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Demographic and Cultural Differences in the Acceptance and Pursuit of Cosmetic Surgery: A Systematic Literature Review

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Background: Worldwide, the numbers of cosmetic procedures continue to climb. However, cosmetic surgery (CS) continues to be plagued by negative stigmatization. This study reviews the literature to identify how attitudes toward CS vary by sex, age, race, culture, and nationality, and aims to determine how other factors like media exposure interact with demographics to influence how well CS is accepted.
Methods: A PRISMA-guided systematic review of the literature was conducted to identify all English-language papers reporting on CS or plastic surgery acceptance, attitudes, or stigmatization, specifically examining for data on age, sex, race/ethnicity, culture, and media influence.
Results: In total, 1515 abstracts were reviewed, of which 94 were deemed pertinent enough to warrant a full-text review. Among the potential demographic predictors of CS acceptance, the one with the most supportive data is sex, with women comprising roughly 90% of all CS patients in virtually all populations studied and consistently exhibiting greater CS knowledge and acceptance. Culturally, the pursuit of beauty through CS is a universal phenomenon, although different countries, races, and cultures differ in how willingly CS is embraced, and in the aesthetic goals of those choosing to have it. In countries with culturally diverse societies like the United States, non-Hispanic Whites continue to predominate among CS patients, but the number of CS patients of other races is rising disproportionately. In this trend, social media is playing a major role.
Conclusion: Healthcare practitioners performing cosmetic procedures need to consider demographic and cultural differences of the patients in order to enhance their understanding of their patients' aesthetic goals and expectations.
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INTRODUCTION

Worldwide, increasing numbers of patients are undergoing cosmetic surgery (CS),[1] for reasons ranging from correcting congenital abnormalities to reversing the effects of aging.[2] Since the mid-20th century, the number of cosmetic procedures in the United States has risen from approximately 15,000 in 1949 to 15.7 million in 2016.[3] In 2018, aesthetic CS accounted for 14.1% of all surgical procedures (eg, breast augmentation), 22.7% of all nonsurgical procedures (eg, botulinum injections), and 18.7% of all procedures performed overall in the United States, with a similarly high percentage of cosmetic surgical procedures (14.1%) reported in Brazil.[1] Steady growth in the number of cosmetic procedures, both surgical and nonsurgical, is apparent throughout the Americas, Europe, the Middle East, Asia, and Australia.[1,4,5]

Considerable research has already been published on the impact of psychosocial factors[6] and the media[7–9] on individuals' perceptions and acceptance of CS. Studies have also been published examining predictors, both of CS generally and of actually undergoing it oneself, in different populations—for example, married women[10]; students[11–14]; and plastic surgeons.[15] However, relatively few articles have compared different populations, which is important because the reasons for the decision to

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Table 1. Eligibility Criteria for Studies Ultimately Included in the Review Article

Eligibility (Inclusion/Exclusion) Criteria	No. Papers Failing Criterion
1. Must contain both selected search terms (eg, "plastic surgery" and "acceptance") in the abstract	301
2. Must discuss and/or provide data on either the incidence of or attitudes toward cosmetic/ aesthetic plastic surgery, including the issues of (a) acceptance of cosmetic surgery; (b) decision to undergo cosmetic surgery; and (c) stigma or attitudes toward cosmetic surgery	425
3. Must primarily discuss cosmetic/aesthetic surgery involving the face	84
4. Must be written in English	9
5. Must not pertain to plastic surgery for repair of craniofacial defects, burns, and other facial injuries	53
6. Must not merely be an opinion article or letter (original data required)	17

undergo cosmetic procedures and the expectations individuals have about them might vary.[16]

This study's primary objective was to compare different demographic and cultural groups, and thereby gain insights into how gender, age, race/ethnicity, culture, and nationality impact how CS is perceived, to what degree it is accepted, what stigma it carries, and the various factors that influence such acceptance and stigma in different populations. To achieve this objective, a systematic, PRISMA-guided review[17] of published literature was undertaken.

SEARCH METHODS

For the current systematic review, a thorough search of published, peer-reviewed scientific literature was performed through PubMed and Embase using combined search terms incorporating the following terms: "plastic surgery" OR "cosmetic surgery" AND "acceptance," "attitude," "stigma," "perception," OR "social media," leading to the review of 4902 abstracts overall. Eligibility criteria are listed in Table 1. Figure 1 further details the process of article selection using a PRISMA flowchart.[17]

SEARCH RESULTS AND DISCUSSION

General

This study referenced 72 articles. Among these, 28 assessed attitudes toward CS,[5,8,9,11,12,14,15,18–38] and 22 evaluated attitudes toward acceptance of CS,[4,9,14,18,21,25,28,29,32–35,37,39–47] with some overlap. Only 1 article specifically addressed the issue of "stigma" associated with CS.[39] The remaining articles referred to related issues such as the number of CS procedures performed.

Gender

The demographic factor that seems to exert the greatest impact upon someone's decision to undergo CS is gender, with women accounting for the vast majority of CS patients in virtually all community populations studied. In the 2018 annual survey conducted by the International Society of Aesthetic Plastic Surgery, 86.5%

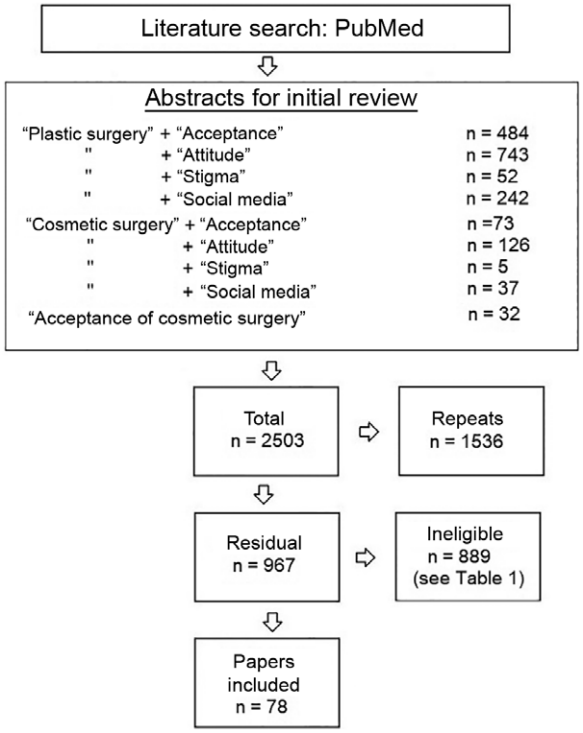

Fig. 1. PRISMA flowchart detailing the selection of relevant articles.

of all the aesthetic CSs performed worldwide were done in women.[1] In the 2015 annual report published by the American Society for Aesthetic Plastic Surgery, women accounted for 89.7% of all surgical and 90.6% of all nonsurgical cosmetic procedures.[48] Although nation-specific demographic data on CS are scarce, similarly high percentages of women have been reported among specific non-US populations, like the 90.5% reported among 1884 patients treated at hospitals in Riyadh and Jeddah, Saudi Arabia, from January to August 2016.[49] In South Korea (a country that ranks third in the world in the number of cosmetic procedures performed annually), an estimated 20% of girls and 33% of adult women claim to have undergone some form of cosmetic procedure.[50] Moreover, in a just-published meta-analysis of 41 clinical trials on nonsurgical cosmetic procedures, women accounted for 88.2% of all patients.[51]

Unfortunately, but consistent with their disproportionate representation among CS patients, most published studies on attitudes toward and predictors of CS have been restricted to all-female[8,9,38,41,43,44,52,53] populations, with a few others restricted to men.[23,54,55] In the few studies in which women and men were compared directly, women have tended to be more knowledgeable of CS than men,[13] and generally be more accepting. In an online survey conducted in 2003, for which 98% of subjects were recruited through the website for the US television station MSNBC, among 26,963 women and 25,714 heterosexual men (ages 18–65), 48% of women were interested and 23% were possibly interested in CS; the same was true for just 23% and 17% of men, respectively.[56] Acceptance of CS in women and men has been rated using a survey instrument called

the Acceptance of CS Scale (ACSS), developed and validated by Henderson-King and Henderson-King in 2005.[25] The ACSS includes 5 statements on perceived potential benefits of CS (eg, "It makes sense to have minor cosmetic surgery rather than spending years feeling bad about the way you look") and 10 statements addressing respondents' likelihood of undergoing such surgery themselves (eg, "If I could have a surgical procedure done for free I would consider trying cosmetic surgery"), to which respondents are asked to rate their level of agreement from 1 (strongly disagree) to 7 (strongly agree).

In the original Henderson-King and Henderson-King study, 261 undergraduate university students (149 women, 112 men) were asked to rate their attitudes toward CS using the ACSS, and women's ratings were significantly more favorable than men's.[25] Similar results have been identified among undergraduate students in South Korea[14] and Iran,[12] and in somewhat older adults in Brazil,[33] Saudi Arabia,[28] India,[57] and China.[37] In addition, whereas 101 of 264 Persian women (38.3%) reported the intention to have CS in the future, the same was true for just 8 of 50 men (16.0%) ($P < 0.001$).[12] In the same study, in addition to gender [OR = 2.79; 95% confidence interval (CI): 1.25–6.23], other demographic variables that had been identified as predictors of intent for CS on logistic regression were body satisfaction, body image, and attitudes. Among demographic predictors of intent to undergo CS were the patient's body mass index (OR = 2.86; 95% CI: 1.37–5.95), family revenue (2.69; 1.20–6.01), father's job (2.41; 1.06–5.45), marital status (2.35; 1.02–5.24), mother's job (1.99; 1.03–3.87), and fathers' literacy level (1.09; 1.01–1.18)—body satisfaction (OR = 3.72; 95% CI: 1.32–10.43), body image (OR = 2.91; 95% CI: 1.29–6.57), and attitudes (OR = 2.88; 95% CI: 1.00–8.23)—remained as main predictors. Assessing plastic surgeons themselves, in a survey of 276 of 2635 members of the American Society of Plastic Surgeons, a significantly greater percentage of women reported having already undergone some minimally invasive cosmetic procedures than their male counterparts (84.9% versus 57.0%, $P < 0.05$). However, although male surgeons were more likely than men in the general population to have undergone a cosmetic procedure, female surgeons were less likely than age-matched women in the general population to have undergone breast augmentation. Unfortunately, the survey suffered an extremely low response rate (10.5%).[15]

Contrary to all these results, in a survey of 90 male and 114 female British adults, ranging in age from 18 to 74,[24] men's responses favored CS for 4 of 5 statements about potential benefits on the ACSS, but only for 1 of the 10 statements on likelihood. For this one outlier, they more strongly disagreed than agreed that they would "never have any kind of plastic surgery."[24] Meanwhile, women were much less favorable overall, averaging less favorable responses than men for 14 of the statements, with the one exception and only statement for which they were more favorable than unfavorable being whether or not they thought "CS can be a big benefit to people's self-image."

Among the various surveys that have assessed predictors of women's and men's attitudes and intentions toward cosmetic procedures, together or separately, certain predictors appear to influence both sexes, like more favorable attitudes toward cosmetic procedures,[12,31,47] dissatisfaction with body image,[8,10,12,18,24,27,29,41,44,47,58] peer pressure,[8,27,41,43,59] media exposure,[8,9,11,18,28,31,43,60] and psychological disorders[61] like body dysmorphic disorder.[40,52,58,62]

Age

As much as age might be expected to be a major predictor of attitudes toward CS, given how many procedures are performed to reverse the signs of aging, we were unable to identify any direct comparisons of CS attitudes between different age groups. Nonintuitively, most published studies assessing attitudes regarding CS have been conducted using very young subject samples,[27,29,41,43–45,60] many of them still in school, ranging from high school[30] to undergraduate[9,14,34,40,52,59,63] and graduate-level training.[13,20,23,63–65] Nonetheless, on multivariable analysis, age has been found to be a direct predictor of either acceptance or pursuit of CS in 4 studies, including studies in the United States,[25] South Korea,[45] China,[37] and the United Kingdom[34]; however, in a Chinese study,[37] an association with age was identified only in men, and not in women. Somewhat consistent with the lack of association with age in the above-listed British study,[34] in another British survey restricted to 322 female university students, respondent age was found to be inversely correlated with "consideration of CS," but only on bivariate and not on multivariable analysis.[9] In the second Korean study, each year that a woman aged increased her likelihood of having undergone CS by 17%.[44] Finally, in a study conducted in 2009 in the American Midwest (Omaha, Nebraska), among 316 adults attending a nonacademic dermatology practice for some nonsurgical or surgical cosmetic procedure (302 women; age range not reported), women younger than their partner and women older than their partner both were over-represented, whereas women the same age as their partners were under-represented (16.7% versus 31.9%) relative to 2008 US census data.[66] They were also more than twice as likely to have obtained at least a college degree (66.9% versus 28.8%) and more likely to be employed outside the home (74.3% versus 64.0%), than the general US population. One major limitation of the study, however, was that there were no demographic comparisons against local census data.

Race, Ethnicity, Culture, and Nationality

Using dictionary definitions, it is clear what the differences are between race, ethnicity, culture, and nationality. However, when comparing populations, there is almost invariably a considerable overlap. For example, comparing residents of the United States and Japan, there are clear differences in all 4 characteristics. Consequently, how does one isolate which characteristic is being studied? Nonetheless, with respect to personal aesthetics, it is clear that the pursuit of beauty is a worldwide phenomenon that extends to virtually all races, ethnicities, cultures, and countries, though how beauty is perceived differs between them. In Korea, for example, women's aesthetic goals differ from those among women in neighboring Japan.[67] In another study that assessed advertisements on cosmetics

in 18 countries worldwide, significant international differences were revealed.[68] In Latin America, the United States, and Australia, for example, tanned models with fuller lips were preferred, whereas Asian models tended to have milky white skin and small mouths. Arabian and Southeast Asian women models tended to have intense eyebrows and use artificial eyelashes.

Paralleling the pursuit of beauty, CS is a worldwide phenomenon, evidenced by listing the 10 countries performing the largest number of cosmetic procedures annually: the United States, Brazil, Mexico, Germany, India, Italy, Argentina, Colombia, Australia, and Thailand[1]; the 5 countries performing the most cosmetic procedures per capita: Colombia, Brazil, Italy, Greece, and South Korea[69]; and the 10 countries with the highest number of plastic surgeons—the United States, Brazil, China, Japan, South Korea, India, Russia, Mexico, Italy, and Germany, with Egypt and Saudi Arabia ranked 19th and 30th, respectively,[1] thereby accounting for every inhabited continent. In this review alone, we cited studies performed in the United States, Canada, Brazil, the United Kingdom, France, Germany, Italy, Norway, Finland, Turkey, Iran, Saudi Arabia, Nigeria, India, Nepal, China, South Korea, Japan, Singapore, and Australia. Few studies, however, have specifically compared races or countries, and none of the studies we identified specifically compared different ethnicities or cultures, per se.

Only 4 studies we uncovered specifically compared countries with respect to CS. The first was a 2-phase study in which female and male undergraduates in Hong Kong, Japan, and the United States (roughly 100/country/phase) were asked, via a series of questions, to rate both their level of acceptance of persons who had undergone CS and their willingness to develop intimate relationships with such a person, and generally negative responses were given in all 3 countries, but consistently most negative in Japan and least negative in the United States.[5] In the second study, comparing South Korean and Japanese women living in California, the 2 cohorts differed significantly in their aesthetic preferences, with Korean women generally preferring a larger forehead, more defined palpebral crease, longer nose, and fuller lips, whereas Japanese women favored a more lateral peak of the eyebrow arch.[67]

In a collation of data from 27 marketing projects in 17 mostly Western and Asian countries,[16] during which data were collected via multiple methods, including one-on-one interviews, focus groups, and surveys, the primary objective was to identify different CS patient "architypes," defined based upon patients' overriding objectives. Four architypes were identified, pertaining to: (1) *beautification*, involving already attractive individuals desiring to become more attractive; (2) *transformation*, among individuals wishing to improve their social status or competitive edge in the workplace by achieving a specific beauty ideal, often satisfying specific cultural definitions of beauty; (3) *correction*, involving individuals seeking correction of some, often-congenital aesthetic flaw (like micrognathia); and (4) *positive aging*, encapsulating those wanting to look younger. Differences between countries and cultures were particularly noted for beautification and transformation. With respect to the former, whereas Western patients generally prioritized their lips and the reshaping of cheeks, Asian patients tended to focus on facial slimming, and nose, cheek, and chin definition. Asian patients also were the most likely to pursue transformation, exhibited by certain terms within the South Korean language specific to such changes to enhance marital or occupational success: "kyoˇrhon soˇn-ghyoˇng"—meaning marriage CS; and "chig'oˇpsoˇnghyoˇng"—meaning employment CS. Desire for transformation also is widely expressed in Middle Eastern and South American, but less so in Western cultures.[16]

In the final study, in which consensus was sought among plastic surgeons across China, Hong Kong, India, Indonesia, Japan, Korea, the Philippines, Singapore, Taiwan, Thailand, and Australia,[70] among the various conclusions reached was that a desire for Asian women to transform their appearance to more closely resemble socially and culturally desired norms was pervasive, whereas the wish to reverse aging was much less prevalent, especially among women between the ages of 30 and 60, whom the experts perceived generally aged better than Western women.

One study that focused more on race than on culture was conducted within the United States, comparing non-Hispanic Whites, Hispanics, African Americans, and Asians in the rate of change in the number of cosmetic procedures.[71] In this study of 71,775 patients recorded within the US National Inpatient Sample database who had undergone a cosmetic procedure from 1998—2007, 90% were woman and 65% non-Hispanic white. However, over those 10 years, the mean percentage in the frequency of these procedures declined 1.8% among Whites, but rose among African Americans, Hispanics, Asians, and Native Americans by 7.5%, 4.7%, 14.5%, and 105.5%, respectively. In 2 prospective studies conducted among female undergraduates attending a British university, White students were more accepting of CS and more willing to consider it for themselves than either Asian or African Caribbean students, and this reluctance in Asians and African Caribbean students was linked to greater cultural mistrust, adherence to traditional values, and ethnic identity.[35]

Assessing knowledge more than acceptance of CS, numerous studies have been conducted in countries worldwide evaluating the degree of understanding various cohorts have regarding the breadth of plastic surgery, including studies among healthcare professionals and trainees, and the general public. Across these studies, a general lack of understanding was identified about the full range of surgical procedures plastic surgeons perform (eg, hand and maxillofacial surgery), but also considerable variability between countries, with populations in less-developed and/or financially independent countries like Nigeria,[19] India,[72] Brazil,[73] and Nepal[36] typically less informed than those in more industrialized nations like the United States and South Korea. In several of these studies, lack of understanding was accompanied by reduced acceptance of CS and/or the perception that they, themselves, would not be accepted if they had such surgery.[36,72]

One final study worth mentioning that suggests how one's race, culture, and overall social environment influences

the acceptance and pursuit of plastic surgery compared 2013 statistics on the per-capita number of plastic surgeons and cosmetic surgeries performed across 5 different geographic regions spanning the United States: Mountain/Pacific, New England/Mid-Atlantic, South Atlantic, East/West South Central, and East/West North Central.[74] Not surprisingly, given that it contains California, the Mountain/Pacific region was the first in the per-capita number of plastic surgeons and second in the per-capita number of procedures. Conversely, the New England/Mid-Atlantic region ranked fourth and fifth (last), with rates that were 43% and 33% less than those of the #1 ranked region. Many potential explanations exist for these differences [eg, differences in race distribution, climate (warmer climate = less time covered by bulky clothes)], which the study did not explore. However, what is clear is that CS acceptance and pursuit both vary from population to population.

Roles of Social Media

Pertaining to understanding, accepting, and choosing to undergo CS, numerous roles of social media have been documented across a broad range of populations worldwide, including media's roles in informing the public about and promoting CS,[21,60] promoting beauty standards,[7,11,31,43,60,75] altering individual self-esteem and body image,[31] and permitting cosmetic surgeons to interact, directly or indirectly, with the public.[7,76] In one study of 816 Saudi Arabian female university students, more than half (51.4%) reported actively following plastic surgeons on social media.[11] In a survey of 2057 racially diverse women 18–61 years old in South Florida, CS reality show viewership predicted attitudes toward, perceived pressure to undergo, and having already undergone CS, as was viewership of "entertainment news shows."[31] CS reality show viewership also predicted decreased fear of surgery, overall body dissatisfaction, media internalization, and disordered eating. Viewing reality fashion shows and reality television in general both were predictive of attitudes and perceived pressure. In another survey of 42 Yale University students, high-intensity reality show viewership was associated with increased self-perception of knowledge about CS, and roughly 80% reported that viewing reality television made them more likely to pursue CS themselves.[77]

Social media or general media also have emerged as predictors of CS attitudes and pursuit in several multivariable models among populations in the United Kingdom,[9,24] Italy,[43] Australia,[8] and Turkey,[18] the last of these restricted to Turkish men. One US study, involving 126 male and female college students, revealed a positive relationship between following a celebrity on Twitter and increased acceptance of CS.[78] To date, however, no published studies have been inspected for specific interactions between the various forms of media exposure and range of demographic and cultural factors detailed in the current review.

CONCLUSIONS

Numerous predictors have been identified of a given person's acceptance of and decision to undergo plastic surgery, like self-esteem and body image, psychological status, body dysmorphic disorder, and body mass index. What this review demonstrates is that demographic and cultural factors—including gender, age, and race/ethnicity/culture—may also play a role in CS acceptance. Many factors that predict CS acceptance and pursuit are shared between genders, age groups, races, and cultures. However, their relative influence and expression may differ. It is imperative that cosmetic surgeons consider these various factors, especially because they pertain to the different goals and expectations of surgery. For example, although a Japanese woman living in Japan might feel compelled to undergo transformative surgery to enhance how others (eg, in the workplace or at home) see her, a Japanese woman living amid and acclimatized to Western culture might seek surgery more to enhance how she sees herself.

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