

What Is the Ideal Instagram Filter?

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Abstract

Background: Social media, particularly Instagram, is becoming a prominent part of the plastic surgeon-patient relationship. Recent surveys are revealing a trend toward patients bringing filtered selfies to their plastic surgery consultation as a way to communicate expectations to their doctors. But which Instagram filters create a more flattering or youthful appearance, and why?

Objectives: This study set out to determine which Instagram filters create the “Most Flattering,” “Most Youthful,” “Least Flattering,” and “Least Youthful” appearances.

Methods: Standardized anterior view photos were taken of three Caucasian women: aged 38, 48, and 58 years. These photos were then altered using the color Instagram filters, randomly arranged and printed on photo paper. A questionnaire was created, asking respondents to determine which of the photos made each subject look “Most Flattering,” “Most Youthful,” “Least Flattering,” and “Least Youthful.”

Results: A total of 78 respondents participated in the study. The filters determined to be “Most Flattering” were, in order, Juno, Lark, and Sierra. The filters determined to be “Most Youthful” were Reyes, Rise, and Gingham. The filters voted “Least Flattering” were Hefe, X-Pro, and Slumber. “Least Youthful” filters were Perpetua, Crema, and Aden.

Conclusions: Instagram filters can be a very valuable way for patients to communicate their expectations with plastic surgeons. By studying why these filters are chosen by patients, we can better understand what results our patients are looking for.

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Social media is all about showing our best face. Whether it is via selfies or other photos, the use of filters to help us look our best is no longer reserved for professional photographers. Filters can be easily added to photos to instantly increase contrast, brightness, and other photo attributes to make the photographed look more appealing.

The prodigious use of filters is no more apparent than on Instagram. A 2017 study of 2 million Instagram accounts revealed that 18% of all photos on Instagram use a filter, and 25% of Instagram posts with the hashtag #selfie used a filter.¹

With nearly 1 billion registered users, this photo-sharing platform has rapidly become the favorite social media app for plastic surgeons and our patients. Although

Facebook has more overall users than Instagram, plastic surgeons have embraced Instagram as today’s platform of choice to interact with patients, likely due to its highly visual nature.^{2,3,4}

This is supported by recent surveys revealing that social media apps like Instagram are encouraging patients to undergo cosmetic procedures, especially in the millennial

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Figure 1. Unfiltered photograph of subject 1, a 38-year-old woman.

population. According to the annual Cosmetic Surgery National Databank Statistics from the American Society for Aesthetic Plastic Surgery,⁵ the number of facial injectable treatments increased by over 33% from 2017 to 2018 in patients between the ages of 18 and 34. The American Academy of Facial Plastic and Reconstructive Surgery revealed in 2017 that facial plastic surgeons are reporting that more and more patients are bringing selfies with them to demonstrate their perceived flaws.⁶

Some patients are taking this to the next level and applying filters to their selfies as an attempt to illustrate their desired appearances. The term “Snapchat Dysmorphia” has even been coined to describe patients requesting plastic surgery in order to look like their filtered selfie.⁷ This trend is concerning, because filtered selfies can present an unattainable appearance and blur the line between reality and fantasy for some patients. One study of adolescent girls found a connection between filtering selfies and increased body dissatisfaction.⁸

Although filtering photos may have a detrimental psychological effect for some, it appears that photo filters are here to stay. If plastic surgeons and patients can utilize filters to help in communicating patient desires, expectations, and potential results, then it is possible that these can provide a valuable tool for doctor-patient communication.

Instagram currently offers 20 different filters to choose from. But which Instagram filter is the ideal one and why? One study revealed the top 3 most popular Instagram filters were Clarendon, Juno, and Gingham, in that order.¹



Figure 2. Unfiltered photograph of subject 2, a 48-year-old woman.

But are these the filters that our patients find to be most flattering and/or cause a person to look most youthful? And which filters do our patients find least flattering and least youthful? Determining the ideal Instagram filter may give plastic surgeons some insight into what our patients most commonly want and help us to better meet their expectations.

METHODS

Standardized anterior view photos were taken of three Caucasian women: ages 38 (Figure 1), 48 (Figure 2), and 58 (Figure 3). Written consent was obtained for each subject. Institutional Review Board approval was not obtained, however the Declaration of Helsinki guiding principles were followed. The subjects’ photos were then altered using the color Instagram filters, randomly arranged using the List Randomizer app on random.org (Randomness and Integrity Services Ltd., Dublin, Ireland) and printed on photo paper. The black-and-white filters were not included in this study.

A questionnaire was created, asking respondents to analyze the photos and determine which of the 21 photos (original plus 20 filtered photos) made each subject look “Most Flattering,” “Most Youthful,” “Least Flattering,” and “Least Youthful.” The respondents were comprised of the author’s patients who were waiting to be seen by the physician or physician extender without any inclusion or exclusion criteria. Respondents weren’t compensated for



Figure 3. Unfiltered photograph of subject 3, a 58-year-old woman.

responding to the questionnaire. The study data were collected from November 2018 to April 2019.

The data were compiled and analyzed, separating it into the top filters in each category for each subject. A Chi-square test of independence was initially conducted, followed by a correlation analysis to determine which filters were most representative of each attribute.

Finally, a regression analysis was performed, finding the relationship between the filters and the attributes (“Most Flattering,” “Most Youthful,” “Least Flattering,” and “Least Youthful”). The coefficients of this model are interpreted as probabilities.

RESULTS

A total of 78 respondents participated in the study. All of the respondents were women with an average age of 48.3 years (range, 25-66 years). Distinct trends were determined when compiling the data for each individual subject. The top three filters for each attribute are shown in [Table 1](#), separated for each individual subject. Photos of the top filter for each attribute for each individual subject are presented in [Figures 4-6](#).

Table 1. The Top Three Filters for Each Attribute (Separated by Subject)

Rank	Most flattering	Most youthful	Least flattering	Least youthful
Subject 1: 38-year-old woman				
1	Juno	Reyes	Hefe	X-Pro
2	Lark	Gingham	Slumber	Crema
3	Gingham	Hudson	Crema	Aden
Subject 2: 48-year-old woman				
1	Sierra	Rise	Hefe	Slumber
2	Valencia	Reyes	Slumber	Aden
3	Lark	Gingham	Aden	Crema
Subject 3: 58-year-old woman				
1	Ludwig	Rise	X-Pro	Perpetua
2	Mayfair	Reyes	LowFi	X-Pro
3	Juno	Original	Perpetua	LowFi

Regression analyses of the combined data of all three subjects revealed a significant effect of filter choice on how the photo is perceived ([Table 2](#)). When combining the data for all three subjects, the filters determined to be “Most Flattering” were, in order, Juno, Lark, and Sierra. The filters that made the photos look “Most Youthful” were Reyes, Rise, and Gingham. The filters voted “Least Flattering” were Hefe, X-Pro, and Slumber. “Least Youthful” filters were Perpetua, Crema, and Aden.

[Figure 7](#) illustrates how all 20 filters performed compared to the unfiltered photo when combining the data for all three subjects.

DISCUSSION

This study has determined which Instagram filters appear to have the most positive and most negative effects on how photos of Caucasian women in their 30s to 50s are perceived. By analyzing the top filters of each category and how they change the photos, one may be able to deduce why they were chosen.

Juno, the top vote getter for “Most Flattering,” makes the face look brighter. It evens out imperfections and accentuates the light colors, making the face look more crisp, clean, and smooth. It also mildly enhances the contrasts by accentuating certain dark colors. Overall, this filter results in an appearance that appears more radiant and gives photos a rich, deep, and warm tone.

Reyes, voted “Most Youthful” filter, also makes the face look brighter but tends to wash out the image. The face is much more uniform in color and appears smoother, but without the vibrant and deeper tones of Juno. It is



Figure 4. Subject 1, a 38-year-old woman. (A) Filtered photograph voted most flattering; filter: Juno. (B) Filtered photograph voted most youthful; filter: Reyes. (C) Filtered photograph voted least flattering; filter: Hefe. (D) Filtered photograph voted least youthful; filter: X-Pro.

unsurprising that this filter makes photos look most youthful because it erases wrinkles, reduces dark circles, lightens blemishes, and gives a smooth, even sheen to the face.

Hefe was determined to create the “Least Flattering” appearance. This filter darkens the photos and increases the contrast between lights and darks. Therefore, the face appears more dramatic, but in the opposite manner as Juno.

Instead of lightening the face, the bright areas are widely contrasted with very dark areas, making the photo look as if the subject is hiding in shadows. It also can make the face appear shiny or even sweaty.

The filter creating the “Least Youthful” appearance was determined to be Perpetua. Perpetua lightens the face slightly and gives it a somewhat flat, dull appearance.



Figure 5. Subject 2, a 48-year-old woman. (A) Filtered photograph voted most flattering; filter: Sierra. (B) Filtered photograph voted most youthful; filter: Rise. (C) Filtered photograph voted least flattering; filter: Hefe. (D) Filtered photograph voted least youthful; filter: Slumber.

This is very consistent with an aged look, where the radiance has been sapped from the skin. This is in contrast to Juno, which increased the skin's radiance and vibrancy.

It is interesting that Clarendon, the most popular Instagram filter according to several recent surveys^{1,9,10} was not chosen in the top 3 in this study. Although Clarendon, like Juno, enhances contrast and brightens lighter areas,

it also adds a coolness to the photos, making them look more striking. While brighter than Juno, it lacks Juno's warmth, which may have been interpreted by respondents as neither flattering nor youthful.

This is a small study with several limitations. Only 3 female Caucasian subjects between the ages of 38 and 58 years were included; therefore, the results of this study only apply



Figure 6. Subject 3, a 58-year-old woman. (A) Filtered photograph voted most flattering; filter: Ludwig. (B) Filtered photograph voted most youthful; filter: Rise. (C) Filtered photograph voted least flattering; filter: X-Pro. (D) Filtered photograph voted least youthful; filter: Perpetua.

to this narrow demographic. A future study involving males, different ethnicities and skin types, and more age groups will definitely yield more powerful data. The respondents were all female, and male respondents may have a different opinion of what is considered “flattering” or “youthful.” Finally, this study looks at overall trends in perception, which cannot necessarily be applied to each individual. For

example, Juno may create a more flattering appearance for one person, but possibly not for another.

This is the first published study to quantify the effects of various filters on how photos are perceived. With more and more patients showing filtered selfies to their plastic surgeons, these photos are becoming a valuable part of communicating the patient’s expectations with his or her

Table 2. The Top Three Filters for Each Attribute (Combined Results and Data)

Rank	Most flattering	% increase	P-value	Most youthful	% increase	P-value
1	Juno	69	0.00000332	Reyes	58	0.0000214
2	Lark	60	0.000264	Rise	54	0.000299
3	Sierra	50	0.007768	Gingham	53	0.000664
Rank	Least flattering	% increase	P-value	Least youthful	% increase	P-value
1	Hefe	75	0.00000000265	Perpetua	67	0.001552
2	X-Pro	53	0.000348	Crema	62	0.00835
3	Slumber	46	0.005622	Aden	59	0.003068

Note: % increase refers to the additional probability that the photo will be perceived as more flattering, more youthful, etc. than the original photo. For example, using the Juno filter increases the probability that the photo will be seen as more flattering by 69%.

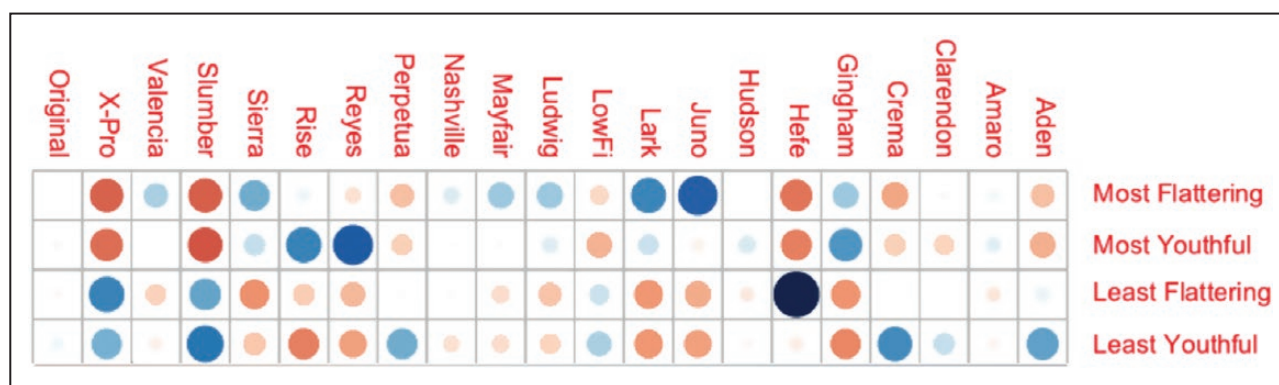


Figure 7. An illustration of how each individual filter affected how the photo was perceived by reviewers. The larger the blue circle, the more the filter is correlated with that attribute. The larger the orange circle, the less the filter was correlated with that attribute.

physician. Filtered photos can act as another way for patients to exhibit what their hopes and expectations for plastic surgery can be. Provided concerns regarding unrealistic expectations are addressed, these photos can provide necessary avenues for expanded discussions and communication. It should be noted, however, that the use of filters by plastic surgeons on social media to enhance the appearance of their results is misleading and should be condemned.

Social media has created a new and dynamic way for patients to communicate with doctors. Future studies will further delineate more of the impact of social media on plastic surgery, both of which have become inextricably intertwined. By better knowing what our patients want, we can better serve them.

CONCLUSION

Instagram filters can be a very valuable way for patients to communicate their expectations with plastic surgeons. This study revealed which filters are considered “Most

Flattering,” “Most Youthful,” “Least Flattering,” and “Least Youthful.” By studying why these filters are chosen by patients, we can better understand what results our patients are looking for.

Disclosures

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