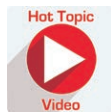


What's in a Name? Implicit Bias Affects Patient Perception of Surgeon Skill

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Background: Implicit bias is the unconscious associations and beliefs held toward specific demographic groups. Instagram is commonly used by plastic surgeons to market their practice. This study investigates whether a surgeon's name on a social media platform influences perception of their competence and their likelihood of gaining a new patient.

Methods: A mock Instagram post was created using before-and-after photographs of a breast augmentation patient. Eight different ethnicities were selected, and common female and male names were selected based on U.S. Census data for each ethnicity. Surveys using the Instagram post were distributed asking responders to evaluate the competency of the surgeon and how likely they are to become a patient of that plastic surgeon. The surgeon's name was the only variable in the survey.

Results: A total of 2965 survey responses were analyzed. The majority of responders were Caucasian (57 percent); 55 percent were men and 45 percent were women. Overall, competence and recruitment likelihood scores between surgeons of different ethnicities were not significantly different. Caucasian and Latinx responders both assigned higher competence and recruitment likelihood scores to their own respective ethnicities.

Conclusions: Implicit bias plays a role in whether or not a patient is likely to seek care from a surgeon with an ethnically identifiable name. The two most common cosmetic surgery demographic groups, Caucasians and Latinxs, were also the only two ethnic groups to display in-group favoritism. Public education should be directed toward surgeon qualifications and experience in an effort to reduce implicit bias on patient decision-making. (*Plast. Reconstr. Surg.* 147: 948e, 2021.)

Implicit bias is the unconscious association, belief, or stereotype toward specific demographic groups that can lead to discriminating actions.¹ In the health care setting, implicit bias can lead to misleading and inaccurate evaluations of a patient or a physician based on perceptions of race and gender, and can ultimately compromise treatment plans and health care outcomes.^{2,3} A surgeon who has an ethnically identifiable name can be subject to the implicit bias a patient holds toward that particular ethnicity. Similarly, a surgeon whose name reveals their gender could potentially become the subject of gender bias.

Economics Professor Bertrand famously demonstrated how representation on a resume (i.e., job candidates using a white-sounding name versus a

black-sounding name) can influence the number of callbacks job candidates receive for an interview, with all other factors identical on the resume.⁴ White-sounding names received 50 percent more

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callbacks compared to black-sounding names.⁴ In the medical field, prior research on the topic of implicit bias has demonstrated that patients, when given the opportunity to select their physician, chose providers who shared their same race.⁵ There have been limited data published in the surgical literature on patient perceptions of their surgeon's ethnicity and gender and how this may affect their decision to seek care from that surgeon.

Plastic surgeons are at particular risk given the widespread use of social media platforms as a means for marketing themselves, as they often use their given name as their "handle" or username. For example, Instagram is commonly used by plastic surgeons to attract potential patients by posting patient testimonials, procedural videos, and before-and-after photographs.^{6,7} Similar to the mock applicants in the Bertrand study, plastic surgeons have to compete and attract patients; the surgeon's Instagram page serves as a photographic and video resume, and does not always include relevant information about training, board-certification status, and other factors. The name that appears on a plastic surgeon's Instagram account (i.e., their resume) can influence the number of patients that they recruit (i.e., the number of callbacks). Given the increasing prevalence of social media in plastic surgery, we aim to investigate whether a surgeon's name on a social media platform influences perception of their competence and their likelihood of recruiting a new patient.

PATIENTS AND METHODS

A mockup of an Instagram post was created using before-and-after photographs of a breast augmentation patient (Fig. 1) in Adobe Photoshop CC (Adobe Systems, Inc., San Jose, Calif.). Breast augmentation results were used because it is the most common cosmetic surgical procedure performed in the United States.⁸ Patient identifiers such as moles, tattoos, and jewelry were removed to protect patient privacy. In keeping with Instagram guidelines, black boxes were placed over the nipple-areola complexes, as this is considered sensitive content. A photograph of the American Society of Plastic Surgeons logo was used as the post's profile photograph. Social engagement markers such as "likes" and "comments" were removed to reduce confounding variables. The same before-and-after photographs were used in each post, with the surgeon's Instagram handle (surgeon's name) manipulated as the only variable; each survey responder was shown only one of 16 surgeon name combinations (Table 1).

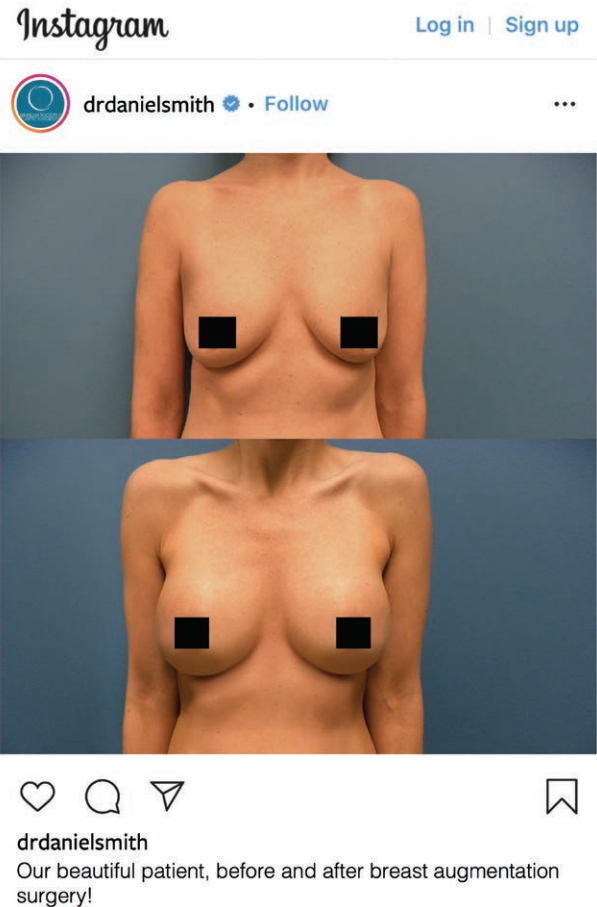


Fig. 1. Mock Instagram post showing before-and-after results of breast augmentation surgery.

Table 1. Ethnicities and Surgeon Names Used in Mock Instagram Post

Ethnicity/Gender	Surgeon Name
Caucasian American	
Male	Daniel Smith
Female	Samantha Johnson
Jewish American	
Male	Avi Goldberg
Female	Yael Jakubowicz
Black	
Male	Deshawn Washington
Female	Ebony Jackson
African	
Male	Oluwole Ojukwu
Female	Chinaka Sokoto
East Asian	
Male	Zhao Zhang
Female	Wei Huang
South Asian	
Male	Sanjiv Singh
Female	Priya Patel
Middle Eastern	
Male	Abraham Mohamed
Female	Iman Ahmed
Latinx	
Male	Jose Gonzalez
Female	Sofia Hernandez

Eight different ethnic groups were selected, and common female and male names were selected for each ethnicity (based on national census data from 2000 to 2018) for a total of 16 unique surgeon names.^{9–13} The following ethnicities were selected: Caucasian American, Caucasian Jewish, African American, Black African, East Asian, South Asian, Middle Eastern, and Latinx. The decision to choose these ethnic groups was based on previous research indicating ethnic groups typically represented and underrepresented in plastic surgery¹⁴ (Table 1).

The survey was created using the online survey platform Qualtrics (SAP, Seattle, Wash.). Responders were provided the mock Instagram post and asked, “On a scale of 1 to 5 (with 1 as incompetent and 5 as competent), how would you rate this surgeon?” The responses to this question (question 1) were used to calculate perceived surgeon competence score. The second question asked responders, “On a scale of 1 to 5 (with 1 as unlikely and 5 as likely), how likely are you to let this surgeon operate on you?” The responses to this question (question 2) were used to calculate patient recruitment likelihood score. Additional demographic information such as responder age, gender, ethnicity, and level of education was also collected. The survey was randomized and distributed equally to survey responders to represent all 16 surgeons equally. The “Prevent Ballot Box Stuffing” option in Qualtrics was enabled, blocking duplicate entries from the same IP address.

The survey was distributed using Amazon MTurk (Amazon, Seattle, Wash.), a crowd-sourcing platform, to gather accurate survey responses in a high-throughput manner.¹⁵ Survey responders were compensated with a \$0.10 payment. Responses with missing question fields were excluded from the final data set. This study qualified as institutional review board exempt. This study was performed in accordance with the Declaration of Helsinki. Two-way analysis of variance testing using Microsoft Excel (Microsoft Corp., Redmond, Wash.) and GraphPad Prism (GraphPad Software, Inc., San Diego, Calif.) was used for data analysis.

RESULTS

A total of 3200 responses were collected; 235 responses were discarded because of incomplete information, for a net of 2965 responses used in the final data set. Of the study responders, 55 percent were male ($n = 1621$) and 45 percent were female ($n = 1332$). In terms of ethnicities,

57 percent identified as Caucasian American ($n = 1682$), 16 percent identified as South Asian ($n = 478$), 7 percent identified as East Asian ($n = 212$), 6 percent identified as Latinx ($n = 184$), 6 percent identified as African American ($n = 165$), 5 percent identified as other ($n = 141$), 2 percent identified as Caucasian Jewish ($n = 52$), 1 percent identified as Black African ($n = 26$), and 1 percent identified as Middle Eastern ($n = 25$). Complete demographic data of all responders is listed in Table 2.

Overall, there were no differences between competence scores assigned to male and female surgeons (4.19 and 4.21 respectively; $p = 0.5384$) (Table 3). Similarly, there were no overall differences between recruitment likelihood scores and surgeon gender (3.53 for male surgeons and 3.52 for female surgeons; $p = 0.8316$). The Latinx male surgeon received the highest mean competence score (4.27); when compared to all responses for all surgeons, this difference was not statistically significant ($p = 0.2987$). The Middle Eastern male surgeon received the lowest mean competence score (4.08); when compared to all responses for all surgeons, this difference was not statistically significant ($p = 0.0735$). The Caucasian male surgeon received the highest mean patient recruitment likelihood score (3.66), whereas the Black African female surgeon received the lowest mean patient recruitment likelihood score (3.43); however, this difference was not statistically significant ($p = 0.0747$) (Table 3).

When comparing responder gender and mean competence score, female responders scored female surgeons higher (4.20 for female surgeons; 4.15 for male surgeons), whereas male responders scored male surgeons higher (4.20 for female surgeons; 4.23 for male surgeons) (Table 4). However, these differences were not statistically significant ($p = 0.3190$ and $p = 0.8143$, respectively). When comparing responder gender and mean recruitment likelihood scores, female responders assigned lower recruitment likelihood scores when compared to male responders and others (3.40 versus 3.60); this difference was statistically significant ($p < 0.0001$) (Table 4).

Table 5 compares responder ethnicity and surgeon ethnicity with mean competence and recruitment likelihood scores. Caucasian American responders were assigned higher competence scores overall compared to all other responders ($p < 0.0001$); East Asian, Middle Eastern, South Asian, and Black African responders were assigned lower competence scores ($p = 0.0002$, $p = 0.0069$, $p < 0.0001$, and $p = 0.0073$, respectively). When

Table 2. Summary of Responder Demographics

Characteristic	African American (%)	Black African (%)	Caucasian American (%)	Caucasian Jewish (%)	East Asian (%)	Latinx (%)	Middle Eastern (%)	South Asian (%)	Other (%)	Total (%)
Age, yr										
18-24	0.67	0.24	5.13	0.13	1.45	1.55	0.27	3.54	1.18	14.17
25-34	2.83	0.47	21.32	0.81	3.78	2.77	0.34	9.11	1.92	43.34
35-44	1.32	0.13	16.49	0.37	1.42	1.35	0.13	2.36	0.91	24.49
45-54	0.40	0.03	8.43	0.30	0.40	0.30	0.10	0.88	0.47	11.33
55-64	0.24	0.00	3.71	0.10	0.07	0.24	0.00	0.24	0.24	4.82
≥65	0.10	0.00	1.65	0.03	0.03	0.00	0.00	0.00	0.03	1.85
Education										
Less than high school	0.03	0.07	0.37	0.03	0.07	0.00	0.00	0.00	0.10	0.67
High school diploma/GED	1.69	0.20	15.21	0.17	0.78	1.92	0.24	0.61	1.11	21.92
Associate	1.08	0.03	10.39	0.17	0.57	0.94	0.10	0.37	0.51	14.17
Bachelor's	1.99	0.34	22.60	0.81	4.32	2.39	0.24	9.81	2.36	44.86
Master's	0.74	0.24	6.98	0.47	1.28	0.81	0.17	4.79	0.54	16.02
Doctoral	0.03	0.00	1.18	0.10	0.13	0.13	0.10	0.54	0.13	2.36
Sex										
Female	3.24	0.27	27.22	0.64	2.80	2.46	0.17	6.31	1.82	44.92
Male	2.29	0.61	29.31	1.08	4.32	3.74	0.64	9.81	2.87	54.67
Other	0.03	0.00	0.20	0.03	0.03	0.00	0.03	0.00	0.07	0.40
Total (n = 2965)	5.56	0.88	56.73	1.75	7.15	6.21	0.84	16.12	4.76	100.00

GED, General Educational Development.

analyzing the specific scores assigned to each surgeon group, Caucasian American responders scored Caucasian American surgeons as more competent compared to all responders ($p < 0.0001$). Latinx responders assigned higher competence scores to Latinx surgeons compared to all responders ($p = 0.0099$) (Table 5). East Asian responders scored Black African surgeons and African American surgeons lower compared to all responders ($p = 0.0137$ and $p < 0.0001$, respectively).

With regard to mean recruitment likelihood scores, Latinx responders were assigned higher scores overall ($p = 0.0134$); African American responders were assigned lower scores overall ($p = 0.0224$) (Table 5). African American responders were less likely to become patients of Black African and Caucasian American surgeons compared to all responders ($p = 0.0327$ and $p = 0.0155$, respectively). African American responders were more likely to become patients of Caucasian Jewish surgeons compared to all responders ($p = 0.0479$). Caucasian American responders were more likely to become patients of Caucasian American surgeons compared to all responders ($p = 0.0257$). East Asian responders were less likely to become patients of African American surgeons compared to all responders ($p = 0.0006$). Latinx responders were more likely to become patients of Latinx surgeons compared to all responders ($p = 0.0012$) (Table 5).

The relationships between responder age and responder education were also compared with competence scores and recruitment likelihood scores. No meaningful associations were encountered, and these data are available as supplementary content. (See Table, Supplemental Digital Content 1, which displays data comparing responder level of education and scores for surgeon competence and patient recruitment likelihood scores, broken down by surgeon ethnicities, <http://links.lww.com/PRS/E440>. See Table, Supplemental Digital Content 2, which displays data comparing responder age and scores for surgeon competence and patient recruitment likelihood scores, broken down by surgeon ethnicities, <http://links.lww.com/PRS/E441>.)

DISCUSSION

Aesthetic plastic surgery is unique in that it is a field of medicine where appropriate marketing and advertising can be paramount to a successful practice. Given how pervasive marketing through social media has become, it is important

Table 3. Surgeon Ethnicity and Surgeon Gender versus Competence and Patient Recruitment Likelihood Scores

Surgeon Ethnicity	No. of Responders	Mean Competence Score	SD	Mean Patient Recruitment Likelihood Score	SD
African American	378	4.17	0.89	3.51	1.26
Female	184	4.18	0.92	3.49	1.30
Male	194	4.16	0.86	3.52	1.22
Black African	372	4.20	0.87	3.47	1.30
Female	187	4.25	0.84	3.43	1.32
Male	185	4.16	0.90	3.52	1.29
Caucasian American	379	4.20	0.90	3.57	1.28
Female	191	4.19	0.89	3.49	1.36
Male	188	4.21	0.92	3.66	1.19
Caucasian Jewish	360	4.24	0.87	3.54	1.26
Female	180	4.26	0.90	3.59	1.30
Male	180	4.21	0.84	3.49	1.23
East Asian	372	4.19	0.84	3.58	1.24
Female	189	4.21	0.82	3.58	1.25
Male	183	4.17	0.87	3.57	1.23
Latinx	373	4.25	0.90	3.53	1.32
Female	190	4.23	0.93	3.54	1.32
Male	183	4.27	0.88	3.51	1.31
Middle Eastern	362	4.15	0.91	3.53	1.27
Female	175	4.22	0.86	3.59	1.28
Male	187	4.08	0.96	3.47	1.26
South Asian	369	4.20	0.89	3.44	1.33
Female	184	4.14	0.90	3.43	1.30
Male	185	4.26	0.87	3.45	1.37
All female surgeons	1480	4.21	0.88	3.52	1.30
All male surgeons	1485	4.19	0.89	3.53	1.26
All responses for all surgeons	2965	4.20	0.88	3.52	1.28

Table 4. Responder Gender versus Competence and Patient Recruitment Likelihood Scores

Sex	No. of Responders	Mean Competence Score	SD	Mean Patient Recruitment Likelihood Score	SD
Female responders	1332	4.17	0.91	3.40	1.32
Female surgeon	653	4.20	0.91	3.38	1.35
Male surgeon	679	4.15	0.92	3.41	1.29
Male plus other responders	1633	4.22	0.86	3.62*	1.24
Female surgeon	827	4.22	0.86	3.62†	1.26
Male surgeon	806	4.23	0.86	3.62†	1.23
All responders	2965	4.20	0.88	3.52	1.28

* $p < 0.0001$.† $p < 0.005$.

to consider how a surgeon's name may affect patient perceptions. In this study, a large sample of responders evaluated surgeons with ethnically identifiable names based on a single Instagram post and assigned scores based on perceived competence and how likely they were to become that surgeon's patient.

Our study population was more diverse than the population of patients undergoing cosmetic procedures in the United States.⁸ In our study, a little over half (56 percent) of our responders identified as Caucasian American (Table 2). The second most common ethnicity in our data set was South Asian, constituting 16 percent of responders. Six percent of responders identified as Latinx. In reality, 70 percent of cosmetic plastic surgery patients are Caucasian American, with the Hispanic population constituting the second most

common ethnicity (11 percent).⁸ Furthermore, 87 percent of cosmetic procedures in 2018 were undergone by women, whereas female patients make up 45 percent of our data set (Table 2).

When our data were combined as an aggregate, they did not demonstrate any overall preferences for a particular combination of surgeon ethnicity and sex (Table 3). Our data suggest that implied sex and ethnicity of a plastic surgeon do not impact how likely the general population is to become a patient of that surgeon. In contrast, previous studies on implicit bias have consistently demonstrated that ethnically identifiable names are more poorly received than Caucasian American names.^{4,16} However, what is interesting, and perhaps more relevant, is that when specific demographics are analyzed, there are marked ethnic and sex preferences, as discussed below.

Table 5. Responder Ethnicity versus Competence and Patient Recruitment Likelihood Scores (select *p* values are shown)

Responder Ethnicity	No. of Responders	Mean Competence Score	SD of Score	Mean Patient Recruitment Likelihood Score	SD of Score
African American responders	165	4.22	0.88	3.28*	1.45
African American	16	4.31	0.60	3.25	1.44
Black African	24	3.92	0.97	2.96*	1.52
Caucasian American	17	3.94	1.03	2.76*	1.52
Caucasian Jewish	24	4.54	0.59	4.04*	1.33
East Asian	28	4.21	0.88	3.32	1.47
Latinx	31	4.23	0.92	3.35	1.20
Middle Eastern	14	4.07	1.14	3.00	1.62
South Asian	11	4.73	0.47	3.27	1.62
Black African responders	26	3.73*	1.22	3.15	1.43
African American	4	3.75	1.26	3.50	1.29
Black African	1	4.00		4.00	
Caucasian American	5	4.20	0.45	2.40	1.52
Caucasian Jewish	1	2.00		2.00	
East Asian	4	4.50	1.00	3.75	1.50
Latinx	3	4.33	0.58	4.00	1.00
Middle Eastern	2	3.00	1.41	3.00	1.41
South Asian	6	3.00	1.67	2.83	1.83
Caucasian American responders	1682	4.34†	0.76	3.57	1.28
African American	228	4.36	0.72	3.61	1.22
Black African	202	4.42	0.74	3.57	1.31
Caucasian American	219	4.45†	0.69	3.72*	1.27
Caucasian Jewish	206	4.28	0.79	3.46	1.27
East Asian	206	4.28	0.76	3.60	1.24
Latinx	211	4.30	0.88	3.54	1.36
Middle Eastern	197	4.35	0.73	3.61	1.26
South Asian	213	4.30	0.78	3.47	1.34
Caucasian Jewish responders	52	4.33	0.73	3.58	1.23
African American	11	4.45	0.52	3.45	1.29
Black African	8	4.38	0.74	3.75	1.28
Caucasian American	5	4.20	0.84	4.20	1.30
Caucasian Jewish	9	4.56	0.73	3.56	1.42
East Asian	3	3.67	1.53	2.67	0.58
Latinx	3	4.67	0.58	2.33	1.53
Middle Eastern	6	4.00	0.89	4.00	0.89
South Asian	7	4.29	0.49	3.71	0.95
East Asian responders	212	3.96†	1.12	3.36	1.34
African American	25	3.36†	1.38	2.64†	1.44
Black African	29	3.79*	1.24	3.07	1.56
Caucasian American	31	4.13	1.06	3.65	1.25
Caucasian Jewish	23	4.13	1.29	3.78	1.44
East Asian	29	4.07	0.75	3.66	1.01
Latinx	27	4.15	0.99	3.15	1.17
Middle Eastern	20	3.85	1.14	3.40	1.31
South Asian	28	4.11	0.99	3.54	1.26
Latinx responders	184	4.33	0.78	3.76*	1.16
African American	28	4.18	0.82	3.75	1.17
Black African	17	4.29	0.69	3.65	1.00
Caucasian American	22	4.05	0.79	3.55	1.01
Caucasian Jewish	26	4.46	0.71	3.65	1.06
East Asian	22	4.23	1.07	3.68	1.43
Latinx	24	4.67*	0.56	4.38†	0.92
Middle Eastern	14	4.14	0.86	3.93	0.92
South Asian	31	4.45	0.68	3.58	1.39
Middle Eastern responders	25	3.72*	0.84	3.04	1.40
African American	3	3.33	0.58	3.00	1.00
Black African	3	3.67	0.58	3.33	1.15
Caucasian American	1	4.00		4.00	
Caucasian Jewish	1	4.00		1.00	
East Asian	3	4.00	0.00	4.00	1.00
Latinx	6	3.33	1.03	2.67	1.51
Middle Eastern	5	4.20	1.30	3.60	1.52
South Asian	3	3.67	0.58	2.00	1.73

(Continued)

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Table 5. Continued

Responder Ethnicity	No. of Responders	Mean Competence Score	SD of Score	Mean Patient Recruitment Likelihood Score	SD of Score
South Asian responders	478	3.80†	1.03	3.53	1.17
African American	49	3.76	1.07	3.55	1.16
Black African	78	3.87	0.89	3.45	1.15
Caucasian American	62	3.63	1.18	3.39	1.28
Caucasian Jewish	53	3.77	0.97	3.55	1.01
East Asian	59	3.97	1.02	3.63	1.22
Latinx	51	3.90	1.01	3.71	1.15
Middle Eastern	73	3.75	1.04	3.52	1.23
South Asian	53	3.75	1.07	3.51	1.15
Other responders	141	4.16	0.90	3.21*	1.35
African American	14	3.93	0.92	3.14	1.41
Black African	10	4.20	1.03	3.60	1.43
Caucasian American	17	3.71	0.85	3.18	1.13
Caucasian Jewish	17	4.53	0.80	3.65	1.50
East Asian	18	4.06	0.73	3.33	1.24
Latinx	17	4.47	0.72	3.00	1.46
Middle Eastern	31	4.10	1.01	3.10	1.33
South Asian	17	4.29	0.92	2.88	1.45
All responders	2965	4.20	0.88	3.52	1.28

* $p < 0.05$.† $p < 0.0001$.‡ $p < 0.005$.

Looking specifically at surgeon sex, the results of our study did not demonstrate any overall differences for male versus female surgeons in terms of competence or recruitment likelihood scores (Table 3). Furthermore, sex of responders did not influence the competence scores assigned to male and female surgeons (Table 4). Combined, these data suggest that surgeon sex does not play a significant role in a patient's perceived competence of a plastic surgeon, regardless of patient sex. However, responder sex did influence patient recruitment likelihood scores assigned to both male and female surgeons. Female responders assigned overall lower recruitment likelihood scores compared to male responders, regardless of surgeon sex ($p < 0.0001$) (Table 4). In contrast, previous literature has demonstrated that female patients feel that a female surgeon would put them more at ease during examinations, have a more nuanced understanding of a breast augmentation consultation, and communicate more effectively.^{17,18} In a separate study, Huis et al. demonstrated that the majority of women who do show a sex preference for their plastic surgeon prefer women.¹⁷ These aforementioned factors, combined with a lack of difference in perceived competence between male and female surgeons, would suggest that all else being equal, female patients are more likely to seek care from a female plastic surgeon. However, our data demonstrate that female responders did not show a strong preference for becoming patients of female surgeons.

When evaluating associations with responder ethnicity and mean competence scores, Caucasian

American responders assigned the highest mean competence scores compared to all responders (Table 5). East Asian, Middle Eastern, South Asian, and Black African responders assigned lower mean competence scores compared to all responders (Table 5). Previous research has shown that minority women have less access to plastic surgeons and less information about breast reconstruction compared to Caucasian women.^{19,20} Another study looking at Caucasian women has shown that fear of negative appearance evaluations may contribute to a more favorable attitude toward plastic surgery.²¹ As Caucasians constitute the majority of cosmetic plastic surgery patients, this increased familiarity with plastic surgery may contribute to the higher competence scores assigned.⁹

Importantly, the two ethnicities comprising the largest demographic population of cosmetic surgery patients, Caucasian Americans and Latinxs, were also the only two ethnic groups to show in-group favoritism. Caucasian American responders scored Caucasian American surgeons higher compared to all responders ($p < 0.0001$) when evaluating competence (Table 5). Similarly, Latinx responders scored Latinx surgeons higher compared to all responders ($p = 0.0099$) when evaluating competence (Table 5). Caucasian American responders were more likely to become patients of Caucasian American surgeons compared to all responders ($p = 0.0257$) (Table 5). Similarly, Latinx responders were more likely to become patients of Latinx surgeons compared to all responders ($p = 0.0012$) (Table 5). Interestingly,

our data did not indicate that African Americans demonstrated a strong preference for becoming patients of African American plastic surgeons, as previously demonstrated.²²

These findings hold heavy implications for plastic surgeons with ethnically identifiable names. Data from the National Ambulatory Medical Care Survey show that Caucasian physicians see more race-concordant visits compared to any other racial group of physicians.²³ Although there is growing evidence that ethnic minorities are increasingly seeking out cosmetic plastic surgery, 2018 data still demonstrate that Caucasian Americans constitute 70 percent of the aesthetic plastic surgery population.^{23,24} Surgeons who do not have classically Caucasian American names are placed at an immediate disadvantage when compared to those who do. Without even having met the plastic surgeon, the Caucasian American patient perceives a surgeon of their own race to be more competent than others. Furthermore, these patients are more likely to become patients of Caucasian American surgeons, demonstrating an obvious bias and preference for their own race. These findings collectively may be explained by in-group identification and favoritism.²⁵

Similarly, Latinxs demonstrated in-group favoritism when presented with a Latinx plastic surgeon in our study. Prior research pertaining to social identity theory has demonstrated that individuals from Chile, Peru, Colombia, and Venezuela perceive their Latin American identities as more similar compared to individuals from the United States.²⁶ In addition, studies show that Latinx patients who have beliefs about discrimination in health care are more likely to prefer a physician of the same race.^{27,28} In addition to patient preferences, cultural and language concordance have been shown to improve disease management and health care satisfaction among Latinx patients.^{29,30} Together, in-group favoritism and racial inequalities in health care may explain the higher scores assigned by Latinx responders to Latinx plastic surgeons.^{26,31}

Combatting implicit bias is challenging, as these associations are subconscious and not necessarily ones that we can acknowledge as present. The limited information provided on an Instagram profile may make surgeons more vulnerable to bias because patients might be choosing based on name rather than experience, training background, fellowship, and other factors. By linking just a name and surgical results, it essentially decouples critical facets of the surgeon (training, background, board-certification

status) from their work. Studies show that patients find surgeon experience and board-certification status to be among the most important factors when selecting a plastic surgeon.^{32,33} Marketing strategies such as patient testimonials and before-and-after photographs have also been shown to be highly valued.³⁴ A heavier emphasis on these explicit variables that patients find important, such as experience and patient testimonials, may overcome initial implicit biases. The American Society of Plastic Surgeons “Do Your Homework” campaign, launched in 2011, focuses on educating patients on the importance of selecting a board-certified plastic surgeon. The campaign emphasizes that anyone can call themselves a “cosmetic surgeon” and that surgeon credentials should be carefully reviewed before undergoing any surgical procedure. This type of campaign is an excellent example of what minority surgeons can perhaps be doing as well: placing a strong emphasis on qualifications, experience, and testimonials to lessen the effects of implicit bias on surgeon name. Surgeons entering private practice may also take into consideration that patients may hold an implicit bias toward certain ethnically identifiable names. As a result, they may choose to name their practice something more generic, in an effort to avoid losing potential patients on the basis of practice name alone.

Advantages of our study include a large, diverse sample population with multiple ethnic groups included. To our knowledge, this is the first study examining the effects of implicit bias in social media as it relates to plastic surgery. Limitations of this study include that our responder demographics are not completely similar to patients undergoing aesthetic plastic surgery in the United States. Furthermore, these are not specifically plastic surgery patients, but rather a sample of the general population, and not all responders may be residents of the United States. We also acknowledge that this study operates on the expectation that survey responders could accurately infer the ethnicity of a surgeon solely based on the name in the Instagram post. Not all survey responders may be able to correctly identify the ethnicity associated with a particular name or even be able to infer the gender of the surgeon. However, our results demonstrate that regardless of this possibility, simply seeing an ethnically dissimilar name is enough to demonstrate implicit bias.

CONCLUSIONS

Implicit bias plays a critical role in our day-to-day actions, whether or not we realize it. Although

there are racial and ethnic differences in the tendency to seek out plastic surgery, our specialty should continue to promote patients to consult with plastic surgeons based on surgeon training, publications, society memberships, and operative volume. Education and patient outreach initiatives should emphasize decision-making based on board certifications, qualifications, and experience.

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