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# Female plastic surgery patients prefer mirror-reversed photographs of themselves: A prospective study

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## MESH KEYWORDS

Photography;  
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**Summary** *Introduction:* The use of a patient's image in plastic surgery is common today. Thus, plastic surgeons should master the use of the image and be aware of the implications of the patients' perception of themselves.

The mere-exposure effect is a psychological phenomenon in which a person tends to rate things more positively merely because (s)he is familiar with them. Faces are asymmetric, so faces in photos are different from those observed in mirrors. The main objective of this study was to assess whether patients within a plastic surgery population, particularly those undergoing facial aesthetic surgery, preferred standard photographs or mirror-reversed photographs of themselves.

*Method:* A prospective study was conducted in a plastic surgery department, which included women who were admitted to the hospital the day before their procedures. The patients were separated into the following two groups: Group 1 was composed of patients who were undergoing facial aesthetic surgeries, and Group 2 consisted of other patients who presented to the plastic surgery department for surgery. The patients were required to rate their appreciation of their own faces and to choose between standard and mirror-reversed photos of themselves.

*Results:* A total of 214 patients participated. The median age was 47.9 years (interquartile range (IQR): 36.4–60.6), and the median face appreciation was 5 (IQR: 5–7). The preference

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for the mirror-reversed photograph was significantly different from chance ( $p < 0.001$ , binomial (214, 156, 0.5)); 73% of the patients preferred the mirror-reversed photographs.

The proportions of patients who preferred the mirror-reversed photograph differed significantly ( $p = 0.047$ ) between Groups 1 (84%) and 2 (70%).

**Conclusion:** Plastic surgery patients have a significant preference for mirror-reversed photographs of themselves over standard photographs. This preference is even more pronounced among patients who are undergoing facial aesthetic surgery.

**Level of evidence:** III.

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## Introduction

The use of a patient's image in plastic surgery is common today, in the forms of both photography and three-dimensional modelling. Working with images of the patient offers plastic surgeons an excellent medium for communication with the patient, and it permits the surgeon to follow the patient's progress and to judge the outcome of the procedure.<sup>1–5</sup> In a study of 176 plastic surgeons, 87.5% of the surgeons stated that they used photography, particularly in patient follow-up.<sup>6</sup>

However, the use of images of the patient may create real problems for the surgeon and the patient, which potentially give rise to false hopes, disappointment or a perception that the treatment has failed. Thus, the plastic surgeon should master the use of the image before employing it, and he/she should be aware of the implications of the patient's perception of self.<sup>7</sup>

The mere-exposure effect<sup>8</sup> is a psychological phenomenon in which a person tends to rate things more positively merely because (s)he is familiar with them. The face is asymmetric; thus, faces in photos are different from images of the face seen in the mirror.

In 1977, Mita<sup>9</sup> noted that people prefer their mirror image to their true photographic image due to the mere-exposure effect because they are more accustomed to seeing themselves in mirror-reversed image.

Patients presenting to a plastic surgery department may be a particular population, and nothing is known about the existence and importance of the mere-exposure effect on their facial image preferences.

The main objective of this article was to assess whether a patient preference for standard photographs or mirror-reversed photographs of themselves existed within a plastic surgery population and particularly for patients undergoing operations for facial aesthetic surgery.

## Materials and methods

A prospective study was conducted in the plastic surgery department of the Saint-Louis Hospital (Paris, France), which included women who were admitted to the hospital the day before their procedures from January to March 2015. The exclusion criteria were as follows: male, prior

facial surgery with 1 year before the procedure, and patients under the age of 18.

The patients were separated into two groups: Group 1 was composed of patients undergoing operations for facial aesthetic reasons, and Group 2 consisted of the other patients who came to the plastic surgery department for surgery.

The patients were photographed face-on with a neutral expression while looking straight ahead with symmetrical lighting and in front of a plain background. Two portrait photos were taken at  $1280 \times 720$  pixels; the second was deleted and replaced with a copy of the first image that was flipped into a mirror-reversed image. Thus, the patients expected to view two different photos, and they did not expect to view a mirror-reversed image.

Before they were shown any pictures, the patients were required to rate their face appreciation on a Likert scale, according to the following question: 'How would you rate your facial appearance at present on a scale from 0 to 10, 0 being absolutely awful and 10 absolutely beautiful?'

Then, the juxtaposed (side-by-side presentation, with the right- and left-side positions randomized) mirror and standard image were resized and presented to the patients on a light-emitting diode (LED)-backlit widescreen with  $440 \times 900$ -pixel resolution. The patient was asked to indicate which image she liked better. No other questions such as 'Which photograph do you prefer?' were asked, and no details were given about the two pictures until after the patient had answered.

The statistical analyses were performed with IBM® (Armonk, New York, NY, USA) Statistical Package for Social Science (SPSS) Statistics 22.0 software. We used Fisher's exact tests for the qualitative variables, and the Mann–Whitney *U*-test for the quantitative variables. The first-order risk was set at 5%.

The institutional review board approved this study (IRB 00003835, 2015/14NI), and informed consent was obtained from all of the enrolled patients.

## Results

A total of 214 patients participated (Table 1), including 50 patients undergoing operations for facial aesthetic surgery (Group 1). None of the patients who were approached refused to participate or respond to the questions. The median age was 47.9 years (interquartile range (IQR):

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