

RESEARCH LETTER

Nasal Distortion in Short-Distance Photographs: The Selfie Effect

The selfie, or self-photograph, has rapidly become one of the major photographic modalities of our time; in 2014 alone, there were over 93 billion selfies taken on Android phones per day.^{1,2} Despite the ease with which selfies are taken, the short distance from the camera causes a distortion of the face owing to projection, most notably an increase in nasal dimensions.

According to a poll by the American Academy of Facial Plastic and Reconstructive Surgeons, 42% of surgeons reported pa-

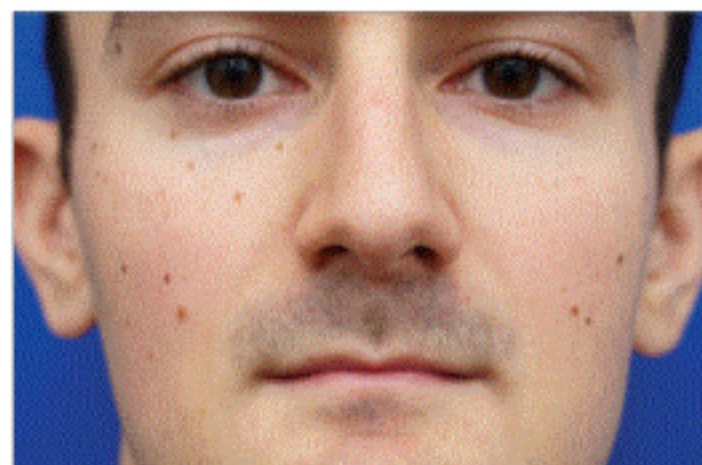
tients seeking cosmetic procedures for improved selfies and pictures on social media platforms.³ We present a mathematical model to describe the distortive effects, prove the increased perceived nasal size in selfies, and calculate the magnitude of this effect from different camera distances.

No patient intervention or contact was made during this study and was therefore exempt from institutional review board review.

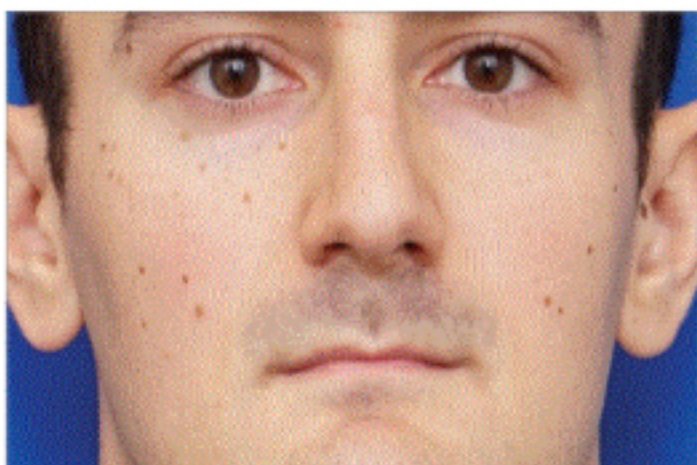
Methods | We modeled the face as a collection of parallel planes that are perpendicular to the main camera axis and calculated nasal breadth to bizygomatic breadth perceived ratio

Figure. Example of Nasal Size Distortion in a Short-Distance Photograph and Derived Model

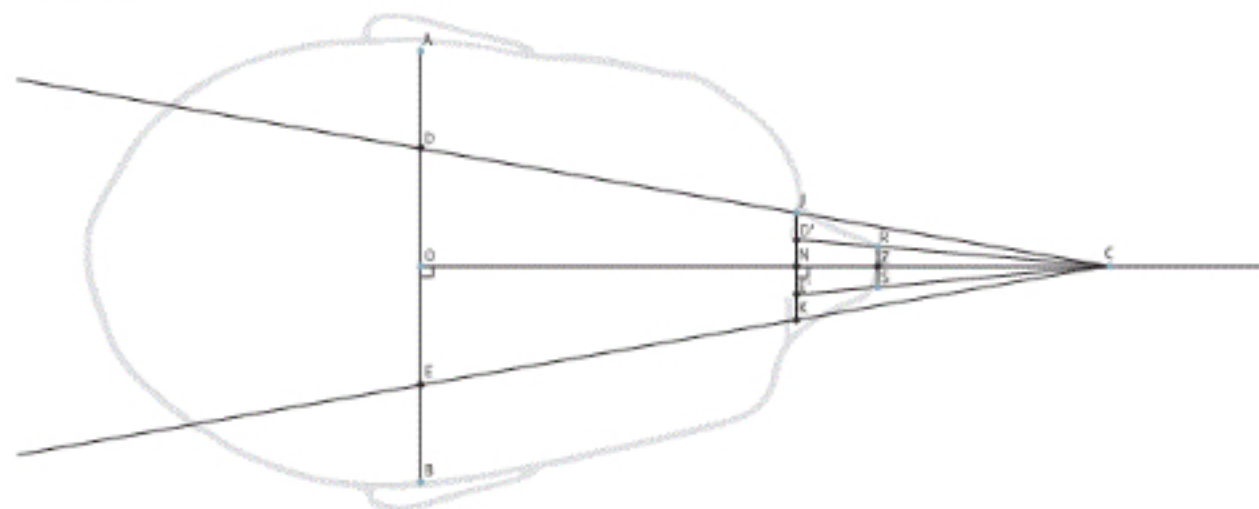
A Portrait at 12 inches



B Portrait at 5 feet (60 inches)



C Calculation of extent of distortion



A, Individual's face when photograph is taken at 12 inches. B, Individual's face when photograph is taken at 5 feet. C, Derived model of the head and face used to calculate distortion extent. For the derived model, the line between A and B represents the bizygomatic breadth; the line between C and O, camera axis; D,

D', E, and E' are unnamed points of reference; the line between J and K, nose breadth; the line between O and N, head length halved; the line between N and Z, nose protrusion; the line between R and S, interaural distance.