ORIGINAL ARTICLE

A Contemporary Assessment of Facial Aesthetic Preferences

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Objectives: To compare and characterize the ideal nasolabial angle, nasal tip width, and location of the eyebrow apex for Asian and white women.

Methods: From approximately January 1, 2005, to June 30, 2005, we photographed the faces of 2 Asian women and 2 white women of differing ages. Each model's image was modified to create different eyebrow shapes, unique nasolabial angles, and varying nasal tip widths. We subsequently recruited, and obtained demographic information from, volunteers from the general public to rate the modified images based on their aesthetic preferences.

Results: We found that neither the ethnicity of the models nor the ethnicity of the volunteers who rated them played a significant role in determining the ideal eyebrow apex location, nasolabial angle, or nasal tip width. However, generally speaking, a more lateral brow apex is preferable in younger faces, whereas a more medial apex is favored in older ones. Other preferences include a moderate nasolabial angle and a narrow nasal tip. As a result of individual variability, it has been difficult to establish a method to calculate a nasolabial angle that adequately portrays the apparent rotation of the nose in most people. We found that the angle formed by the line from the anterior columella to the subnasale and the line exactly perpendicular to the Frankfurt horizontal plane provides the best estimate.

Conclusions: When planning facial plastic surgery, the goals of the patient are of paramount importance. Although it is important to understand the ways in which people of different ethnicities and ages differ in their facial proportions as a group, facial harmony must be pursued on an individual basis.

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A CRUCIAL PART OF PREOPERATIVE consultation for facial plastic and reconstructive surgery is the establishment of reasonable goals toward which surgery may be directed. Although neoclassical canons have been used in facial plastic surgery to help define these goals, previous studies[1-5] have shown that these canons are largely invalid for African American, Asian, ethnic Turkish, and North American white populations. Although these canons should not rigidly be applied in facial plastic surgery, they provide standards from which actual facial measurements among different ethnic groups may be compared.[2] Studies[2,4] have shown that significant differences exist when comparing the facial characteristics of North American white with Asian populations.

Alterations in the nasal tip rotation (nasolabial angle), nasal tip width, and the position and shape of the eyebrow can all be addressed with cosmetic facial plastic surgery. Given that there are differences between the typical Asian and white faces, we hypothesize that those facial relationships that are considered ideal would similarly differ. The aim of the study is to compare and characterize the ideal nasolabial angle, nasal tip width, and location of the eyebrow apex for Asian and white women.

Popular views of beauty continue to evolve as our communities become more ethnically diverse and as fashion, media, and popular culture increasingly influence our tastes. A secondary aim of the study is to determine how sex, ethnicity, and age may affect an individual's facial aesthetic preferences. A thorough understanding of current societal preferences and an understanding of the role of ethnicity in determining the facial relationships that maximize facial harmony will help guide surgical planning for aesthetic facial plastic surgery.

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METHODS

We photographed the faces of 4 women in the frontal and lateral views: a 30-year-old white woman, a 30-year-old Asian woman, a 60-year-old white woman, and a 60-year-old Asian

Figure 1. Modified images of our older Asian model for each of the eyebrow apex positions. A, Middle of the pupil; B, lateral limbus; C, halfway between the lateral limbus and lateral canthus; and D, lateral canthus.

Figure 2. Modified images of our older Asian model. A and B, Nasolabial angle, 100° and 112°, respectively. C and D, Nasal tip width, 40% and 50%, respectively.

woman. These 4 volunteers served as the models for our study; they were recruited from the general public and were not fashion models. We then modified the photographs of these models using a computer software program (Mirror Suite; Canfield Scientific, Fairfield, New Jersey) that allows the facile modification of images. For each model, we examined 3 variables separately: eyebrow shape as seen on frontal view, nasolabial angle as seen on lateral view, and nasal tip width as seen on frontal view. We modified each of the 4 models' images to create 5 different eyebrow shapes, 6 unique nasolabial angles, and 5 varying nasal tip widths.

We created 5 unique eyebrow shapes, each with its apex at a different location. The medial-most eyebrow apex is drawn from a perpendicular line through the middle of the pupil (MP). Each subsequent modification depicts the eyebrow apex more laterally; these positions include the lateral limbus (LL), lateral canthus (LC), and halfway between the LL and LC (HF). The lateral-most (LM) brow has no point of inflection, with its apex at the LM point of the eyebrow. During the image modifications, great care was taken not to elevate the brow or alter its medial starting point; only the shape and apex location were altered to create a smooth, realistic-appearing brow.

We measured the nasolabial angle as the angle between the line drawn from the anterior columella to the subnasale and the line exactly perpendicular to the Frankfurt horizontal plane. We altered the images by rotating the lower vault of the nose using the subnasale as a pivot point. We generated 6 images with different nasolabial angles, ranging from 96° to 116°, in increments of 4°. The nasal dorsum was straightened for all of these modified profile photographs, and the supratip break and projection of the nose were kept constant.

The nasal tip width is defined as the percentage of the width of the tip of the rise with respect to the width and its base. Tip width was determined by the outline created by the light and shadow contrast that distinguish the tip from the alar lobules. We designed 5 different nasal tip widths, beginning with 35% and increasing in increments of 5% to a maximum of 55%. In modifying these images, changes were made only to the width of the tip of the nose; the width of the alar base was never altered.

We subsequently recruited volunteers to evaluate the modified images and obtained their age, sex, and ethnicity. These volunteers consisted of physicians, nurses, students, and members of the general public. No otolaryngology–head and neck surgeons, plastic surgeons, or people with expertise in facial analysis were used in this study. For each model, each of the 5 eyebrow images, the 6 nasolabial angle images, and the 5 nasal tip width images were evaluated separately as a group. The volunteer then ranked the images within each group from most attractive to least attractive. We emphasized to the volunteers the importance of examining the ways that the changed variable affects the appearance of the entire face, rather than exploring each variable in isolation. Every volunteer ranked the images for all 3 variables for each of the 4 models. **Figure 1** and **Figure 2** show modified images for the variables in our older Asian model.

Images were scored based on their ranking; those ranked most attractive were given 1 point, those ranked as second most attractive were given 2 points, and so on. Because there were 5 total images for both the eyebrow variable and the nasal width

Table 1. Sex and Ethnicity of the 171 Study Volunteers

Ethnicity	No. (%) of Volunteers	Female/Male, No.
Asian	55 (32.2)	34/21
African American	3 (1.8)	3/0
White	83 (48.5)	53/30
Hispanic	14 (8.2)	13/1
East Indian	3 (1.8)	2/1
Middle Eastern	2 (1.2)	1/1
Multiethnic[a]	11 (6.3)	8/3

[a]Volunteers who identify with more than 1 ethnicity are grouped in the multiethnic row.

variable, the images ranked least attractive in these categories were given 5 points. Because there were 6 images in the nasolabial angle variable, the least attractive image in this category was given 6 points. For all 4 models, we used mixed-effects regression models to estimate mean rankings for volunteer preferences for each characteristic. These models included a fixed effect for the different values of each characteristic (eg, type of eyebrow) and a random volunteer effect to take into account correlation within volunteer responses. On the basis of age, volunteers were divided into 2 groups: 41 years or older and younger than 41 years. Using Mann-Whitney tests, statistical comparisons based on volunteer age, volunteer sex, and volunteer ethnicity were completed.

RESULTS

We recruited 171 volunteers to complete the survey. Their ages ranged from 17 to 76 years, with a mean age of 35.8 years and a median age of 32 years. Forty-eight volunteers were at least 41 years of age and 123 volunteers were younger; 114 were female and 57 were male. **Table 1** describes the ethnicity of each volunteer; 11 volunteers identified with more than 1 ethnicity. Each volunteer submitted 12 rank lists, corresponding to the 3 variables for each of the 4 models. Any 1 of the 12 rank lists was discarded if an image was ranked more than once or not at all. The 171 volunteers submitted a total of 1982 adequate rank lists; 39 people submitted a total of 70 inadequate rank lists that were discarded.

The overall preferences of eyebrow position, nasolabial angle, and nasal tip width combining the data from all 4 models are summarized in **Table 2**. The most popular eyebrows had their apices at the LL and HF positions; the least popular brows were at the MP and LM locations. Moderate nasolabial angles of 104° and 108° were ranked as most attractive, whereas extreme angles of 116° and 96° were considered least attractive. A thin nasal tip width was considered most appealing.

Table 3 compares the volunteers' preferences for each of the variables for each of the 4 models separately. The most desirable eyebrow position was LC for the younger white model, HF for the younger Asian model, and LL for the older white and older Asian models. For all 4 models, the least desirable eyebrow was the one with the most lateral apex. **Table 4** demonstrates different volunteer preferences, stratifying the models into younger and older groups. The more lateral brows at the LC and HF positions are preferred in the younger models, and the MP and LL positions are favored in the older models.

Table 2. Overall Volunteer Preferences of Eyebrow Position, Nasolabial Angle, and Nasal Tip Width Combining the Data From All 4 Models

Variable	Mean (95% Confidence Interval)
Eyebrow apex	
LL	2.26 (2.19-2.34)
HF	2.38 (2.30-2.46)
LC	2.65 (2.57-2.73)
MP	2.80 (2.72-2.88)
LM	4.91 (4.83-4.99)
Nasolabial angle, °	
108	3.12 (2.99-3.25)
112	3.34 (3.21-3.47)
100	3.49 (3.36-3.62)
116	3.96 (3.83-4.08)
96	3.99 (3.86-4.12)
Nasal tip width, %	
35	2.45 (2.35-2.55)
40	2.47 (2.38-2.57)
45	2.71 (2.61-2.81)
50	3.30 (3.20-3.40)
55	4.11 (4.01-4.20)

Abbreviations: HF, halfway between the lateral limbus and lateral canthus; LC, lateral canthus; LL, lateral limbus; LM, lateral-most brow; MP, middle of the pupil.

As indicated in Table 3, the most desirable nasolabial angle for both Asian models and the older white model was 108°. For the younger white model, 104° was most desirable. Although the least desirable nasolabial angles for the younger white model were 112° and 116°, the least desirable angles for the younger Asian and older white models were 96° and 100°, respectively. Extreme values of 96° and 116° were deemed least attractive for the older Asian model.

With the exception of the younger white model, the nasal tip widths were ranked more attractive as they became thinner (Table 3). For these models, a nasal tip width of 35% of the alar base was most attractive and 55% was least attractive. Note that this trend is statistically significant ($P<.01$) in that each subsequent mean estimate lies outside the 95% confidence interval of the previous item. For the younger white model, extreme widths were less desirable and more average widths were more attractive.

Subsequent analysis was performed to determine if there were any differences in ranking preference based on volunteer demographic information, including ethnicity, age, and sex. After combining the data for all 4 models, the ranking preferences for Asian and white volunteers were compared (**Table 5**). For the eyebrow and nasolabial angle variables, the ranking preferences between these 2 groups were equivalent and no statistically significant trends were seen. The data show that Asian volunteers preferred a wider nasal tip in general compared with white volunteers, although this small difference was not statistically significant. Furthermore, no trends were seen in the ranking preferences between Asian and white volunteers rating both of the Asian models alone, both of the white models alone, or each of the 4 models individually.

Table 3. Volunteer Preferences for Each of the 4 Models Separately

Variable	Mean (95% Confidence Interval)			
	Young White Model	Young Asian Model	Older White Model	Older Asian Model
Eyebrow apex				
LC	2.32 (2.17-2.48)	2.49 (2.34-2.63)	2.95 (2.80-3.10)	2.85 (2.70-3.01)
LL	2.52 (2.36-2.67)	2.30 (2.16-2.44)	2.15 (2.00-2.30)	2.08 (1.92-2.24)
MP	2.56 (2.40-2.72)	3.34 (3.19-3.48)	2.73 (2.58-2.88)	2.58 (2.42-2.73)
HF	2.69 (2.54-2.85)	1.96 (1.82-2.11)	2.23 (2.08-2.38)	2.62 (2.47-2.78)
LM	4.91 (4.75-5.06)	4.91 (4.77-5.05)	4.95 (4.80-5.10)	4.87 (4.71-5.02)
Nasolabial angle, °				
96	3.52 (3.27-3.76)	4.13 (3.87-4.39)	4.44 (4.19-4.70)	3.89 (3.64-4.14)
100	2.76 (2.51-3.00)	4.21 (3.95-4.47)	3.74 (3.49-3.99)	3.27 (3.02-3.52)
104	2.71 (2.47-2.95)	3.17 (2.91-3.42)	3.55 (3.30-3.80)	3.01 (2.76-3.26)
108	3.65 (3.41-3.90)	3.07 (2.81-3.33)	2.87 (2.62-3.12)	2.88 (2.63-3.12)
112	3.85 (3.61-4.09)	3.17 (2.91-3.43)	2.96 (2.71-3.21)	3.37 (3.12-3.62)
116	4.52 (4.27-4.76)	3.25 (3.00-3.51)	3.43 (3.18-3.68)	4.59 (4.34-4.84)
Nasal tip width, %				
35	3.72 (3.52-3.93)	2.00 (1.82-2.18)	2.11 (1.94-2.29)	1.99 (1.82-2.16)
40	2.87 (2.67-3.07)	2.50 (2.32-2.68)	2.38 (2.20-2.55)	2.16 (1.99-2.32)
45	2.38 (2.17-2.58)	2.88 (2.69-3.06)	2.71 (2.53-2.88)	2.88 (2.72-3.05)
50	2.59 (2.39-2.80)	3.56 (3.37-3.74)	3.50 (3.32-3.67)	3.55 (3.39-3.72)
55	3.44 (3.23-3.64)	4.25 (4.07-4.44)	4.31 (4.13-4.48)	4.41 (4.25-4.58)

Abbreviations: See Table 2.

Table 4. Mean Estimated Volunteer Preferences for Eyebrow Apex Position, Stratifying the Models Into Younger and Older Groups[a]

Eyebrow Apex Position	Older	Younger	Older-Younger	*P* Value
MP	2.65	2.94	−0.29	<.001
LL	2.11	2.41	−0.30	<.001
HF	2.42	2.33	0.09	.25
LC	2.90	2.40	0.50	<.001
LM	4.91	4.91	0	.99

Abbreviations: See Table 2.
[a]Younger is defined as age 30 years; older, as age 60 years.

For the eyebrow variable, notable ranking differences were found based on volunteer sex (**Table 6**). When combining the rank list data across all 4 models, males prefer the MP and LL eyebrow apex positions with respect to females; females favor the HF and LC positions. These distinctions held true for all 4 models individually ($P < .001$, $P = .02$, $P < .001$, and $P < .001$ for the young white, young Asian, older white, and older Asian models, respectively), with the exception that females preferred the LL position in the older Asian model.

For the nasolabial angle and nasal tip width variables, the distinction in the rank lists between female and male volunteers was less clear. Compared with females, males prefer the smaller nasolabial angles of 96° and 100°, whereas females ranked all of the larger angles more favorably. However, most of these sex differences are not statistically significant. For the nasal tip width variable, males preferred the most extreme values compared with females, who preferred 40%, 45%, and 50%, but this trend was also not statistically significant.

After combining the data for all 4 models, a comparison of the rank lists between volunteers separated into groups of those younger than 41 years and those 41 years and older shows that volunteers in the older group favor larger nasolabial angles (112° and 116°) and larger nasal tip widths (50% and 55%) compared with their younger counterparts. However, because the mean estimates for each angle and width percentage are nearly identical in both groups, none of these differences are statistically significant. For the eyebrow variable, younger volunteers prefer the LC position ($P < .001$) compared with older volunteers, who prefer the MP position ($P = .02$). However, no other significant differences or trends were found between the rank lists of either group for the eyebrow variable.

COMMENT

The ideal position for the female eyebrow apex has been debated for decades. In 1974, Westmore[6] concluded that it should lie over the LL. Angres[7] agreed with this eyebrow apex position for patients with close-set eyes; however, he believed that the arch should be above the pupil or nasal to the medial limbus in patients with normal-spaced eyes or wide-set eyes, respectively. Recently, a more lateral eyebrow apex has been considered preferable. Gunter and Antrobus[8] and Wolfort et al[9]

Table 5. Mean Estimate Preferences of Asian and White Volunteers for Eyebrow Position, Nasolabial Angle, and Nasal Tip Width Combining the Data From All 4 Models

Variable	Asian	White	Asian-White	*P* Value
Eyebrow apex				
MP	2.70	2.74	−0.04	.66
LL	2.22	2.18	0.04	.70
HF	2.44	2.41	0.03	.72
LC	2.78	2.73	0.05	.58
LM	4.86	4.94	−0.08	.38
Nasolabial angle, °				
96	3.95	3.96	−0.01	.91
100	3.26	3.58	−0.32	.03
104	3.21	2.97	0.24	.10
108	3.13	3.10	0.03	.79
112	3.37	3.52	−0.15	.33
116	4.07	3.87	0.20	.18
Nasal tip width, %				
35	2.51	2.42	0.09	.45
40	2.59	2.42	0.17	.12
45	2.72	2.77	−0.05	.68
50	3.21	3.29	−0.08	.49
55	3.97	4.14	−0.17	.13

Abbreviations: See Table 2.

Table 6. Eyebrow Apex Position Preferences Based on Volunteer Sex

Eyebrow Apex Position	Female	Male	*P* Value
MP	2.96	2.48	<.001
LL	2.31	2.17	.09
HF	2.26	2.62	<.001
LC	2.52	2.93	<.001
LM	4.80	4.96	<.001

Abbreviations: See Table 2.

concluded that the ideal arch position of the eyebrow should be halfway between the LL and LC. Roth and Metzinger[10] compared the eyebrow apex location in fashion models and a group of randomly selected women; they defined an eye width as the distance from the medial canthus to the LC. Both groups' apices were located near the LC, with the randomly selected women's mean apex located at 93% of an eye width and the fashion model's apex located more laterally at 98% of an eye width. Cook et al[11] reviewed photographs of women designated as "attractive" and concluded that the eyebrow apex should be at the LC. Freund and Nolan[12] had plastic surgeons and cosmetologists evaluate a series of faces of young females (exact ages not specified by study authors) that were altered with a computer program. They found that brows with an apex lateral to the LC were preferred to those with either a medial apex or a flat brow.

Volunteers in our study rated LC and HF higher in the younger models and MP and LL more favorably in the older models (Table 4). The preference of these lateral positions in younger models is consistent with the findings in other studies[8,11,12] that evaluated the faces of young people (exact ages not specified by study authors). Interestingly, a particular study[10] that used both older and younger people found that the eyebrow apex is located at 95% of an eye width in women in their 20s and is only 87% of an eye width in patients older than 50 years. The finding that the eyebrow apex is located more medially in older individuals fits nicely with our data which demonstrate that the ideal eyebrow position of the older Asian and the older white woman has a more medial location. We can therefore infer that more lateral eyebrow positions, which are considered to be more exotic in appearance, are favored in younger people, whereas brows considered more conservative in appearance are preferred in older people. The acknowledgment of this difference can be critical during preoperative planning for brow surgery.

Since Asians tend to have greater intercanthal widths compared with whites, one could expect differing eyebrow apices to be considered ideal.[2,7] However, when comparing the eyebrow apex position data by model ethnicity, no trends are seen. It is possible that other factors (such as age) are more important than ethnicity in determining an ideal eyebrow apex position. However, our study is limited because we used only 2 representative models for each ethnicity; more models would likely be needed to provide data significant enough to detect a difference. Furthermore, each model in this study has unique facial proportions, making it difficult to draw conclusions about aesthetic preferences for white and Asian ethnic groups as a whole from the data.

The relationship of the nasal base to the upper lip as seen on a lateral view describes the apparent rotation of the nose, which can be quantified by the nasolabial angle. The most common way to measure this relationship is to assess the angle between the line drawn from the anterior columella to the subnasale and the line from the subnasale to the mucocutaneous border of the upper lip. As described by Leach,[13] this method is invalid when evaluating the nasolabial angle in an individual with protruding maxillae or procumbent incisors. He found that measuring the angle between the line between the long axis of the nostril and the line perpendicular to the Frankfurt horizontal plane was most accurate. During assessments of the nasolabial angle for our 4 models, we found that neither of these techniques accurately described the apparent rotation of the nose. The common method for measuring nasolabial angle was invalid in our Asian models because both have a protruding upper lip that results in angles that are too acute. The method that Leach used was accurate for all our models except the older white model. As shown in **Figure 3**, the long axis of her nostril was not parallel to the base of her nose; this method would produce angles that are too acute and would not accurately portray the rotation of the nose. We found that the best method for this measurement is to determine the angle between the line from the anterior columella to the subnasale and the line exactly perpendicular to the Frankfurt horizontal plane. Using this method, the apparent rotation of the nose was accurately illustrated by the nasolabial angle in all 4 models.

Nasolabial angles of 90° to 120° have been advocated as measured by the method previously described herein.[14] Since we used a modified method, our values may differ

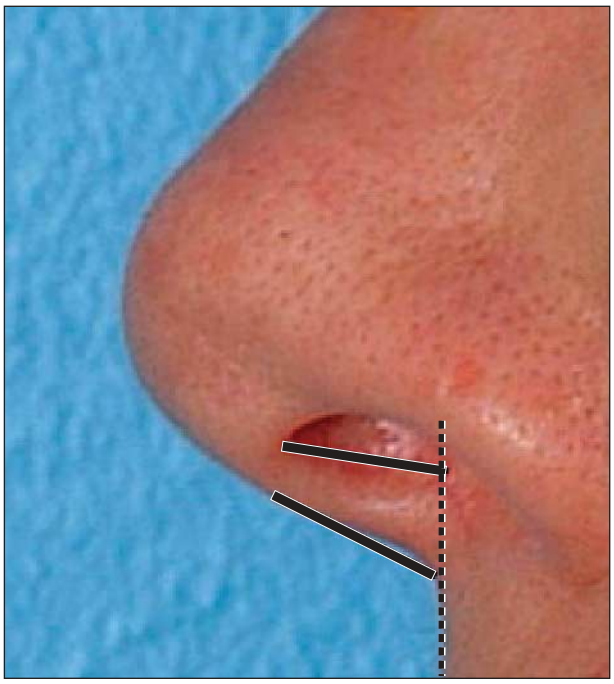

Figure 3. The long axis of the nose (upper solid line) is not always parallel to the line formed from the anterior columella to the subnasale (lower solid line). Against the line that is perpendicular to the Frankfurt horizontal plane (dotted line), the calculated nasolabial angle using the long axis of the nose (upper solid line) would inaccurately be 100° instead of a more representative 116° using the line from the anterior columella to the subnasale (lower solid line).

slightly. The most favored nasolabial angles in our study are 104° and 108°, and the least preferred angles are 96° and 116°. We can conclude that, in general, most people prefer a moderate rotation of the nose. However, for any given individual, more or less extreme rotation of the nose may be favorable. For example, our younger white model has a nasolabial angle of 100° as seen on her unmodified lateral photograph; our older white model, on the other hand, had an angle of 116°. Although our volunteers did not have this information, smaller nasolabial angles were preferred in the younger white model and larger angles were favored in the older white model (Table 3). Because of their overall facial characteristics and proportions, large angles did not complement the younger white model just as smaller angles did not complement the older white model. Despite the natural photographs of both models showing extreme angles, more moderate angles were still favored overall. These individual differences seem to outweigh any differences that can be determined by ethnicity. Therefore, when preparing for rhinoplasty, one needs to keep in mind that although less extreme nasolabial angles are favored in general, each particular patient has unique facial characteristics that supersede any ethnic grouping.

Narrow nasal tip widths, measured as a percentage of the alar base, are favored most and thicker nasal tips are preferred least (Table 2). This trend was statistically significant. In our study, this trend held true for all models except the younger white model, for whom the more moderate widths were preferable and the thinnest width was rated worst. On visual inspection, this model had a longer and thinner-appearing nose than the other models. A 35% nasal tip width made her nasal tip appear too thin and pointy, creating an even more narrow-appearing nose. From this study, we can surmise that people with an average-appearing nasal width appear best with a thin nasal tip; however, in people with an already narrow-appearing nose, a larger proportioned nasal tip width creates better facial harmony.

Although some evidence has shown that beauty is considered to be innate and independent of culture,[13] a person's sense of what is aesthetically favorable may be influenced by his or her age, sex, and ethnicity. The acknowledgment of this possibility is increasingly important in the modern era because our population continues to age and become ethnically more diverse. To test this assertion, we recruited volunteers of varied ethnicities and ages to evaluate the models. Per the Web site for the 2002 US Census, most of the population in San Francisco, California, is Asian or white, 32.4% and 43.0%, respectively).[15] Not surprisingly, most of our volunteers are Asian or white; most of the comparisons were made between these groups because we had too few volunteers of other ethnicities for adequate comparisons.

Although the trend demonstrates that Asian volunteers prefer a thinner nasal tip width compared with white volunteers (Table 5), these differences were not statistically significant. Furthermore, no differences were seen between Asian and white volunteers for either the eyebrow or nasolabial angle variables. Although some volunteers in this study were hospital patients and their families, most were graduate school students, nurses, and physicians, a factor which introduced biases based on advanced educational level and urban residence. In studying this population, there appears to be little difference in facial aesthetic preference between Asian and white volunteers.

Statistically significant differences were seen for the eyebrow variable when comparing volunteers by sex and by age. Most older volunteers preferred the MP eyebrow apex position and most younger volunteers favored the LC position. Similarly, males favor more medial MP and LL positions and females prefer more lateral HF and LC positions (Table 6). Just as a more exotic-seeming lateral brow was preferred in younger models, our data indicate that both female volunteers and younger volunteers tended to favor a lateral brow compared with both male volunteers and older volunteers.

In conclusion, when planning facial plastic surgery, the goals of the patient are of paramount importance. Although it is important to understand the ways that people of different ethnicities and ages differ in their facial proportions as a group, facial harmony must be pursued on an individual basis.

Throughout this study, neither the ethnicity of the models nor the ethnicity of the volunteers who rated them played a significant role when determining the ideal eyebrow apex location, nasolabial angle, or nasal tip width. However, the data suggest that a more lateral brow apex is preferable in younger people, whereas a more medial apex is favored in older people. Other preferences include a moderate nasolabial angle and, in individuals whose nose does not appear thin, a narrow nasal tip. In

individuals with a narrow-appearing nose, a thicker nasal tip relative to the alar base might be favored.

As a result of individual variability, it has been difficult to establish a method to calculate a nasolabial angle that adequately portrays the apparent rotation of the nose in most individuals. We found that the angle formed by the line from the anterior columella to the subnasale and the line exactly perpendicular to the Frankfurt horizontal plane provides the best estimate. Although we can make general conclusions regarding different facial preferences based on ethnicity, age, and sex, the patient's individual facial characteristics, proportions, and desires are most critical during planning for cosmetic facial plastic surgery.

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