

The Perception of the Ideal Body Contouring in Mexico

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Background: Over the centuries, our appreciation of beauty has changed, as has the social environment that influences our perspective. Currently we are trying to use measurable instruments to achieve a better aesthetic result in each patient, using as a reference the “golden ratio,” which is found in harmonies of all kinds—in art, nature, architecture, and today, in medicine—to aspire to the ideal proportion.

Methods: We conducted a survey in which we showed participants 4 digitally modified images of a model with different body proportions, 1 with the golden ratio and 3 with other variable proportions. In total, 900 people were surveyed, of which 131 had attended cosmetic surgery consultation, and 769 respondents were recruited on our social networks.

Results: Of the 900 respondents, 607 were women and 293 were men. Fifty-nine percent of the surveyed women chose image C (shown in Fig. 3) and similarly, so did 59.4% of surveyed men, which was not statistically significant; however, when considering age, we found the groups of 21–30, 31–40, and 41–50 chose image C at 46%, 65%, and 67%, respectively, whereas 44% of those over 51 years preferred image B, which is statistically significant.

Conclusions: The image whose waist–hip harmony meets the golden ratio (1.61) is most often chosen as “the most beautiful,” by both men and women. It is also the preferred image for all age groups under 50. (*Plast Reconstr Surg Glob Open* 2020;8:e3155; doi: 10.1097/GOX.0000000000003155; Published online 18 December 2020.)

INTRODUCTION

The concept of beauty has changed over time, and although it is usually attributed to an individual, subjective perception, there are numerous elements that support an objective and universal concept of beauty.¹ In ancient times, the Greeks and Romans understood beauty as “the splendor of order”—an assembly of proportions and measurements with uniform criteria. Thus, when you join moderation to proportion, you get harmony, which is an inexhaustible source of beauty.² This concept of “perfect” proportions is manifested in nature, mankind, its constructions, and artistic works, as well in the divine; the numerical value of the ratio of the parts to the whole is

considered to be 1.618, known as the golden ratio. The works of Phidias, the greatest sculptor of ancient times, are characterized by balance, an idealized formal beauty and technical perfection, with uniform proportions among all parts, thus maintaining the proportion of the golden number (also known as the Phi number, which represents the first letter of the sculptor’s name).³

In plastic surgery, the study of divine proportions is highly relevant, as the surgeon’s goal is to make surgical modifications that will bring the patient’s appearance into objective harmony; Sir Harold Gillies, father of this specialty, declared: “restorative surgery is an attempt to return the patient to normality; aesthetic surgery, an attempt to overcome normality.”³

Although the canons of beauty were established in ancient times, including those that determined who was attractive and who was not, the notion that “beautiful” coincides with the notion of an “aesthetic object” has existed only since the eighteenth century. These standards are a set of characteristics that society considers to be conventionally attractive in a person or in an object. These standards have changed throughout time; in the 1950s, curvier women were considered the most attractive, and later, in the 1990s, slimmer women held this title. With the birth of the Internet and then social networks, popular body shapes, such as today’s exotic body type, have arisen

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as a result of ideals imposed by actors and other influencers. However, what are the true ideal measurements or ideal body shape? The perception of beauty depends on factors such as geography, culture, and ethnicity, as well as the physical characteristics of each individual.⁴ The desire to attain an ideal body has made people seek out plastic surgery more frequently than ever, and to become continually more demanding of the results, hence requiring that the surgeon be more extensively trained to lead to optimal aesthetic results.

In an article, “The Shape of Beauty,” Fisher and Voracek⁵ state that the main factors that determine beauty in the female body are the waist-to-hip ratio (WHR), the body mass index, and the presence or lack of curves in the body. Singh⁶ has proposed that there is one female body shape that men universally find most attractive: full buttocks, narrow waist. He states that the attractiveness of the female torso is directly related to the proportions of the waist and the buttocks (WHR). Specifically, the ideal woman has full buttocks that are 1.4 times the circumference of the waist, or inversely, a WHR of 0.7.⁶ During surgery, we are able to proportionately convert the surgical

maps that follow the body contour into 360°, such as the relationship between waist, flanks, and points A, B, and C of the buttocks (Fig. 1), with the goal of creating a bidimensional perspective of the golden ratio for each of our patients, by using conventional and ultrasonic liposuction in the areas with excess volume, and lipotransfer to the areas lacking gluteal volume.

The buttocks have become a symbol of feminine beauty in recent years. Constantino Mendieta has described the different types of buttocks and the importance of what he calls “the frame” in improving the aesthetics of this area, by modifying the WHR.⁷ Heidekrueger et al⁸ have concluded in a study that the most attractive WHR for both the general population and plastic surgeons is 0.70.⁸

The golden ratio, also known as the divine proportion, the Phi number, or the golden number, is related to the succession of Fibonacci, and can be found in proportions of all kinds—in the arts, in nature, in architecture and currently, in medicine, as well. The golden ratio is the division of one segment into multiple smaller segments. These smaller segments are to the larger segments, as the latter is to the whole. In this way, a ratio of proportions can

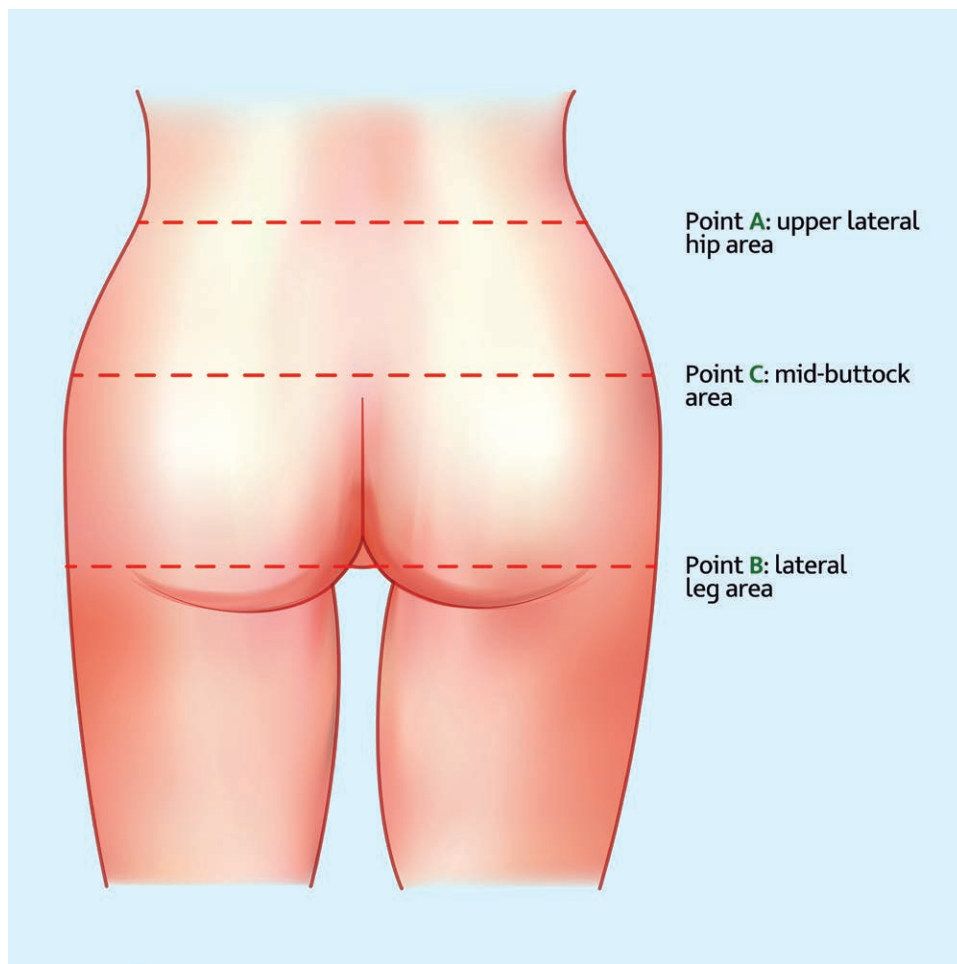


Fig. 1. Diagram representing the Mendieta points, which are useful in the body contouring procedure to create a bidimensional perspective of the golden ratio for the patient, by using liposuction in areas with excess volume, and lipotransference to areas that lack gluteal volume.

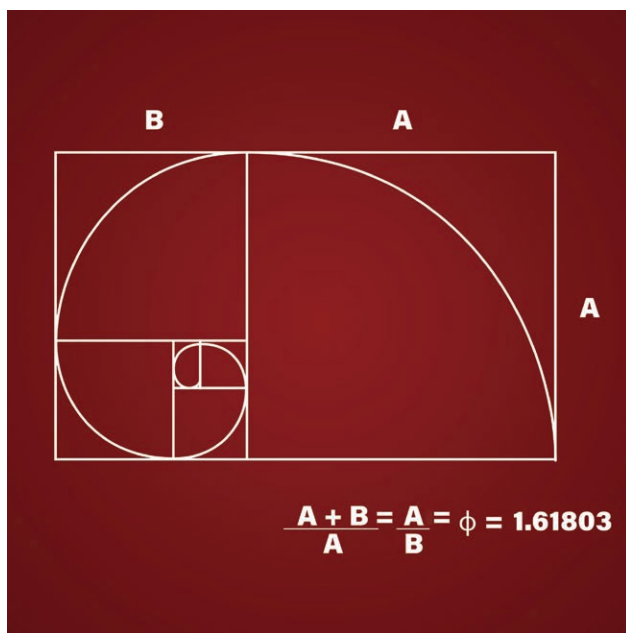


Fig. 2. The golden number is the numerical value of the proportion between two line segments A and B (A longer than B), which fulfill the following relationship: the total length, the sum of the two segments A and B, is for the larger segment A, what this segment A is for the smaller B.

be established with the same proportionality of the total, divided into larger and smaller segments (Fig. 2).⁹

Applied to the golden ratio, the equation results in 1.618. Hence, the ratio between the parts is the “golden number.”

Hypothesis

Alternative H1

If the golden ratio is an objective criterion to evaluate beauty, then the image of a body having that proportion will be chosen as “the most beautiful image.”

Null H0

If the golden ratio is not an objective criterion to evaluate beauty, then the image of a body having that proportion will be chosen with the same or less frequency than the other images as “the most beautiful image.”

Objectives

To determine whether the image that has the golden ratio is the image most frequently chosen as “the most beautiful.”

MATERIAL AND METHODOLOGY

Methodology

We conducted a prospective, observational, cross-sectional, and unicentric study to identify the opinion of users of cosmetic surgery services, in regard to their preferences for either a body type that has the golden ratio or rather, a body type of different proportions.

We conducted a behavioral study based on respondents’ choice among 4 photographs (Fig. 3), using a convenience

sample of 900 subjects among the general population (Mexicans), which included 131 surveyed subjects who attended our cosmetic surgery consultation, and 769 cases surveyed through followers of our social media on Facebook and Instagram. As part of our research, we used the following inclusion criteria: patients 18 years and older, either gender, interested in getting liposculpture, and a complete clinical history for patients undergoing aesthetic surgery. We excluded subjects with previous liposculpture, and patients interested in a surgery other than liposculpture.

The choice made by each subject (WHR) was considered as a dependent variable. Gender and age (discrete quantitative) were considered as independent variables.

We used a photographic image of a model’s body, which was digitally modified by a graphic designer to alter waist and hip measurements, thereby achieving 4 images with different WHRs: A) 1.5, B) 1.55, C) 1.61 (the golden ratio), and D) 1.68. The 4 images were shown to the subjects and they were asked to choose the one they considered to be the “most beautiful”. In addition, they were asked to report their gender and age. The data obtained were captured in an Excel database for categorization and was subsequently transferred to an SPSS 24.0 statistical software for a descriptive and inferential analysis. Descriptive statistics were applied to determine the presentation mode for each variable according to the image chosen (A, B, C or D), gender distribution (male or female), and for age (the sample was categorized by age group: 21–30, 31–40, 41–50, and > 50 years old).

STATISTICAL ANALYSIS

We used descriptive statistics to determine the presentation mode for each variable; then we created contingency tables to determine the frequency of the associations between gender and age group (as independent variables) and the image chosen (as the dependent variable). We used statistical validation of the data obtained using the Chi-squared test, attributing a *P* value < 0.05 as the maximum to reject the hypothesis of null association between variables.

RESULTS

Regarding the image preferred by each age group, we observed that subjects in the groups 21–30, 31–40, and 41–50 years old chose image C (golden ratio) as the most attractive in 46%, 65%, and 67% of cases, respectively; however, for the group over the age of 51 years, the image most often chosen was image B (44%), while image C (golden ratio) ranked as the second in preference (34%). These differences between images preferred by each age group turned out to be statistically significant, as when applying the chi-squared statistic, a *P* value of 0.001 was obtained.

Regarding the image preferred by each gender, we observed that women chose image A at 2.6%, image B at 15.3%, image C (golden ratio) at 59.5%, and image D at 22.6%. Regarding the image preferred by men, they chose image A at 3.8%, image B at 17.4%, image C (golden ratio) at 54.9%, and image D at 23.9%. When applying

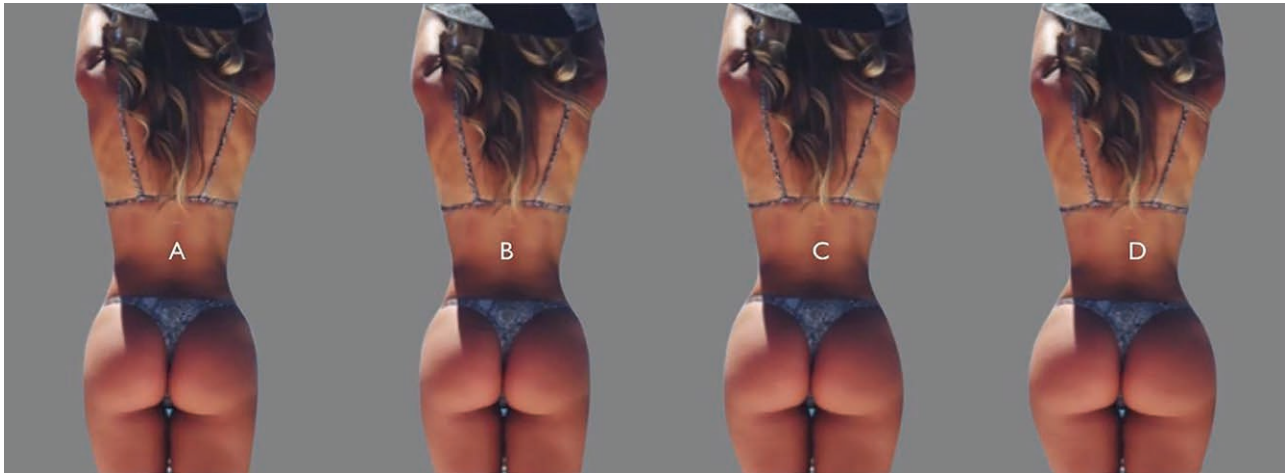


Fig. 3. Images used in the survey, which are digitally modified from a photograph of a model, to show different WHRs: (A) 1.5, (B) 1.55, (C) 1.61 (golden ratio), and (D) 1.68.

the chi-squared statistic to analyze these differences, we obtained a *P* value of 0.53, without statistical significance (Figs. 4–7).

DISCUSSION

Our study was made up of a sample of 900 subjects, adults of both genders, all of them Mexicans, and we found that the image that was chosen as most attractive was the image with a WHR of 1.61, the golden ratio. This image was chosen by 58% of the total sample.

When separating the subjects based on gender, we found that both groups preferred the image that had the golden ratio, as it was selected by 59.5% of women and 54.9% of men, as the most beautiful. As such, the image preference is not influenced by the gender of the subject. Wong et al¹⁰ also find greater acceptance with a WHR of 0.7 from a lateral point of view, in 29.8% of its surveys, with a sample of

1146. On the other hand, Toledo¹¹ mentions that the best silhouette obtained not only increases the gluteus but also making a reduction of the waist, which should increase in the anteroposterior plane as well as the lateral plane. And that the range of preference for the variable waist ratio varies by ethnicity, but ultimately ranges from 0.60 to 0.70 worldwide.¹¹

When considering the preferences of each age group, we observed that the image of the body type with the golden ratio was preferred by groups under aged 50; however, the group 51 years of age and over preferred the WHR of 1.55 (44%). These differences are statistically significant; so we can conclude that the female image that meets the golden ratio is preferred by all age groups, except for those over 51.

Heidekrueger et al⁸ carried out in their study a digital survey applied to the general public and to plastic surgeons around the world, considering that the perception

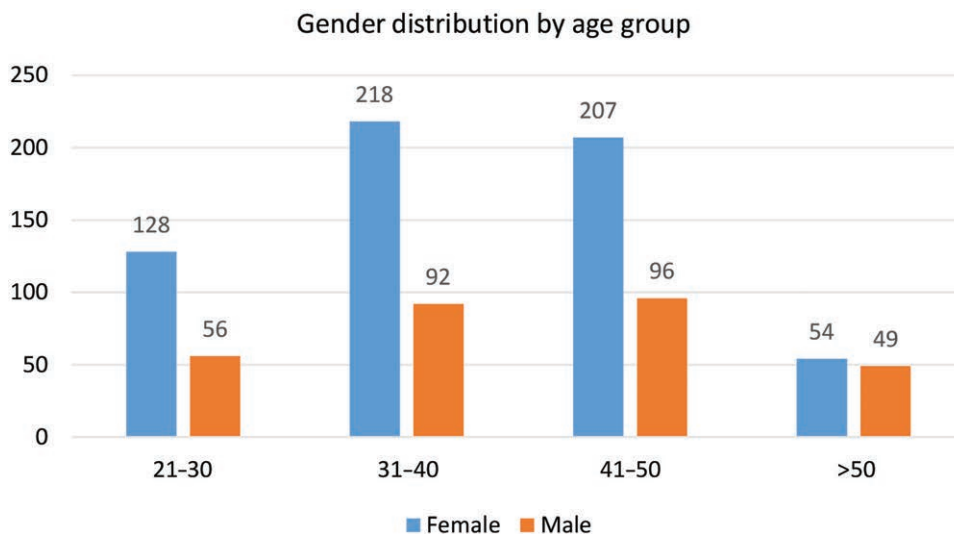


Fig. 4. Graphical representation of the gender distribution by age group, showing clearly that the majority of the surveyed correspond to the female gender with a total of 607, with a greater participation of the group of 31–40 years with a total of 218.

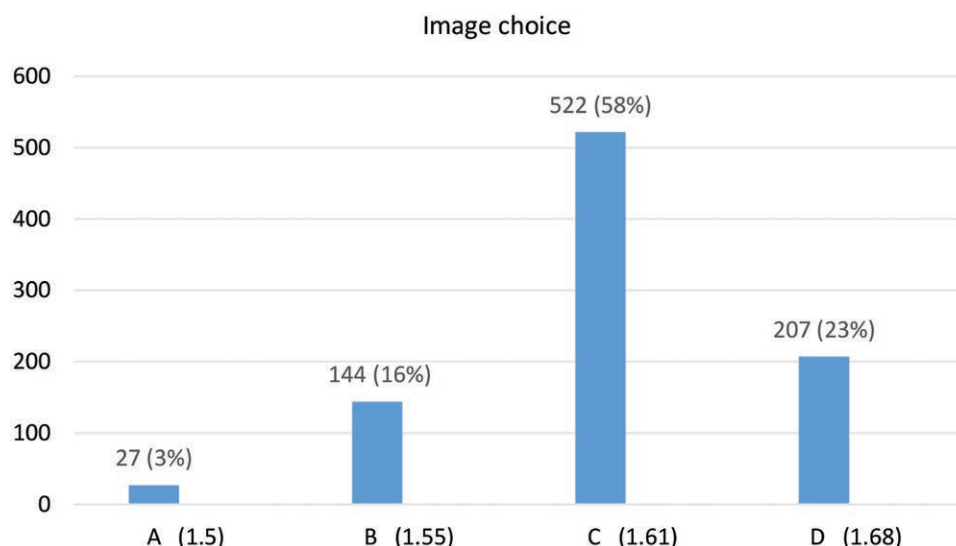


Fig. 5. Graph illustrating the choice of image C (WHR 1.61) as the most attractive by 58% of the respondents, representing the golden ratio.

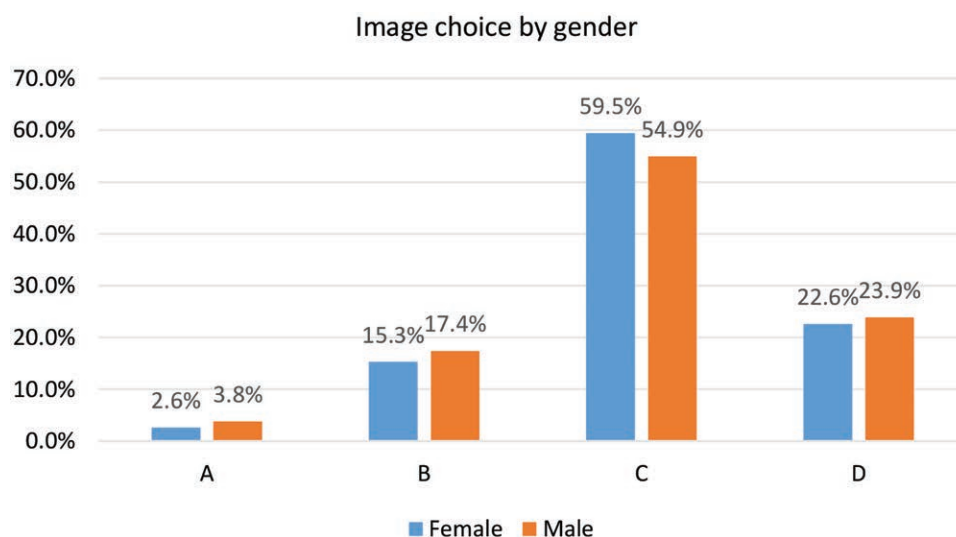


Fig. 6. Graph displaying that the figure preferred by women and men is C (WHR 1.61), amounting to 59.5% and 54.9%, respectively.

of beauty is influenced by ethnic, geographic, cultural, and demographic factors; they estimate variables such as country of residence, gender, age, occupation, and aesthetic perception, producing a waist-to-hip relationship that seems more pleasant in most cultures and geographic locations. Properly in our case, these factors are not evaluated, but if the variables of age and gender are taken into account, in this way we emphasize that in a peculiar way in the field of plastic and reconstructive surgery, globalization suggests increasingly unified surgical objectives. Without ignoring the preferences of the patients, and with respect to the WHR, we agree that the golden ratio is considered the most attractive by a wide range of people, emphasizing that individually we do not consider these factors to reach the same conclusion as the bibliography cited.

In the study presented and supporting our initial hypothesis, most of the respondents preferred the WHR 0.7 as their ideal. As mentioned, it only differed from the predilection in one age group (over 50 years), reaffirming in the rest of the age groups their inclination for the golden ratio. Singh⁶ has devoted himself to extensive research of body proportions and WHRs. The author discovered that the ideal shape of the woman is more influenced by the WHR than by the general size of the body.^{12,13} What is already known regarding attractive bodily characteristics, there is still no clear standard regarding intercultural variables prevailing, and that is why in this study, where a survey is applied to a heterogeneous local population, we could say that subjective results are obtained. However, there would still be a waist-hip relationship that seems more pleasant in the world, verified in the objectivity of the golden ratio 1.618.

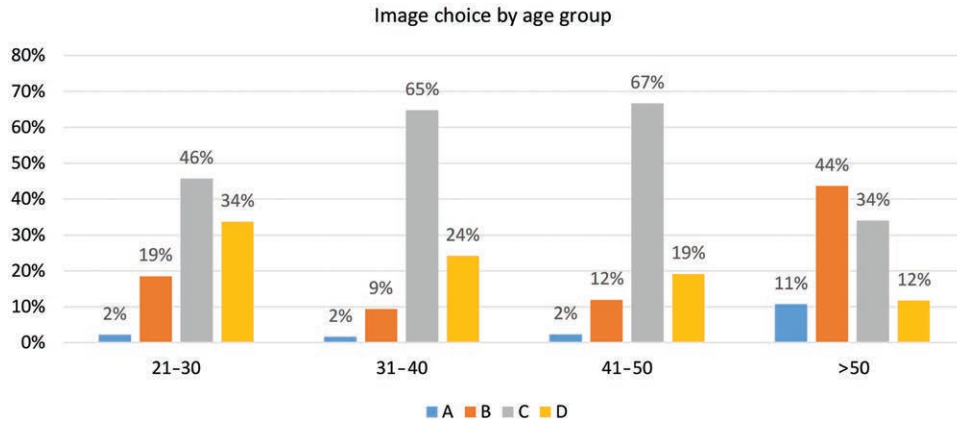


Fig. 7. Graph illustrating that subjects in the groups 21–30, 31–40, and 41–50 years old chose image C (golden ratio) as the most attractive in 46%, 65%, and 67% of cases, respectively; however, for those in the group over 51 years of age, the most attractive image was B (44%). These differences between images preferred by each age group turned out to be statistically significant, as when applying the chi-squared statistic, a *P* value of 0.001 was obtained.

CONCLUSIONS

The image of the woman whose WHR (hip–waist) is closest to the golden ratio (1.61) is the one that men and women, especially those under 50, most frequently select as “the most beautiful.” Therefore, the golden ratio can be considered an objective parameter of beauty, which can be a useful tool to settle differences of opinion between plastic surgeons and their patients. It is important to consider that this study may represent a regional reference; however, the option that it should be applied universally to know the preferences of other countries should be considered.

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REFERENCES

- Luna MI. Mujer, Belleza y Psicopatología. *Rev Colomb Psiquiat.* 2001;30:383–388.
- Villapalos G, López QA. *El libro de los valores.* España: Ed. Planeta, 1996; pp: 349–351.
- Blanco DF. El arte de la medicina: Las proporciones divinas. *Ciencia UANL.* 2004;7:150–155.
- Roberts TL III, Toledo LS, Badin AZ. Augmentation of the buttocks by micro fat grafting. *Aesthet Surg J.* 2001;21:311–319.
- Fisher ML, Voracek M. The shape of beauty: determinants of female physical attractiveness. *J Cosmet Dermatol.* 2006;5:190–194.
- Singh D. Adaptive significance of female physical attractiveness: role of waist-to-hip ratio. *J Pers Soc Psychol.* 1993;65:293–307.
- Mendieta G. *The Art of Gluteal Sculpting.* St Louis, MO: Quality Medical Publishing, 2011.
- Heidekrueger PI, Sinno S, Tanna N, et al. The ideal buttock size: a sociodemographic morphometric evaluation. *Plast Reconstr Surg.* 2017;140:20e–32e.
- Ashkan G, Villanueva NL. Gluteal augmentation and contouring with autologous fat transfer: part I. *Clin Plastic Surg.* 2018;45:249–259.
- Wong WW, Motakef S, Lin Y, et al. Redefining the ideal buttocks: a population analysis. *Plast Reconstr Surg.* 2016;137:1739–1747.
- Toledo LS. Gluteal augmentation with fat grafting: the Brazilian buttock technique: 30 years’ experience. *Clin Plast Surg.* 2015;42:253–261.
- Cárdenas-Camarena L, Durán H. Improvement of the gluteal contour modern concepts with systematized lipoinjection. *Clin Plastic Surg.* 2018;45:237–247.
- Roberts TL III, Weinfeld AB, Bruner TW, et al. “Universal” and ethnic ideals of beautiful buttocks are best obtained by autologous micro fat grafting and liposuction. *Clin Plast Surg.* 2006;33:371–394.