

# Cosmetic Surgery and the Diversity of Cultural and Ethnic Perceptions of Facial, Breast, and Gluteal Aesthetics in Women: A Comprehensive Review

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**Abstract:** An increasing number of people are opting for cosmetic surgeries. For many years, the physical and aesthetic appearance of Caucasians has been considered to be ideal. However, it is now commonly acknowledged that attractiveness and aesthetic standards vary among cultural backgrounds and ethnic groups and that Western attractiveness criteria no longer apply to all. Herein, we conducted a comprehensive review of studies that examined cultural and ethnic variations in preferences for facial, breast, and gluteal aesthetics, as well as reviewed studies that investigated ethnic disparities in attitudes and motivations for cosmetic surgery. A total of 4532 references were identified, 66 of which met the inclusion criteria. Several studies have reported that facial golden ratios are invalid for representing perceived attractiveness standards among different ethnicities. The majority of studies also indicated that facial aesthetic interventions should not aim to Westernize but to optimize ethnic traits. Significant ethnic differences in preferences for upper- and lower-pole breast proportions have been reported. The size of the buttocks and waist-to-hip ratio were identified as the main factors of buttock aesthetics, with buttock size preferences having a high ethnic diversity. Interest in cosmetic surgical procedures while maintaining ethnic identity continues to grow among young women worldwide. This comprehensive review strongly suggests that accommodating cultural and ethnic differences in aesthetic standards in cosmetic surgery planning can lead to more acceptable cosmetic outcomes.

**Keywords:** cosmetic surgery, cultural variations, ethnicity, golden ratios, outcome

## Introduction

Beauty is a complex and subjective concept influenced by several factors, including geography, culture, and demographics.<sup>1,2</sup> People around the world value symmetry, harmony, and equilibrium as qualities of beauty and appeal; however, no two people from different ethnic or cultural backgrounds are likely to have the same aesthetic goals or perceptions of beauty.<sup>3</sup> As cosmetic surgery has become increasingly popular, and patients from diverse ethnic backgrounds seek interventions to maintain the balance and harmony of their natural features, beauty standards have become more diverse and vary according to cultural and ethnic norms.<sup>4-8</sup> A survey of people from China, Taiwan, Japan, Hong Kong, and South Korea showed that each nation had its own expectations and preferences in terms of aesthetic results.<sup>9</sup>

Traditional aesthetic criteria such as symmetry, averageness, youth, and sexual dimorphism may not be applicable to different ethnic groups. Despite this, aesthetic surgeons still rely heavily on Western beauty standards to assess aesthetics.<sup>10</sup> To provide personalized and culturally appropriate interventions, surgeons must understand the changing trends and preferences of the growing patient population and appreciate the diverse ethnic facial morphology and physical attributes that appeal to patients. A recent study found that cosmetic surgeons' perceptions of "perfect" facial features were more dependent on

a person's cultural and ethnic heritage than numerical concepts such as the golden ratio.<sup>11</sup> Therefore, it is crucial to consider cultural and ethnic diversity when assessing aesthetics and performing cosmetic surgery.<sup>12,13</sup>

This review aims to summarize recent findings in the literature regarding the diversity of beauty perceptions across different ethnicities, cultures, and countries, with a specific focus on perceived female beauty standards for the face, breast, and gluteal regions relevant to cosmetic surgery.

## Methodology

A detailed search of peer-reviewed literature was performed on December 16, 2022 using Scopus and PubMed with the following combined search terms: (“aesthetic surgery”) AND ((ethnic OR racial OR cultural) AND (acceptance OR attitude OR perception)) and (“cosmetic surgery”) AND ((ethnic OR racial OR cultural) AND (acceptance OR attitude OR perception)). No restrictions were applied on the starting year. The eligibility criterion was original articles in English. The exclusion criteria were as follows: 1) duplicate studies, 2) conference abstracts, 3) case reports, and 4) articles not related to cosmetic surgery or ethnic/cultural aspects of beauty attractiveness. Two reviewers independently screened the titles and abstracts to identify studies that met the inclusion criteria. Primary literature citations were scrutinized as potential sources for additional investigations associated with cosmetic surgery.

## Results

A total of 4532 references from electronic databases were identified (Figure 1). Of these, 66 remained after removing the articles that did not meet the inclusion criteria. Among these, 16 evaluated perceived beauty standards for facial cosmetic surgery, 19 evaluated perceived beauty standards for the acceptance of breast cosmetic surgery, seven covered perceived beauty standards for the acceptance of buttock cosmetic surgery, and four covered multiple factors. Twenty articles specifically addressed individuals' attitudes toward the acceptance of cosmetic surgery as a procedure for improving their attractiveness.

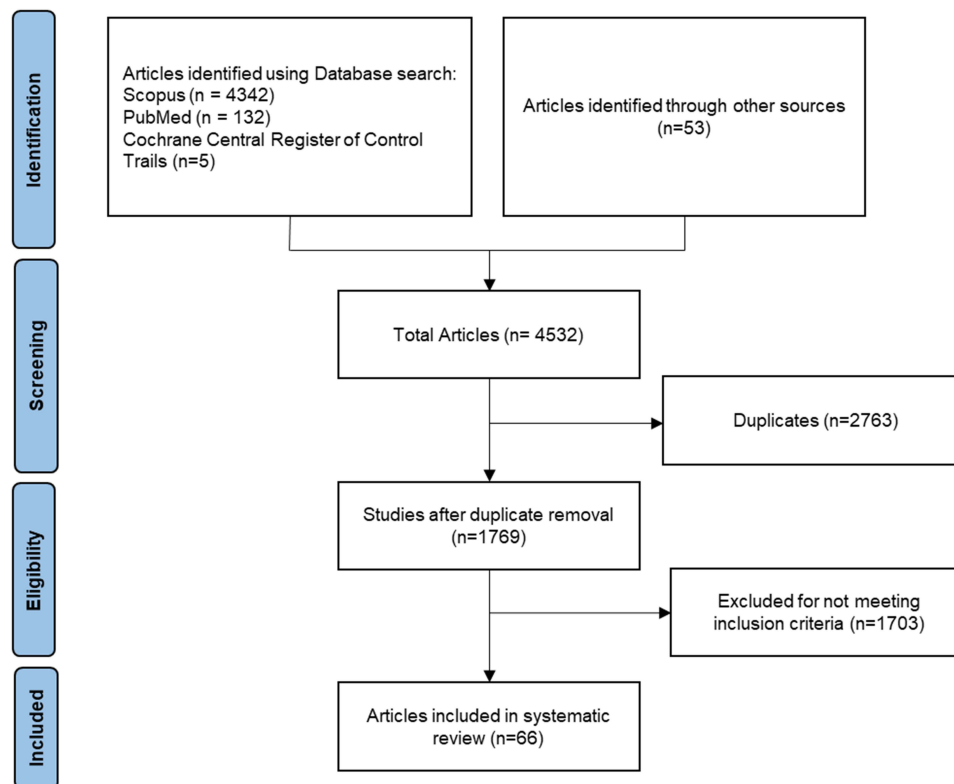


Figure 1 Study flow chart.

Facial attractiveness is influenced by innate and societal factors. The golden ratio (1:1.618) has been suggested as an aesthetically pleasing proportion, based on which a Marquardt facial mask was developed. However, previous studies have shown that this formula does not always represent beauty. Beauty standards have also shifted over time and across cultures. For example, contemporary faces with more harmonious features are now preferred to the classical facial index. Lip projection and relative size are also essential for lip aesthetics. The optimal ratio of the vertical height of the upper lip to that of the lower lip in young Caucasians was 1:1.6, whereas Black individuals were genetically predisposed to a larger lip volume. Full lips with a well-defined cupid bow are preferred in Han Chinese culture, while Middle Eastern beauty is characterized by full lips. Nose-shape preferences also vary across cultures and ethnicities. Latin American and Caribbean populations favor smaller, narrower noses with tips that project more, whereas South Indians and Middle Easterners prefer straight and small noses. Chin and eyebrow aesthetics also vary among ethnic groups.

Breast augmentation is a popular cosmetic surgery intervention, and the ideal form of breasts is still a subject of debate. Different cultures and ethnicities have varying opinions regarding breast size, shape, and nipple placement. For example, Asian females generally prefer non-ptotic, adequately proportioned breasts with nipple frontal projection over enormous, ptotic breasts. A notch-to-nipple distance of 21 cm is often considered an important indicator of breast attractiveness. However, recent studies have found no association between distance and aesthetic appeal. Other factors, such as the pole ratio, upper and lower pole forms, and breast height, also contribute to breast attractiveness. Women of different demographics prefer an upper pole-to-lower pole ratio of 45:55. Nipple-areola complex (NAC) placement is also essential, with the optimal position being the center of the breast gland.

African Americans prefer larger buttocks than Caucasians, whereas Hispanics prefer larger buttocks only in the lateral view. The waist-to-hip ratio (WHR) is a typical criterion for buttock aesthetics, and the most attractive WHR from the back is 0.75, whereas that from the side is 0.70 in women. Black and Hispanic women generally desire a greater volume of buttocks than Caucasian women. Surgeons in Latin America rank buttock size the most important, followed by those in Europe, Asia, and North America. Non-Caucasians generally prefer larger buttocks than Caucasians, and there is consensus on the ideal WHR, although several other factors also contribute significantly to the aesthetic evaluation of buttocks.

Attitudes towards cosmetic surgery vary widely among different ethnic and cultural groups, with some groups preferring non-surgical cosmetic treatments over surgical ones. Among Chinese women, body acceptance was a significant positive factor, whereas acceptance of beauty standards was the only significant factor in China. African patients considered the buttocks the defining feature of female attractiveness, and they preferred to seek surgeons with racial and ethnic similarities. South Korea has seen a dramatic increase in cosmetic surgery rates, with women providing higher overall ratings than males. The desire for an attractive appearance and to feel happier and more confident are the primary motivations for cosmetic surgery. However, disparities in sample sizes among the evaluated studies restricted the capacity to draw inferences and quantitatively extract data, and the operationalization of variables related to cultural and ethnic differences in perceptions regarding cosmetic surgery was not uniform among the evaluated studies, making it difficult to compare the quantitative results.

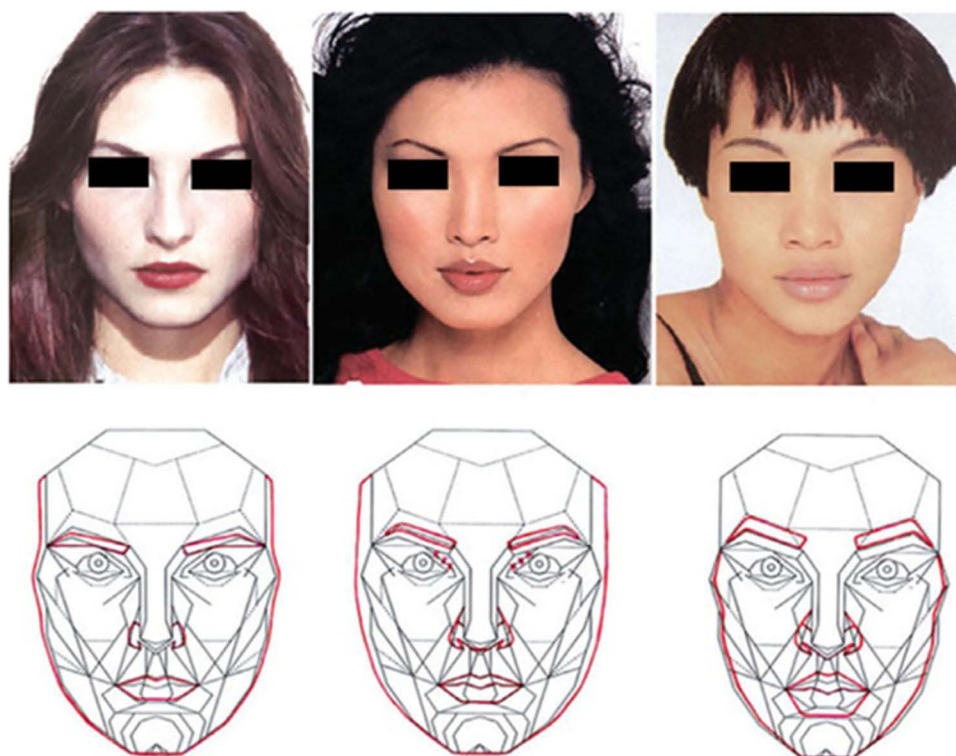
## Discussion

These results suggest that the perception of physical attractiveness varies widely across different cultures and ethnicities, making it difficult to define a single standard of beauty. The following discussion synthesizes the information available in the literature on the main ethnic groups and origins described in the literature, including Asian, Western, African/Black, Middle Eastern, and Hispanic or Latino individuals, as each ethnic group has its own set of preferred characteristics and aesthetic desirability.<sup>14</sup>

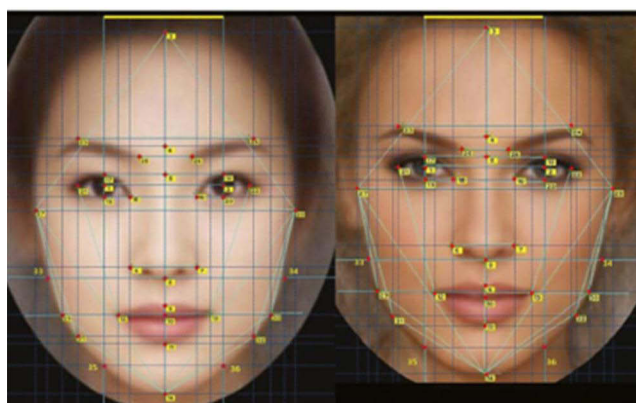
## Facial Attractiveness

### Ratio

Facial attractiveness perceptions are both innate and acquired through societal ideologies and experiences (Figures 2 and 3, Table 1). The golden ratio (1:1.618) was suggested as an aesthetically pleasing rectangle proportion, and Stephen Marquardt created a mask based on it, asserting that it reflected the “perfect” facial typology. The Marquardt facial mask, which is composed of decagons and pentagons of various sizes, is expected to be the most appealing type of human face. Although the



**Figure 2** Ethnic variations of the phi mask. Reproduced from Sturm-O'Brien AK, Brissett AE, Brissett AE. Ethnic trends in facial plastic surgery. *Facial plastic surgery: FPS*. 2010;26(2):69–74. © Georg Thieme Verlag KG.<sup>18</sup>



**Figure 3** Frontal landmarks Asian (left) and Caucasian (right) attractive faces. Reproduced from Rhee SC. Differences between Caucasian and Asian attractive faces. *Skin Res Technol*. 2018;24(1):73–79. © 2017 John Wiley & Sons A/S. Published by John Wiley & Sons Ltd.<sup>12</sup>

Marquardt phi mask was supposed to reflect the global facial beauty archetype, it has been deemed inadequate in several cases.<sup>15</sup> A recent study found that the existence of a formula for beauty in mathematics does not automatically suggest that this formula represents beauty.<sup>16</sup> In another study, beautiful contemporary faces from reputed magazines were ranked by 20 prospective ortho-facial surgery patients and compared with classical sculptures representing gods. Harmonious modern female features were discovered to have a much lower classical facial index, suggesting major changes in perceived facial attractiveness over time.<sup>17</sup> In this respect, it is acknowledged that demographic differences and cross-cultural exchanges that define 21st-century globalization are important phenomena guiding individual perceptions of facial attractiveness.<sup>11</sup>

Burusapat et al conducted a photogrammetric analysis of images of Miss Universe and Miss Universe Thailand.<sup>19</sup> Examining images from 2001 to 2015, the authors found 26 dominant points and compared the facial proportions

**Table 1** Perceived Facial Aesthetic Standards in Major Studies

Country	Year	Study Group	Ethnicity	Part	Measurements	Analysis	Golden Ratio/ Ethnic Differences	Ref
<b>Thailand</b>	2019	Miss Universe/ Miss Universe Thailand	Asian	Face	Nasofrontal angle, chin projection, lower-to-upper lip height ratio	Photogrammetric analysis	Not Applicable	[19]
<b>Africa</b>	2018	Male and female professional Black models	Black African	Face	Models' facial ratios were calculated and compared with the golden proportion	Photogrammetric analysis	No correlation between facial ratios and the golden ratio	[20]
<b>Turkey, USA, Korea, Croatia, France<sup>21</sup></b>	2018	Review/OR	Caucasian, Black, Asian	Lips	Horizontal thirds, the golden proportion	Review	Significant variations in Western, Japanese, Korean, and Black standards of beauty	[15,21–25]
<b>China</b>	2020	Large National Survey	Han Chinese	Face	Opinion about facial shape profile and jaw angle and shape; as well as the lips, chin, and nose	Online survey	Not discussed; Asians preferences were different from Western.	[26]
<b>Australia, Singapore, Hong Kong, Korea, Taiwan</b>	2016	Asian Facial Aesthetics Expert Consensus Group	Asians	Face	Asians were compared with age-matched Caucasians	Develop consensus statements	Asians preferences were different from Western	[27]
<b>Bahrain, Kuwait, Saudi Arabia, the United Arab Emirates, Iran, Lebanon, and Egypt</b>	2019	Middle Eastern Women	Middle Eastern	Face	Consensus	Facial anthropometry	Asians preferences were different from Western	[14]
<b>Belgium</b>	2011	Contemporary harmonious faces vs antiquity	Caucasians	Face	Classical facial index, the Bruges facial index, the ratio of lower facial height/total facial height	Facial anthropometry	Harmonious contemporary female faces have a significantly lower classical facial index	[17]

between Miss Universe Thailand, Miss Universe, facial golden ratios, and neoclassical canons. The authors concluded that neoclassical and current facial proportions differed significantly. In a study in Africa, observers graded photographs of professional Black models, and facial ratios between best- and worst-graded photographs were compared.<sup>20</sup> The authors of this study discovered no association between the face ratios of Black models and the golden ratio and hence advocated individualized evaluation of facial attractiveness. Similarly, a French study discovered that although certain neoclassical canons may be valid in some situations, they do not reflect normal facial proportions, suggesting that their interpretation as a prescription for ideal facial proportions ought to be reevaluated.<sup>22</sup>



It has been reported that the Chinese population aims to be beautiful by retaining its ethnicity and not following Western beauty standards.<sup>26</sup> In China, most respondents to an online poll favored an oval-shaped face with a smooth jaw angle.<sup>28</sup> In another study, Asians were compared to Caucasians of the same age, with a focus on injectable procedures for facial aesthetics.<sup>27</sup> The study revealed that facial aesthetic treatments in Asians are not directed at Westernization, but rather at achieving optimal Asian ethnic characteristics. A group of experienced dermatologists and plastic surgeons from Kuwait, Bahrain, the United Arab Emirates, Saudi Arabia, Lebanon, Iran, and Egypt have developed consensus regarding facial beauty. It was concluded that an oval or round face, full temples, and a well-defined jawline were considered signs of beauty, and facial anthropometry varied between Western and Middle Eastern women, as well as within the region.<sup>14</sup>

## Lips

As an integral component of the bottom third of the face, lips contribute significantly to the face's overall symmetry and beauty.<sup>29</sup> They are also crucial for conveying facial emotions and feelings. Lip projection and relative size are as important to lip aesthetics as the proportion of the lips to the rest of the facial structure. The horizontal thirds and golden ratio describe the proportions that contribute to the beauty and attractiveness of lips. The optimal ratio of the vertical height of the upper lip to that of the lower lip in young Caucasians have been shown to be 1:1.6. It has been shown that Black individuals have been shown to have a genetically larger lip volume.<sup>21</sup> More generally, larger lips compared to the breadth of the face and a higher vermilion border are typically seen as signs of facial attractiveness in women.<sup>21</sup>

Full lips that curve upward into a strong cupid bow have long been considered a sign of youth and beauty, although lip dimensions vary among Caucasians, Hispanics, Asians, and other ethnicities. Kollipara et al argued that it is inappropriate to use Caucasian measurements and generalizations in lip preferences when determining what is "ideal" when aesthetically augmenting lips among Asians and Hispanics.<sup>30</sup> An online survey in China revealed that Han Chinese laypeople prefer full lips with a well-defined cupid bow;<sup>28</sup> interestingly, however, Burusapat et al observed that both Miss Universe Thailand and Miss Universe had a thinner lower-to-upper height ratio.<sup>19</sup> Middle Eastern beauty is also reported to be characterized by full lips.<sup>14</sup> More than a thousand responses were gathered from 35 different nations from a study carried out by Heidekrueger et al, and the results showed that most people thought the 1.0:1.0 lip ratio to be the most appealing.<sup>31</sup> Of note, lip ratio preference did not vary according to self-reported ethnicity, although intriguing preferences emerged when examining different groups based on lower lip size.

## Nose

In a study on whether nasal shape preferences differed by culture and ethnicity, Broer et al found that the general public and cosmetic surgeons from Latin America and the Caribbean favored smaller and narrower noses with tips that project more.<sup>32</sup> These authors concluded that no metric could accurately capture the ideal aesthetics of the nose across cultures and ethnicities. In a study from Thailand, it was determined that Miss Universe had a more projecting nasal tip than Miss Universe Thailand.<sup>19</sup> Han Chinese laypeople, according to an online study,<sup>28</sup> prefer a straight-to-concave nose profile; South Indians also have a predilection for straight noses,<sup>33</sup> and in the Middle East, a small, straight nose is seen as a sign of attractiveness, although this varies by region.<sup>14</sup>

## Chin

A study that compared 50 nations across regions and ethnicities found that optimal chin projection was correlated with the country of residence and ethnicity.<sup>11</sup> Exclusive studies on chin aesthetics in various ethnicities are not available. Nonetheless, it has been claimed that the Han Chinese favor round and pointy chins;<sup>28</sup> South India prefers thin chins;<sup>33</sup> and in the Middle East, pointed chins are regarded as signs of beauty.<sup>14</sup>

## Eyebrows

The eyebrow serves as a point of reference for the angles and curves of the rest of the face, earning it the title "master line of the face".<sup>34</sup> Arched brows have been considered signs of beauty in the Middle East;<sup>14</sup> similarly, well-defined eyebrows have been preferred in South India.<sup>33</sup> The criterion of an aesthetically pleasing eyebrow has been the subject of much debate over the years. It has been reported that significant cultural differences exist concerning ideal eyebrow shape and position. A German study found that although there is no standard for brow height, there is a preference for lower-positioned brows

with a maximum height in the lateral third.<sup>35</sup> However, in a notable development, a study examined complete facial photographs on the Frankfort plane of Korean women ranging in age from young childhood to their 50s and calculated the height-to-width ratio (HWR) and take-off angle (TOA). The preferred HWR was 1:1.0, and the preferred TOA was 10.<sup>36</sup>

## Breasts

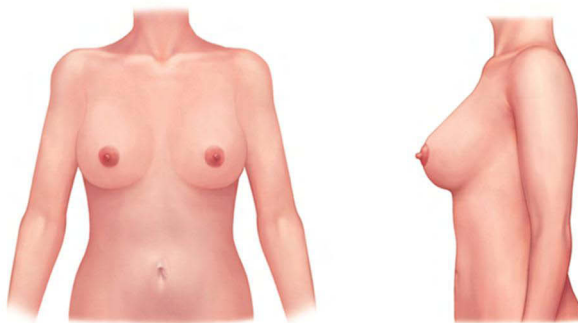
Breast augmentation has been the most popular cosmetic surgery intervention in the past few years,<sup>37</sup> and it has been realized that understanding the preferred female breast aesthetics is necessary to achieve the goals of cosmetic surgery.<sup>38–42</sup> Unfortunately, despite several anthropometric studies, there is no agreement regarding the harmony and proportion of the perfect form of breasts (Table 2).<sup>31,39,43</sup> For example, Asian females desiring breast augmentation prefer non-ptotic, adequately proportioned breasts with nipple frontal projection over enormous, ptotic breasts, and they see larger breasts as vulgar and embarrassing (Figure 4).<sup>44</sup>

The importance of nipples in breast reconstruction is well documented; in one survey, over 75% of the participants regarded a breast with no nipples as inadequate.<sup>50</sup> A Notch-to-nipple distance of 21 cm is widely recognized as an important indicator of breast attractiveness. According to anthropometric data of 109 female participants, the optimal distance from the sternal notch to the nipple is between 21 and 21.5 cm.<sup>38</sup> However, a recent Norwegian study found no association between a notch-to-nipple distance of 21 cm and aesthetic appeal.<sup>45</sup> In addition, with regard to anatomical heterogeneity, voluntary dimensional analysis and confirmatory 4D photographic analysis indicated substantial disparities between the left and right breasts with sternal notch-to-nipple asymmetry in over 50% of the subjects.<sup>51</sup>

In Colombia's most extensive breast aesthetics study, software-modified photographs of breasts with varied areolar nipple complex positions, pole ratios, and sizes were used.<sup>52</sup> The results showed that the preferred ratio of upper-to-lower-pole breast proportions varied significantly across demographics. In a study from the UK, 1315 respondents were asked to rank the attractiveness of images of women with upper pole-to-lower pole proportions of 35:65, 45:55, 50:50, and 55:45.<sup>43</sup> The pole ratio of 45:55 had the highest score and was preferred by 87% of women, 90% of men, 94% of plastic surgeons, 95% of

**Table 2** Perceived Breast Aesthetic Standards in Major Studies

Country	Year	Study Group	Ethnicity	Part	Measures Used	Analysis	Ethnic Variability with Respect to Ideal Proportions	Ref
Norway, Sweden, Finland	2021	Caucasian women	Caucasians	Breast	Breast width and sub clavicular breast height and	21 cm notch-to-nipple distance; proportional and phi ratio	Phi ratio is correlated with aesthetic scores. 21 cm notch-to-nipple distance and overall aesthetic score did not correlate	[45]
Malaysia	2021	Asian women	Asian Malay, Chinese, and Indian	Breast	Online graphic questionnaire	Qualitative data analysis	Significant variability between Asian Malays, Chinese, and Indians with respect to breast aesthetics	[46]
Turkey	2010	Turkish women	Turkish	Breast	Anthropometric breast values	Nipple diameter, areola diameter, nipple projection	Anthropometric breast values differ between young Turkish women and women in other countries	[47]
Sweden	2016	1000 men and 1000 women	Caucasian	Breast	Aesthetically preferred position of the NAC on the breast	Position of the NAC	Significant differences were found in the age subgroup	[48]
South Korea	2019	Asians	Asians	Breast	Breast shape in the lateral and frontal views	Lower pole height, breast-to-width ratio	The ideal vertical proportion of the breast footprint is 65:35	[44]
Malaysia	2022	Malays, Chinese, and Indian races	Asians	Breast	Anthropometric studies	The shape of upper pole contour	Significant variations in preferences were noted between Malays, Chinese, and Indian races	[49]



**Figure 4** Ideal breast illustrations; breast proportion, nipple angle, and shape and slope of the lower pole determine breasts aesthetics. Reproduced from Lee HJ, Ock JJ. An Ideal Female Breast Shape in Balance with the Body Proportions of Asians. *Plastic and reconstructive surgery Global open*. 2019;7(9):e2377. The Creative Commons license does not apply to this content. Use of the material in any format is prohibited without written permission from the publisher, Wolters Kluwer Health, Inc. Please contact. [permissions@lw.com](mailto:permissions@lw.com) for further information.<sup>44</sup>

South Americans, 92% of North Americans, 86% of Europeans, 87% of Caucasians, and 87% of Asians. It was concluded that the 45:55 ratio has a universal appeal for defining the ideal breast. In a study conducted in Sweden, breast attractiveness was also shown to correlate highly with both lower and upper pole forms and breast height.<sup>53</sup>

The attractiveness of women's breasts in various nipple-areola complex (NAC) postures was rated by 2000 participants in one survey.<sup>48</sup> The study found that the optimal placement of the NAC was in the center of the breast gland, vertically and somewhat horizontally to the side of the center. A Malaysian study surveyed respondents of Malay, Indian, and Chinese ethnicities to determine their opinions on the appropriate breast size.<sup>46</sup> More than half of the women considered a diameter of 30 mm optimal for NAC and chose cup sizes C and D for the ideal breast. In another study of an Asian population, the desired breast form among Malay, Indian, and Chinese women was assessed using the upper pole-to-lower pole ratio and upper pole contour.<sup>49</sup> Most participants preferred a more convex shape for the upper pole contour, with Malays and Indians favoring a more convex shape, while the Chinese preferred it to be slightly convex. The most desired upper pole-to-lower pole ratio was 45:55. Based on this data, the authors claimed that a controlled perceptual preference approach is preferable to anthropometric measurements when characterizing the ideal breast form.

Mallucci et al analyzed the breasts in three-quarter portraits of a hundred topless female models to discover common aesthetic elements.<sup>31</sup> They determined that an upper pole-to-lower pole ratio of 45:55, upward nipple angulation (mean angle 20°), linear or slightly concave upper pole slope, and convex lower pole were common features in all models. Deviation from this pattern meant an unattractive breast; thus, these four features may serve as guides for evaluating cosmetic surgery outcomes.

Examining the frontal and lateral breast shape preferences of more than 1000 Asians, one study revealed that the preferred nipple position and inframammary fold were 45% and 60% of the distance from the sternal notch to the umbilicus, respectively.<sup>44</sup> Notably, the optimal vertical ratio of the breast footprint was 65:35, while the optimal vertical ratio of the anterior breast was 55:45. Kelly et al examined crowdsourced perceptions of breast alignment and aesthetics using the Amazon Mechanical Turk platform, finding that notable preferences among all groups were the breast projection proportion (1.0) and nipple direction (frontal).<sup>54,55</sup> In the United States, preferences for breast attractiveness were examined by conducting an online survey using morphed, lifelike, three-dimensional female models.<sup>56</sup> Various attributes such as the breast pole ratio, the areola's size, the direction of the breast, and projection, were assessed. Consistent with previous findings, the results showed that participants favored an 55:45 upper pole-to-lower pole ratio and the smallest depicted areola (3 cm).

## Buttocks

The buttocks are an essential component of feminine beauty, and gluteoplasty is one of the most rapidly expanding cosmetic surgery treatments (Table 3).<sup>57-59</sup> Buttock cosmetic surgery now includes liposuction, liposuction plus augmentation, and



**Table 3** Perceived Buttock Aesthetic Standards in Major Studies

Country	Year	Study Group	Ethnicity	Part	Measures Used	Analysis	Ethnic Variability in WHR or Buttock Size	Ref
Turkey	2019	Turkish	Turkish	Buttocks	WHR	Photometric	WHR of 0.70 from the lateral view and 0.75 from the posterior view	[61]
USA	2016	Western	Western	Buttocks	WHR	Preference survey	WHR of 0.65 from the posterior view	[62]
USA	2021	Hispanics, Africans, and Caucasians	Mixed	Buttocks	Buttocks size and shape	Brazilian buttocks assessment	African Americans favored larger buttocks than Caucasians, whereas Hispanics favored larger buttocks solely in the lateral view	[63]
USA	2017	Mixed	Plastic surgeons and the general public worldwide	Buttocks	Buttocks size	Modifiable ranges of buttock sizes	Non-Caucasians preferred larger buttocks than Caucasians	[64]

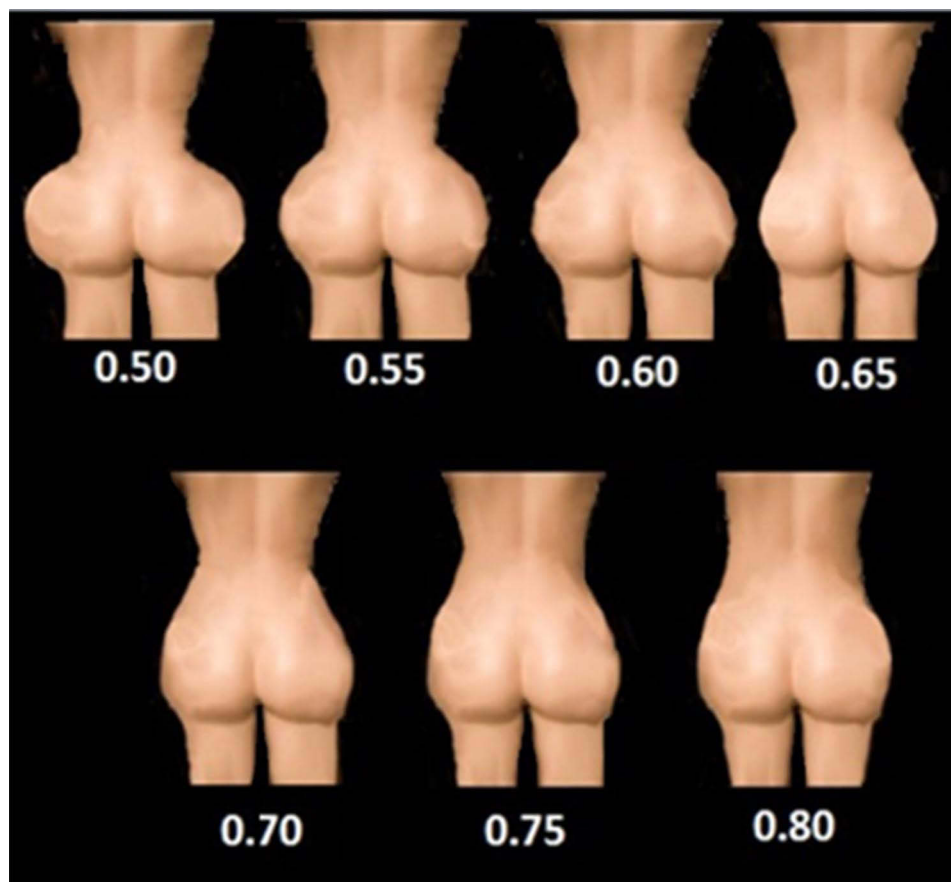
gluteal implants; nonetheless, cosmetic surgery to improve the contour of this area is often troublesome because ethnic perceptions of the ideal buttock region differ substantially.<sup>60</sup> Patient satisfaction has been reported to vary substantially by ethnicity in gluteal lifts, fat grafting, and gluteal implants, and ethnic disparities in the buttocks form are notable among Caucasian, Latino, and African American women.<sup>61</sup> One variation among these groups was maximum projection placement, and another aspect where Caucasians differed significantly from Latinos or Black women was lateral fullness. Compared to Caucasian women, Black and Hispanic women desired buttocks with greater volume, although Black women preferred a curvier look with an enhanced back over buttocks with a lordotic curvature.<sup>61</sup>

In recent years, Brazilian butt lift has become a common cosmetic surgical procedure. A survey of more than 400 patients for preferred buttock size and shape revealed that African Americans favored larger buttocks than Caucasians, whereas Hispanics favored larger buttocks solely in the lateral view.<sup>63</sup> Waist-to-hip ratio (WHR) is a typical criterion for buttock aesthetics.<sup>60</sup> The WHR of the most attractive buttocks is 0.75 from the back and 0.70 from the side in women (Figure 5).<sup>61</sup> Asian population favors curvy buttocks that range in size from small to moderate and lack lateral thigh or buttocks bulges.<sup>65</sup> Pérez et al showed survey participants four photoshopped versions of the same model, one with the golden ratio (1.61) and three with other proportions.<sup>66</sup> The picture in which WHR equaled the golden ratio was commonly voted as “the most attractive.” Another demographic analysis of ideal buttocks metrics to help surgery planning revealed the WHR of the most desirable buttocks from the posterior aspect to be 0.65, with 0.60 being the second most attractive ratio.<sup>62</sup>

Participants in an online poll were allowed to vary the buttock size and WHR of a single model in real time with computer manipulations that created a variety of buttock sizes.<sup>64</sup> The results showed preferences for buttock size to vary widely. Overall, 39% of the respondents selected 0.7 as the optimum WHR. Surgeons in Latin America ranked buttock size as the most important, followed by those in Europe, Asia, and North America, with non-Caucasians favoring larger buttocks than Caucasians. There seems to be a consensus on the ideal WHR, although several other factors contribute significantly to the aesthetic evaluation of buttocks.

## Demographic Patterns and Attitudes Toward Cosmetic Surgery

Interest in cosmetic surgery has been linked to a variety of epidemiological, social media, and psychological factors that could influence an individual’s motivation for cosmetic surgery.<sup>67,68</sup> The demand for cosmetic operations is increasing worldwide, particularly in East Asian countries and among ethnic minorities.<sup>9</sup> Women are likelier to undertake cosmetic surgery than men,<sup>6</sup> and lower self-ratings of physical beauty indicate a higher prevalence of cosmetic surgery being undertaken.<sup>69,70</sup>



**Figure 5** Posterior view with varying WHRs in women. Reproduced from Nteli Chatzioglou G, Govsa F, Bicer A, Ozer MA, Pinar Y. Physical attractiveness: analysis of buttocks patterns for planning body contouring treatment. *Surgical and radiologic anatomy: SRA*. 2019;41(1):133–140, Springer Nature.<sup>61</sup>

Samizadeh et al reported that in a survey the majority of Han Chinese respondents said they were not interested in undergoing cosmetic surgery, and when given the option between surgical and non-surgical cosmetic treatments, 82.22% of respondents favored the latter.<sup>26</sup> Wu et al examined cosmetic surgery preferences among Dutch women and Chinese women in the Netherlands and in China, finding that materialistic beliefs and considerations of face attractiveness were important predictors of positive views about cosmetic surgery across all three cultures.<sup>71</sup> Notably, among Chinese women, body acceptance was a substantial positive factor in both the Netherlands and China, but age and acceptance of beauty standards were the only significant factors in China.<sup>71</sup> It is evident that the Chinese population seeks to be beautiful by retaining its ethnicity rather than following Western beauty standards.

The UAE has become a regional hub of cosmetic procedures. According to a survey conducted in the UAE, cosmetic treatments are becoming more popular, with skin and nose procedures being the most popular.<sup>72</sup> A study from Saudi Arabia examined the attitudes of undergraduate university students toward cosmetic surgery and treatment, as well as the obstacles to undertaking such operations.<sup>73</sup> The most frequently mentioned obstacle to aesthetic surgery and treatment among students was the belief that they did not need cosmetic surgery. According to an Iranian study, participants saw cosmetic surgery as a gift from God that would help them in the future; therefore, they were willing to face the consequences of the procedure, even if they were adverse.<sup>74</sup> However, participants in a study conducted in southern India were mostly of the opinion that physical appearance had little bearing on happiness and hence were skeptical of cosmetic operations in general; notably, they were more open to noninvasive cosmetic procedures than surgical ones.<sup>33</sup>

Ligh et al observed that African patients considered the buttocks the defining feature of female attractiveness and that they were willing to travel more than 100 miles for surgeons with racial and ethnic similarities.<sup>75</sup> They believed that a surgeon of the same race and gender would provide them with a better cosmetic surgery outcome and that diet and

exercise alone were insufficient to meet societal standards of attractiveness. During the COVID-19 pandemic, there were noticeable discrepancies in people's engagement with and understanding of esthetic procedures, indicating the involvement of numerous elements in shaping the perception of cosmetic surgery. Most Saudis in a survey believed that postponing cosmetic operations due to concerns about contracting the virus was a reasonable response.<sup>76</sup>

Cosmetic surgery rates in South Korea have grown dramatically over the last decade, mimicking trends in other East Asian countries.<sup>77,78</sup> Studies have found that women gave higher overall ratings than males, indicating that they were more receptive to cosmetic surgery. After adjusting for participant sex, multiple regression analysis revealed that the only significant predictor of cosmetic surgery acceptance was overall body acceptance, indicating that individuals may regard cosmetic surgery as a method for improving their body image. Another Asian study in Singapore discovered that the younger population is becoming more receptive to cosmetic surgery; nonetheless, there is a widespread lack of knowledge regarding the hazards associated with such procedures.<sup>79</sup> A study focusing on cultural variations and subtleties in interactions across different countries showed that Chinese and Dutch participants shared many thoughts about what influences cosmetic surgery considerations.<sup>80</sup> The most important cross-cultural differences included women's opinions of the economic benefits of beauty (mostly Chinese women) and their beliefs about body adoration. Plastic aesthetic surgery was favored in 38.3% of the patients. Another South Korean study confirmed that gender and generational factors also affect beauty perceptions.<sup>28</sup>

A survey of adult patients seeking cosmetic consultation or treatment found that motivations for cosmetic surgery or aesthetic procedures mainly included the desire for an attractive appearance and feeling happier and more confident.<sup>81</sup> These findings are consistent with the fact that fascination with physical beauty is becoming increasingly common in modern society. In addition, it has been observed that culture and body dysmorphism are also predictive factors in the decision to undergo cosmetic surgery.<sup>4</sup> Injectable procedures to restore facial form and three-dimensionality are becoming popular among younger Asians, reflecting an increasing trend toward repairing facial imperfections or minimizing deviations from ethnic and cultural standards of facial beauty. In this way, general facial beauty is improved, but the aesthetic features of Asian ethnicity are preserved.<sup>27</sup> As the aesthetic aspirations of Asian patients are different from those of Western patients, they require distinct management and treatment tactics.<sup>27</sup> It is natural to expect that with globalization, many women will seek cosmetic surgery interventions from surgeons of different ethnicities, who might have different personal preferences for aesthetic standards. Therefore, to obtain the best outcomes, it is critical to understand the ethnic diversity in beauty standards. A study on this topic revealed that although most respondents stated that being attractive impacts everyday life and improves quality of life, they were unwilling to undergo cosmetic surgery. Moreover, when given the choice of surgical or non-surgical cosmetic procedures, most participants preferred non-surgical procedures.<sup>26</sup>

Although this comprehensive review provides much-needed insights into ethnic and cultural diversity in the perception of attractiveness, it is necessary to acknowledge certain limitations. The population sizes in the studies included in this review ranged widely, and the disparities in sample sizes among the evaluated studies restricted the capacity to draw inferences and quantitatively extract data. Moreover, the operationalization of variables related to cultural and ethnic differences in perceptions of cosmetic surgery was not uniform among the evaluated studies, making it difficult to compare the quantitative results.

## Conclusion

A better understanding of cultural and ethnic variances in aspirations, aesthetic standards, and attitudes toward cosmetic surgery can help expedite the development of effective cosmetic procedures and enhance the acceptability of cosmetic surgery in broader sections of society. Our review found significant variations in preferences for standard proportions depending on the country, ethnic background, and culture. In the context of facial aesthetics, multiple studies have pointed out the inadequacies of the golden ratio or the Marquardt mask in capturing the ethnic and cultural diversity of desired aesthetic outcomes. In the context of breast attractiveness, nipple position, breast size, and breast width strongly influenced the overall breast aesthetic score, but the degree of their influence varied among cultures and ethnicities. Intermammary distance, nipple size and projection, areolar diameter, and areolar shape were also determinants of aesthetic breast score. It is evident that focusing on Western beauty standards may not yield satisfactory cosmetic surgical outcomes for non-Western ethnicities. There is a clear preference for attractiveness based on ethnic origin and culture. Therefore, cosmetic surgeons

should consider the ethnicity of patients when offering cosmetic treatments. This comprehensive review can help make both surgeons and the general population more aware of women's diverse aesthetic preferences for facial, breast, and buttock appearance. When defining novel aesthetic treatments, treating patients, and reporting results in today's increasingly global world, it is essential to consider cultural variations and international diversity. Further studies should be conducted to accommodate ethnic and cultural variations in cosmetic surgery planning.

## Abbreviations

HWR, Height-to-width ratio; NAC, Nipple-areola complex; TOA, Take-off angle; WHR, Waist-to-hip ratio.

## Data Sharing Statement

All data analyzed in this study were obtained from a previously published work.

## Ethics Approval and Informed Consent

Because this study was based solely on the published literature, no ethical declaration was required.

## Author Contributions

All authors made a significant contribution to the work reported, whether that is in the conception, study design, execution, acquisition of data, analysis, and interpretation, or in all these areas, took part in drafting, revising, or critically reviewing the article; gave final approval of the version to be published; have agreed on the journal to which the article has been submitted; and agree to be accountable for all aspects of the work.

## Disclosure

The authors declare no conflicts of interest in this work.

## References

- Hicks KE, Thomas JR. The changing face of beauty: a global assessment of facial beauty. *Otolaryngol Clin North Am.* 2020;53(2):185–194. doi:10.1016/j.otc.2019.12.005
- Fang F, Clapham PJ, Chung KC. A systematic review of interethnic variability in facial dimensions. *Plast Reconstr Surg.* 2011;127(2):874–881. doi:10.1097/PRS.0b013e318200afdb
- Kara M, Özgür FF. Perception of beauty in different cultures. In: *Beauty, Aging and AntiAging.* Elsevier; 2022:11–19.
- Haas CF, Champion A, Secor D. Motivating factors for seeking cosmetic surgery: a synthesis of the literature. *Plast Surg Nurs.* 2008;28(4):177–182. doi:10.1097/PSN.0b013e31818ea832
- Qian H, Ling Y, Wang C, et al. A correlative study between personality traits and the preference of site selection in cosmetic treatment. *Front Psychiatry.* 2021;12:648751. doi:10.3389/fpsy.2021.648751
- Pearlman RL, Wilkerson AH, Cobb EK, et al. Factors associated with likelihood to undergo cosmetic surgical procedures among young adults in the United States: a narrative review. *Clin Cosmet Investig Dermatol.* 2022;15:859–877. doi:10.2147/CCID.S358573
- Corduff N, Chao YY, Lam SC, et al. A new simplified visual assessment tool describing facial morphotypes observed and desired in asian populations. *J Clin Aesthet Dermatol.* 2020;13(4):23–34.
- Özkan M, Bayramiçi M. Perception of nasal aesthetics: nose or face? *Aesthetic Plast Surg.* 2022;46(6):2931–2937. doi:10.1007/s00266-022-02943-2
- Kwon SH, Lao WW, Lee CH, et al. Experiences and attitudes toward aesthetic procedures in East Asia: a cross-sectional survey of five geographical regions. *Arch Plast Surg.* 2021;48(6):660–669. doi:10.5999/aps.2020.02565
- Weeks DM, Thomas JR. Beauty in a multicultural world. *Facial Plast Surg Clin North Am.* 2014;22(3):337–341. doi:10.1016/j.fsc.2014.04.005
- Broer PN, Juran S, Liu YJ, et al. The impact of geographic, ethnic, and demographic dynamics on the perception of beauty. *J Craniofac Surg.* 2014;25(2):e157–e161. doi:10.1097/SCS.0000000000000406
- Rhee SC. Differences between Caucasian and Asian attractive faces. *Skin Res Technol.* 2018;24(1):73–79. doi:10.1111/srt.12392
- Alotaibi AS. Demographic and cultural differences in the acceptance and pursuit of cosmetic surgery: a systematic literature review. Review. *Plast Reconstr Surg Glob Open.* 2021;9(3):e3501. doi:10.1097/GOX.0000000000003501
- Kashmar M, Alsufyani MA, Ghalamkarpour F, et al. Consensus opinions on facial beauty and implications for aesthetic treatment in Middle Eastern Women. *Plast Reconstr Surg Global Open.* 2019;7(4):e2220. doi:10.1097/GOX.0000000000002220
- Holland E. Marquardt's Phi mask: pitfalls of relying on fashion models and the golden ratio to describe a beautiful face. *Aesthetic Plast Surg.* 2008;32(2):200–208. doi:10.1007/s00266-007-9080-z
- Hwang K, Park CY. The divine proportion: origins and usage in plastic surgery. *Plast Reconstr Surg Global Open.* 2021;9(2):e3419. doi:10.1097/GOX.0000000000003419
- Mommaerts MY, Moerenhout BA. Ideal proportions in full face front view, contemporary versus antique. *J Craniomaxillofac Surg.* 2011;39(2):107–110. doi:10.1016/j.jcms.2010.04.012
- Sturm-O'Brien AK, Brissett AE, Brissett AE. Ethnic trends in facial plastic surgery. *Facial Plast Surg.* 2010;26(2):69–74. doi:10.1055/s-0030-1253496

19. Burusapat C, Lekdaeng P. What is the most beautiful facial proportion in the 21st century? Comparative study among Miss Universe, Miss Universe Thailand, neoclassical canons, and facial golden ratios. *Plast Reconstr Surg Global Open*. 2019;7(2):e2044. doi:10.1097/GOX.0000000000002044
20. Mantelakis A, Iosifidis M, Al-Bitar ZB, et al. Proportions of the aesthetic African-Caribbean face: idealized ratios, comparison with the golden proportion and perceptions of attractiveness. *Maxillofac Plast Reconstr Surg*. 2018;40(1):20. doi:10.1186/s40902-018-0161-5
21. Kar M, Muluk NB, Bafaqeh SA, Cingi C. Is it possible to define the ideal lips? *Acta Otorhinolaryngol Ital*. 2018;38(1):67–72. doi:10.14639/0392-100X-1511
22. Farkas LG, Hreczko TA, Kolar JC, Munro IR. Vertical and horizontal proportions of the face in young adult North American Caucasians: revision of neoclassical canons. *Plast Reconstr Surg*. 1985;75(3):328–338. doi:10.1097/00006534-198503000-00005
23. Sarnoff DS, Gotkin RH. Six steps to the “perfect” lip. *J Drugs Dermatol*. 2012;11(9):1081–1088.
24. Hwang K, Hwang SH. Anthropometric comparison of portraits of Korean and Japanese beauty in the late 18th and early 19th centuries. *J Craniofac Surg*. 2005;16(5):790–793. doi:10.1097/01.scs.0000180013.68233.14
25. Anic-Milosevic S, Mestrovic S, Prlic A, Slaj M. Proportions in the upper lip-lower lip-chin area of the lower face as determined by photogrammetric method. *J Craniomaxillofac Surg*. 2010;38(2):90–95. doi:10.1016/j.jcms.2009.03.013
26. Samizadeh S, Wu W. Ideals of facial beauty amongst the Chinese population: results from a large national survey. *Aesthetic Plast Surg*. 2020;44(4):1173–1183. doi:10.1007/s00266-020-01815-x
27. Liew S, Wu WT, Chan HH, et al. Consensus on changing trends, attitudes, and concepts of asian beauty. *Aesthetic Plast Surg*. 2016;40(2):193–201. doi:10.1007/s00266-015-0562-0
28. Rhee SC, An SJ, Hwang R. Contemporary Koreans’ perceptions of facial beauty. *Arch Plast Surg*. 2017;44(5):390–399. doi:10.5999/aps.2017.44.5.390
29. Ding A. The ideal lips: lessons learnt from the literature. *Aesthetic Plast Surg*. 2021;45(4):1520–1530. doi:10.1007/s00266-021-02190-x
30. Kollipara R, Walker B, Sturgeon A. Lip measurements and preferences in asians and Hispanics: a brief review. *J Clin Aesthet Dermatol*. 2017;10(11):19–21.
31. Mallucci P, Branford OA. Concepts in aesthetic breast dimensions: analysis of the ideal breast. *J Plastic Reconstr Aesthet Surg*. 2012;65(1):8–16. doi:10.1016/j.bjps.2011.08.006
32. Broer PN, Buonocore S, Morillas A, et al. Nasal aesthetics: a cross-cultural analysis. *Plast Reconstr Surg*. 2012;130(6):843e–850e. doi:10.1097/PRS.0b013e31826da0c1
33. Albert D. Perception of ideal facial beauty among females in south Indian Dravidian population - A questionnaire survey. Article. *Int J Dent Oral Sci*. 2021;8(3):1769–1774.
34. Ding A. The ideal eyebrow: lessons learnt from the literature. *Aesthetic Plast Surg*. 2021;45(2):536–543. doi:10.1007/s00266-020-01920-x
35. Feser D, Gruendl M, Eisenmann-Klein M, Prantl L. Attractiveness of eyebrow position and shape in females depends on the age of the beholder. *Aesthetic Plast Surg*. 2007;31:154–160. doi:10.1007/s00266-006-0149-x
36. Jung GS, Chung KH, Lee JW, et al. Eyebrow position and shape favored by Korean women. *J Craniofac Surg*. 2018;29(3):594–598. doi:10.1097/SCS.0000000000004301
37. Society A. National databank aesthetic plastic surgery; 2020. Available from: <https://cdn.theaestheticsociety.org/media/statistics/aestheticplasticsurgerynationaldatabank-2020stats.pdf>. Accessed June 1, 2023.
38. Liu YJ, Thomson JG. Ideal anthropomorphic values of the female breast: correlation of pluralistic aesthetic evaluations with objective measurements. *Ann Plast Surg*. 2011;67(1):7–11. doi:10.1097/SAP.0b013e3181f77ab5
39. Mallucci P, Branford OA. Shapes, proportions, and variations in breast aesthetic ideals: the definition of breast beauty, analysis, and surgical practice. *Clin Plast Surg*. 2015;42(4):451–464. doi:10.1016/j.cps.2015.06.012
40. Atiye B, Chahine F. Metrics of the aesthetically perfect breast. *Aesthetic Plast Surg*. 2018;42(5):1187–1194. doi:10.1007/s00266-018-1154-6
41. Artz JD, Hauch AT, Francis CS, Chasan PE. In search of the attractive breast. *Aesthet Surg J Open Forum*. 2021;3(4):ojab031. doi:10.1093/asjof/ojab031
42. Zelazniewicz AM, Pawlowski B. Female breast size attractiveness for men as a function of sociosexual orientation (restricted vs. unrestricted). *Arch Sex Behav*. 2011;40(6):1129–1135. doi:10.1007/s10508-011-9850-1
43. Mallucci P, Branford OA. Population analysis of the perfect breast: a morphometric analysis. *Plast Reconstr Surg*. 2014;134(3):436–447. doi:10.1097/PRS.0000000000000485
44. Lee HJ, Ock JJ. An ideal female breast shape in balance with the body proportions of Asians. *Plast Reconstr Surg Global Open*. 2019;7(9):e2377. doi:10.1097/GOX.0000000000002377
45. Sandberg LJ, Tonseth KA, Kloster-Jensen K, et al. Beyond the 21-cm Notch-to-nipple Myth: golden proportions in breast aesthetics. *Plast Reconstr Surg Global Open*. 2021;9(10):e3826. doi:10.1097/GOX.0000000000003826
46. Hamzan MI, Sulaiman WAW, Ismail NN. Bigger bust no longer on trend: Malaysians prefer moderation in ideal female breast augmentation. *Indian J Plast Surg*. 2021;54(3):321–326. doi:10.1055/s-0041-1734572
47. Avsar DK, Aygit AC, Benlier E, Top H, Taskinalp O. Anthropometric breast measurement: a study of 385 Turkish female students. *Aesthet Surg J*. 2010;30(1):44–50. doi:10.1177/1090820X09358078
48. Lewin R, Amoroso M, Plate N, Trogen C, Selvaggi G. The Aesthetically Ideal Position of the Nipple-Areola Complex on the Breast. *Aesthetic Plast Surg*. 2016;40(5):724–732. doi:10.1007/s00266-016-0684-z
49. Hamzan MI, Wan Sulaiman WA, Ismail NN. Perception of the most perfect female breast shape among Malays, Chinese, and Indians community. *J Plast Surg Hand Surg*. 2022;56(1):30–37. doi:10.1080/2000656X.2021.1908313
50. Azadgoli B, Gould DJ, Vartanian E, Patel KM. The public’s perception on breast and nipple reconstruction: a crowdsourcing-based assessment. *Aesthet Surg J*. 2019;39(9):NP370–NP376. doi:10.1093/asj/sjy281
51. Gabriel A, Fritzsche S, Creasman C, Baqai W, Mordaunt D, Maxwell GP. Incidence of breast and chest wall asymmetries: 4D photography. *Aesthet Surg J*. 2011;31(5):506–510. doi:10.1177/1090820X11410868
52. Mejia Jimenez N, Patron Gomez AS. Breast aesthetic preferences: analysis of 1294 surveys. *Aesthetic Plast Surg*. 2021;45(5):2088–2093. doi:10.1007/s00266-021-02253-z
53. Sandberg LJ, Tonseth KA, Kloster-Jensen K, et al. An aesthetic factor priority list of the female breast in Scandinavian subjects. *Plast Reconstr Surg Global Open*. 2020;8(10):e3173. doi:10.1097/GOX.0000000000003173



54. Kelly JD, Comstock B, Shauly O, Smartt JM, Gould DJ. Validation of ideal breast characteristics with breast augmentation patients. *Aesthet Surg J Open Forum*. 2022;4:ojac010. doi:10.1093/asjof/ojac010
55. Kelly JD, Comstock B, Shauly O, Smartt JM, Gould DJ. Public Perception of Ideal Breast Shape. *Aesthet Surg J Open Forum*. 2022;4:ojab049. doi:10.1093/asjof/ojab049
56. Wallner C, Dahlmann V, Montemurro P, et al. The search for the ideal female breast: a nationally representative United-States-census study. *Aesthetic Plast Surg*. 2022. doi:10.1007/s00266-021-02753-y
57. Mendieta CG, Sood A. Classification system for gluteal evaluation: revisited. *Clin Plast Surg*. 2018;45(2):159–177. doi:10.1016/j.cps.2017.12.013
58. Mendieta CG. Classification system for gluteal evaluation. *Clin Plast Surg*. 2006;33(3):333–346. doi:10.1016/j.cps.2006.04.006
59. Che DH, Xiao ZB. Gluteal augmentation with fat grafting: literature review. *Aesthetic Plast Surg*. 2021;45(4):1633–1641. doi:10.1007/s00266-020-02038-w
60. Lee EI, Roberts TL, Bruner TW. Ethnic considerations in buttock aesthetics. *Semin Plast Surg*. 2009;23(3):232–243. doi:10.1055/s-0029-1224803
61. Nteli Chatzioglou G, Govsa F, Bicer A, Ozer MA, Pinar Y. Physical attractiveness: analysis of buttocks patterns for planning body contouring treatment. *Surg Radiol Anat*. 2019;41(1):133–140. doi:10.1007/s00276-018-2083-4
62. Wong WW, Motakef S, Lin Y, Gupta SC. Redefining the ideal buttocks: a population analysis. *Plast Reconstr Surg*. 2016;137(6):1739–1747. doi:10.1097/PRS.0000000000002192
63. Mowlavi A, Berri M, Talle A, Talle M. Objectifying high-definition Brazilian buttock lift results using the buttock assessment tool. *Plast Reconstr Surg*. 2021;148(5):727e–734e. doi:10.1097/prs.00000000000008479
64. Heidekrueger PI, Sinno S, Tanna N, et al. The ideal buttock size: a sociodemographic morphometric evaluation. *Plast Reconstr Surg*. 2017;140(1):20e–32e. doi:10.1097/prs.00000000000003439
65. Singh D. Universal allure of the hourglass figure: an evolutionary theory of female physical attractiveness. *Clin Plast Surg*. 2006;33(3):359–370. doi:10.1016/j.cps.2006.05.007
66. Pérez Chávez F, Flores González EA, Ramírez Guerrero OR, Gracida Mancilla NI, Pérez Estrada U. The perception of the ideal body contouring in Mexico. *Plast Reconstr Surg Global Open*. 2020;8(12):e3155. doi:10.1097/gox.00000000000003155
67. Milothridis P, Pavlidis L, Haidich AB, Panagopoulou E. A systematic review of the factors predicting the interest in cosmetic plastic surgery. *Indian J Plast Surg*. 2016;49(3):397–402. doi:10.4103/0970-0358.197224
68. Al Ghadeer HA, AlAlwan MA, AlAmer MA, et al. Impact of self-esteem and self-perceived body image on the acceptance of cosmetic surgery. *Cureus*. 2021;13(10):e18825. doi:10.7759/cureus.18825
69. Brown A, Furnham A, Glanville L, Swami V. Factors that affect the likelihood of undergoing cosmetic surgery. *Aesthet Surg J*. 2007;27(5):501–508. doi:10.1016/j.asj.2007.06.004
70. Prendergast TI, Ong'uti SK, Ortega G, et al. Differential trends in racial preferences for cosmetic surgery procedures. *Am Surg*. 2011;77(8):1081–1085. doi:10.1177/000313481107700832
71. Wu Y, Alleva JM, Broers NJ, Mulken S, Alam M. Attitudes towards cosmetic surgery among women in China and the Netherlands. Article. *PLoS One*. 2022;17(4):e0267451. doi:10.1371/journal.pone.0267451
72. Amiri L, Galadari H, Al Mugaddam F, Souid AK, Stip E, Javaid SF. Perception of cosmetic procedures among Middle Eastern Youth. *J Clin Aesthet Dermatol*. 2021;14(12):E74–E83.
73. AlShamlan NA, AlOmar RS, Al-Sahow AZ, et al. Cosmetic surgeries and procedures among youth in Saudi Arabia: a cross-sectional study of undergraduate university students in the Eastern Province. *Postgrad Med J*. 2022;98(1160):434–440. doi:10.1136/postgradmedj-2020-139618
74. Mozaffari Niya N, Kazemi M, Abazari F, Ahmadi F. Iranians' perspective to cosmetic surgery: a thematic content analysis for the reasons. *World J Plast Surg*. 2019;8(1):69–77. doi:10.29252/wjps.8.1.69
75. Ligh CA, Lett E, Broach RB, et al. The impact of race, age, gender, income, and level of education on motivations to pursue cosmetic surgery and surgeon selection at an academic institution. *Plast Reconstr Surg*. 2020;145(5):932e–939e. doi:10.1097/prs.0000000000006734
76. Alhujayri AK, Alyousef LA, Alharthi SA, Aldekhayel S. Perception of cosmetic procedures among Saudis during COVID-19 pandemic. *Plast Reconstr Surg Global Open*. 2021;9(6):e3710. doi:10.1097/gox.0000000000003710
77. Swami V, Hwang CS, Jung J. Factor structure and correlates of the acceptance of cosmetic surgery scale among South Korean university students. *Aesthet Surg J*. 2012;32(2):220–229. doi:10.1177/1090820x11431577
78. Cho Chung HI, Kim YA. Perception of cosmetic surgery and associated side effects: a content analysis study of South Korean female college students. *Medicine*. 2022;101(3):e28641. doi:10.1097/md.00000000000028641
79. Ng JH, Yeak S, Phoon N, Lo S. Cosmetic procedures among youths: a survey of junior college and medical students in Singapore. *Singapore Med J*. 2014;55(8):422–426. doi:10.11622/smedj.2014100
80. Wu Y, Mulken S, Alleva JM. Body image and acceptance of cosmetic surgery in China and the Netherlands: a qualitative study on cultural differences and similarities. *Body Image*. 2022;40:30–49. doi:10.1016/j.bodyim.2021.10.007
81. Maisel A, Waldman A, Furlan K, et al. Self-reported patient motivations for seeking cosmetic procedures. *JAMA Dermatol*. 2018;154(10):1167–1174. doi:10.1001/jamadermatol.2018.2357

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