

Letters

RESEARCH LETTER

Analysis of the Trend Toward Fuller Lips Among Fashion Models

A preference for fuller lips is a relatively recent, multifactorial aesthetic driven by changing demographics of both consumers and beauty archetypes (eg, fashion models and celebrities), the relatively low cost and safe use of numerous injectable filler agents, and the dicta of the fashion industry.¹⁻³ The arbiters of taste mold opinions through multiple media platforms, although print has been the most constant and pervasive for more than a century. Thus, studying magazine photographs provides a means to analyze trends for a lengthy period. In the present study, we analyzed 50 years of fashion model photographs in *Vogue* magazine to identify if the “desirable” features of the lip have trended toward a fuller aesthetic.

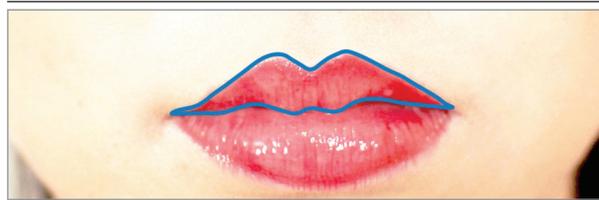
Methods | Collection of Photographs for Subject Population. *Vogue* provides a robust archive of facial images of models and has more than 1 million subscribers in verified circulation, according to the Alliance for Audited Media database (<https://auditedmedia.com/>). *Vogue* archives from 1960 to 2011 were accessed from the Langson Library at the University of California, Irvine. Inclusion criteria for selection were true frontal facial images oriented along the Frankfort Horizontal plane of female fashion models of any race, with each facial image occupying at least 1/3 of the page height and with lips in repose or at rest. Three hundred fifty-three photographs met the inclusion criteria. Exclusion criteria were images of celebrities, exaggerated lip expression (ie, pouting), and excessive makeup that altered lip shape. Images were digitally scanned.

No review and approval by an institutional review board were necessary or obtained for this study that evaluated images in fashion magazines. Data were collected from June 1, 2010, to June 31, 2011.

Determining Normalized Surface Area. ImageJ software, version 1.34 (National Institutes of Health), was used to manually segment upper-lip and lower-lip boundaries and to count pixel numbers (Figure 1). Interpupillary distance was also measured and used as a normalization factor to compensate for different facial sizes and scanner density. The normalized surface areas of the upper lip and the lower lip were calculated by dividing interpupillary distance.²

Statistical Analysis. Linear regression and correlation analysis were performed to assess the normalized upper-lip surface area, lower-lip surface area, and upper-lip to lower-lip surface area ratio for the 353 images that met the inclusion criteria. Confidence intervals for the slope of each linear

Figure 1. Upper Lip Tracing



The image of this fashion model in *Vogue* magazine was digitally scanned, and the upper and lower lips were manually traced as outlined using ImageJ, version 1.34 (National Institutes of Health), to calculate pixels and determine surface area.

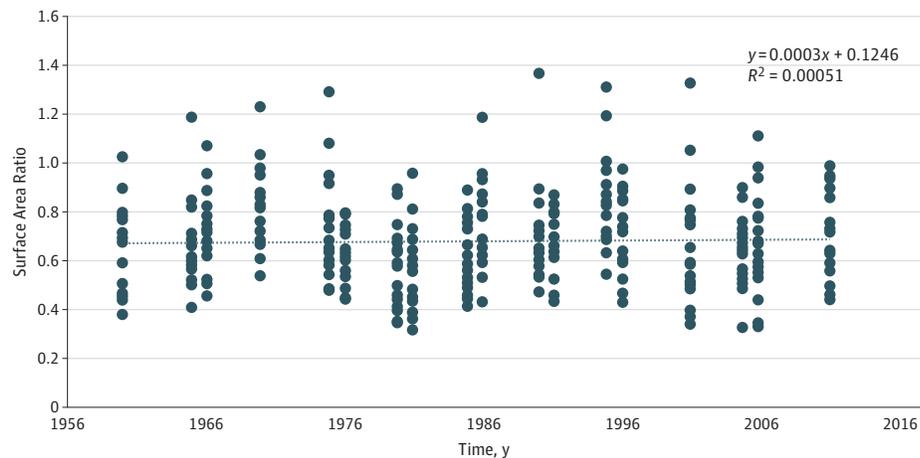
regression accepting an error of 0.05, Pearson correlation coefficient, and coefficient of determination were calculated.

Results | There was no statistically significant increasing trend or strong correlation in the upper-lip surface area (95% CI, -0.218 to 0.218), the lower-lip surface area (95% CI, -0.225 to 0.225), or the upper-lip to lower-lip surface area ratio (95% CI, -2.54 to 2.54; Pearson $r = 0.26$; $R^2 = 0.00051$; $P = .66$) from 1960 to 2011 (Figure 2). The mean upper-lip to lower-lip surface area ratio was 0.68, representing a 47% larger lower lip compared with upper lip.

Discussion | Contrary to previous studies of the fashion model aesthetic,^{4,5} our analysis does not reveal a trend toward fuller lips among *Vogue* models from 1960 to 2011. Standardization by interpupillary distance, manual segmentation of lip boundaries, and exclusion of profile images (a known contributor to the facial aesthetic) are potential limitations of this study. Similarly, image modification in the digital age compared with image modifications before the use of raster graphics editors may also affect interpretation.

A cursory glance through *Vogue* leaves the reader with a variety of shiny, lip-centric images of fashion models. If the frequently cited trend toward fuller lips truly exists, why is this not quantitatively seen in *Vogue*? While sampling error, magazine choice, and magazine editor preference may play a role, this trend may not be a phenomenon of the fashion industry, and trends among fashion models may no longer be the benchmark by which patients amass their aesthetic ideals. Celebrity worship, especially in the era of social media, is increasingly cited as an impetus for pursuing cosmetic procedures.⁶ Celebrity images in mass media highlighting the overfilled lip may now serve as the very platform from which patients cultivate their cosmetic ambitions. If fame and fashion are intertwined, the question then becomes, what are the arbiters of celebrity aesthetic ideals?

Figure 2. Trend of Upper Lip to Lower Lip Surface Area Ratios



Trend of upper lip and lower lip surface area ratios over time demonstrates a nearly flat linear trend line.

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Study concept and design: Wong.

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