niacinamide (15.5%; 15/97) were the most common. The most common sites of application were the face (88.7%; 86/97) and neck (38.1%; 37/97). Participants obtained SL products from chain pharmacy and grocery stores (42.2%; 41/97), community beauty stores or abroad (23.7%; 23/97), online (15.5%; 15/97), medical providers (14.4%; 14/97), and home (2.1%; 2/97). There were no significant differences in SL based on age, gender, race/ethnicity, immigration status, or education level.

**Table 1**  
Demographics of survey participants

Characteristic	All participants ( <i>n</i> = 455; 100%)	No. (%)	
		Skin lightening agent users ( <i>n</i> = 97; 21.3%)	Skin lightening agent nonusers ( <i>n</i> = 358; 78.7%)
Age (median [25%–75%])	41 (29–54)	44 (30–56)	39 (29–35)
Gender			
Man	74 (16.3)	10 (10.3)	64 (17.8)
Woman	364 (80.0)	82 (84.5)	282 (78.7)
Nonbinary	16 (3.5)	4 (4.1)	12 (3.4)
Other	1 (0.2)	1 (1.0)	0 (0)
Race/ethnicity			
Black or African American	238 (52.3)	61 (62.9)	177 (49.4)
Asian	83 (18.2)	20 (20.6)	63 (17.6)
East Asian	46 (10.1)	10 (10.3)	36 (10.1)
South Asian	34 (7.5)	9 (9.3)	25 (7.0)
Other Asian	3 (0.7)	1 (1.0)	2 (0.6)
Hispanic	31 (6.8)	5 (5.2)	26 (7.3)
American Indian or Alaska Native	14 (3.1)	2 (2.1)	12 (3.3)
Other race	5 (1.1)	1 (1.0)	4 (1.1)
Multiracial	84 (18.5)	8 (8.2)	76 (21.2)
Region of residence			
Northeast	93 (20.4)	17 (17.5)	76 (21.2)
Midwest	92 (20.2)	20 (20.6)	72 (20.1)
South	202 (44.4)	45 (46.4)	157 (43.9)
West	68 (14.9)	15 (15.5)	53 (14.8)
Highest level of education			
Less than high school	3 (0.7)	0 (0)	3 (0.8)
High school diploma	67 (14.7)	13 (13.4)	54 (15.1)
Associate degree	66 (14.5)	20 (20.6)	46 (12.8)
Bachelor's degree	153 (33.6)	31 (32.0)	122 (34.1)
Graduate degree	166 (36.5)	33 (34.0)	133 (37.2)
Immigration generational status <sup>a</sup>			
First generation	67 (14.7)	15 (15.5)	52 (14.5)
Second generation	142 (31.2)	36 (37.1)	106 (29.6)

<sup>a</sup>First-generation individuals are defined in this study as foreign-born individuals; Second-generation individuals are defined as US-born individuals with at least 1 parent who is foreign-born.

**Table 2**  
**Skin lightening habits of study participants**

Characteristic	No. (%) n = 97
Purpose of skin lightening product	
Treatment of skin problem	71 (73.2)
General lightening	26 (26.8)
Medical consultation before use of product	
No	75 (77.3)
Yes	22 (22.7)
Areas of body product was applied	
Face	86 (88.7)
Neck	37 (38.1)
Legs	24 (24.7)
Arms	21 (21.6)
Underarms	18 (18.6)
Hands	15 (15.5)
Back	11 (11.3)
Chest	10 (10.3)
Feet	10 (10.3)
Abdomen	9 (9.3)
Active ingredients in product	
Unknown	44 (45.4)
Hydroquinone	34 (35.1)
Ascorbic acid (vitamin C)	21 (21.6)
Glycolic acid	18 (18.6)
Salicylic acid	16 (16.5)
Niacinamide	15 (15.5)
Kojic acid	14 (14.4)
Tretinoin	14 (14.4)
Tocopherol (vitamin E)	11 (11.3)
Licorice extract	9 (9.3)
Arbutin	8 (8.2)
Soy extract	7 (7.2)
Azelaic acid	5 (5.2)
Mequinol	4 (4.1)
Titanium dioxide	4 (4.1)
Tranexamic acid	4 (4.1)
Steroids	3 (3.1)
Mercury	2 (2.1)
Where product was obtained	
Chain pharmacy or grocery store	41 (42.2)
Community beauty store or abroad	23 (23.7)
Online	15 (15.5)
Medical provider or prescription	14 (14.4)
Homemade	2 (2.1)
Other	3 (3.1)

Composite colorism scores were significantly higher in those that used SL agents than in those that did not (20.03 vs 18.20;  $P < .001$ ) (Table 3). Specifically, SL agent users more strongly agreed with the statements that lighter skin is more beautiful ( $P < .001$ ), increases one's self-esteem ( $P < .001$ ), and increases one's chance of having a romantic relationship or getting married ( $P$

$< .001$ ). There was no statistically significant difference between SL agent users and nonusers on the statements that lighter skin tone is portrayed as more beautiful in the media ( $P = .187$ ), increases one's job opportunities ( $P = .884$ ), and increases one's chance of having friendships ( $P = .046$ ). Additionally, SL agent users had lower skin tone satisfaction levels than nonusers (3.86 vs 4.33;  $P < .001$ ). Black participants had higher skin tone satisfaction than Asian ( $P < .001$ ), Hispanic ( $P < .001$ ), and multi-racial participants ( $P < .001$ ). Age directly correlated with skin tone satisfaction ( $r = 0.2377$ ;  $P < .001$ ) and inversely correlated with composite colorism score ( $r = -0.209$ ;  $P < .001$ ).

## Discussion

This study examines SL prevalence, habits, and motivations within the U.S. Among our study population, 21.3% of SOC participants reported using SL agents, of which the majority (73.2%) used SL agents for the treatment of a skin condition and the minority (26.8%) used the products for general SL. Specifically, only 5.7% of all participants used SL products for generalized SL. This is slightly less than the estimated global prevalence of using SL agents of 27% and substantially lower than similar studies conducted in some Asian and African countries.<sup>5,7</sup> Nevertheless, these results suggest that SL is prevalent among SOC individuals in the U.S.

A large proportion of SL agent users in the present study remained unaware of the active ingredients in their products (45.4%) and did not consult a medical provider before use (77.3%), suggesting that consumers may not fully understand the risks of bleaching agents in their products. Hydroquinone was the most common active ingredient reported (35.1%). Prolonged use or misuse of hydroquinone may lead to adverse effects, including contact dermatitis, exogenous ochronosis, ocular melanosis, and nail hyperpigmentation.<sup>4,5</sup> Following the Coronavirus Aid, Relief, and Economic Security Act of 2020, over-the-counter hydroquinone sales were prohibited in the U.S.<sup>8</sup> However, this study demonstrates that consumers in the U.S. may still have access to hydroquinone formulations through community beauty stores, online retailers, and purchases made while abroad.

SL agent users had a significantly stronger belief in colorism than nonusers, including beliefs that lighter skin was more beautiful, increased self-esteem, and increased romantic prospects ( $P < .001$ ). These findings are consistent with similar studies conducted among women in Jordan, Saudi Arabia, South Africa, and Somalia who engage in SL.<sup>3,6,9,10</sup> Though most participants in this study reported SL to treat a skin condition (73.2%) as opposed to general SL (26.8%), the significantly stronger belief in colorism points to this as a co-existing and potentially subconscious motivation. Additionally, SL agent users had significantly lower skin tone satisfaction levels compared to nonusers ( $P < .001$ ). These findings may be partly attributable to the colorism ideals that continue to be propagated in popular culture, social media, and institutions in the U.S. today.<sup>5,11</sup>

**Table 3**  
**Comparison of colorism scores in those that practice skin lightening and those who do not**

Colorism statement	Average score (skin-lightening users)	Average score (no skin lightening)	P value
Lighter skin tone is more beautiful	2.412	1.936	<.001
Lighter skin tone is portrayed as more beautiful in the media	4.433	4.288	.187
Lighter skin tone increases one's job opportunities	3.804	3.788	.894
Lighter skin tone increases one's self-esteem	3.268	2.863	<.001
Lighter skin tone increases one's chance of having a romantic relationship or getting married	3.278	2.771	<.001
Lighter skin tone increases one's chance of having friendships	2.835	2.559	.046
<b>Composite colorism score</b>	<b>20.031</b>	<b>18.204</b>	<b>&lt;.001</b>

This study has certain limitations. First, it is impossible to account for the heterogeneity of SOC individuals in the U.S. with broad racial/ethnic categories, which likely obscures true differences between groups.<sup>12</sup> In addition, this study used self-reported racial/ethnic categories to include those with SOC and did not assess the actual skin tones of participants. This could have led to variability as some individuals identifying as White could have darker skin tones and those of the included racial/ethnic groups could have lighter skin tones (Fitzpatrick skin phototype I-III). Additionally, since the participants contacted were aware of the topic of the survey, there is potential response bias as SL agent users may have been more inclined to participate, overestimating the rate of SL use. Finally, the smaller proportion of certain racial/ethnic groups, education levels, and male participants may further skew the data.

## Conclusion

SL is prevalent in the SOC community and poses a potential health risk, as many SL users are unaware of the ingredients in their products, do not consult a medical provider before use, and have access to potentially unsafe formulations. These findings underscore the important role of dermatologists in addressing skin tone and pigmentary concerns with their SOC patients, as patients may be using SL agents for a variety of reasons: most commonly for self-treatment of a skin condition but also for general SL. We urge dermatologists to recognize the historical and sociocultural motivations for SL and uncover patient beliefs about the perceived risks and benefits of SL. Initiatives to increase public awareness about the harmful effects of colorism and celebrate all skin tones in SOC communities will further enable dermatologists to promote skin health and limit risky SL practices.

## Conflicts of interest

None.

## Funding

None.

## Study approval

This study was deemed exempt by the Northwestern University Institutional Review Board.

## Author contributions

KD participated in research design, performance of the research, data analysis, and writing of the paper. SP participated in data analysis and writing of the paper. NP participated in writing of the paper. MS and LM participated in data analysis. RVK participated in research design, performance of research, writing of the paper, and supervision.

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