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ORIGINAL EMPIRICAL RESEARCH

The cost of looking natural: Why the no-makeup movement may fail to discourage cosmetic use

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Abstract

Consumers seek naturalness across many domains, including physical appearance. It seems that the desire for natural beauty would discourage artificial appearance-enhancement consumption, such as cosmetic use. However, across an analysis of the "no-makeup movement" on Twitter and Nielsen cosmetic sales (Study 1a), an image analysis of #nomakeup selfies using machine learning approaches (Study 1b), and three experiments (Studies 2–4), we find that calls to look natural can be associated with increased artificial beauty practices. Drawing from attribution theory, we theorize that calls to look natural maintain the value of attractiveness while adding the consumer concern that others will discount their attractiveness if overt effort is present. Thus, rather than investing less effort, consumers may engage in a self-presentational strategy wherein they *construct* an appearance of naturalness to signal low effort to others, thereby augmenting their attractiveness. This work contributes to attribution and self-presentation theory and offers practical implications for naturalness consumption.

Keywords Naturalness · Beauty · Effort · Attribution · Social media · Image analysis · Multimethod

Natural beauty takes at least two hours in front of a mirror.
~ Pamela Anderson

Consumers often spend time and money on products that enhance their appearance. Forbes estimates that consumers spent $445 billion on beauty and personal care products in 2017 alone (Sorvino, 2017). However, consumers increasingly express interest in natural beauty, wherein their appearance is presumably free of artificial beauty practices (Robin & Trakoshis, 2020). Here, we examine how the consumer desire to have a natural appearance influences the consumption of artificial appearance-enhancement products.

One might think that this desire to have a natural appearance would be detrimental to beauty companies. If natural beauty consists of a physical appearance that is untouched by human intervention, then the use of artificial appearance-enhancement products like cosmetics should decrease. Indeed, celebrations of natural appearances are often coupled with the denouncing of beauty product use. Grammy award-winning singer/songwriter Alicia Keys was widely praised for announcing at the MTV Music Video Awards that she had no makeup on (Feldman, 2016). Her decision was emblematic of the "no-makeup movement" that had emerged on social media platforms, in which women posted photos of themselves where they claimed to be all-natural and makeup-free (Shapiro, 2014). Given the influential role of social media on consumer behavior, particularly in the beauty industry (Creswell, 2017), this call to look natural through the rejection of makeup use should discourage cosmetic consumption. However, we propose that this call to look natural may not have its intended negative effect on cosmetic use.

We theorize that this is because calls to look natural do not reduce the value placed on looking attractive, but rather highlight another aspect of appearance enhancement that consumers need to manage—the amount of effort others believe went into their appearance. Drawing from attribution theory (e.g., Folkes, 1988; Weary et al., 2012), we posit that others

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often assess an individual's attractiveness in relation to the perceived amount of effort put toward his/her appearance, with low (vs. high) effort leading others to *augment* (vs. *discount*) an individual's attractiveness. Consequently, in line with self-presentation theory (e.g., Goffman, 1959; Leary, 1995), consumers may *construct* a natural appearance via artificial appearance-enhancement products like cosmetics to signal low effort to others. This self-presentational strategy may allow consumers to gain the enhancing effect of artificial appearance-enhancement products without the discounting effects of others' awareness that this enhancement involved effort.

The current research offers several theoretical contributions. First, we build on emerging literature that has recognized the increased consumer interest in naturalness (e.g., Berry et al., 2017; Scott et al., 2020) by examining this desire in the novel context of appearance enhancement. We find that consumers may claim that their appearance is natural when they have, in fact, constructed their natural appearance via artificial appearance-enhancement products such as cosmetics. Moreover, we contribute to the intersection of attribution (e.g., Weary et al., 2012) and self-presentation theory (e.g., Leary, 1995) by identifying the underlying process behind this behavior. We show that consumers strategically present how much effort went into their appearance to influence how others augment (vs. discount) their attractiveness.

In terms of managerial implications, we show a counterintuitive effect, wherein the denial of product use by celebrities and consumers on social media does not appear to have its intended negative effect on cosmetic consumption. These findings also suggest to managers that they may want to take into account how consumers' self-presentational concerns can lead to a disconnect between how consumers present their product use to others and their actual product use. We also provide managers potential insight into the broader consumer desire for naturalness by showing that consumers may want a constructed aesthetic that can actually be artificial.

In the following sections, we first review prior work on the tension between the benefits of physical attractiveness and others' negative judgments of beauty work. We then outline our theoretical framework in the context of attribution and self-presentation theory. Lastly, we test our reasoning and a boundary condition across an analysis of Twitter and AC Nielsen sales data, an Instagram image analysis involving machine learning approaches, and a set of experiments.

Conceptual background

The benefits of physical attractiveness and others' negative judgments of beauty work

People often benefit from being seen as physically attractive (e.g., Langlois et al., 2000). Physically attractive individuals tend to be viewed as more sociable and competent (Dion et al., 1972; Verhulst et al., 2010), have superior mating options (Fales et al., 2016), and gain more work success (Watkins & Johnston, 2000) than those who are less attractive. In light of these benefits, it is not surprising that consumers can put substantial time and money into improving their appearance (Sorvino, 2017). Practices designed to improve appearances, such as cosmetics and plastic surgery, are often termed beauty work (Kwan & Trautner, 2009).

Although beauty is highly valued by others, ironically, beauty *work* is often seen negatively (Etcoff et al., 2011; Samper et al., 2018). Etcoff et al. (2011) found that women wearing makeup were initially judged more positively across a set of social judgments than those without makeup. However, when participants were given time to realize that these women were wearing makeup, they rated them as less trustworthy and less likable (Etcoff et al., 2011). Relatedly, women who invested high rather than low effort into their appearance were viewed as more willing to misrepresent their true self and less moral (Samper et al., 2018).

Thus, there exists a tension where female consumers in particular are valued for their physical attractiveness, yet those who put effort toward their appearance risk negative judgments. It follows that consumers will be better received to the extent that the attractiveness of their appearance is thought to involve low effort. That is, others are likely to place a premium on attractiveness believed to be "effortless" and "natural." Below, we outline why apparent natural beauty may enhance others' perceptions of attractiveness via attributional processes.

How apparent natural beauty may influence others' attributions of attractiveness

Attribution theory suggests that people are "intuitive scientists" in that they try to assess the cause of individuals' behaviors and actions (Brandt et al., 2011; Folkes, 1988; Heider, 1958; Kelley, 1973; Tetlock, 1981; Weary et al., 2012). When individuals are attractive, people are likely to evaluate whether their attractiveness is indeed a result of an internal cause (i.e., their actual beauty) rather than external factors (e.g., beauty work). In particular, we propose that beliefs about the amount of effort individuals put toward their appearance influence the likelihood that others will attribute their attractiveness to an internal (vs. external) cause.

To illustrate this relationship, we draw from the attributional principles of augmenting and discounting (Brandt et al., 2011; Van Overwalle, 2006). The augmentation principle states that a cause has greater influence if an effect occurs despite an inhibitory factor. Thus, information that little effort was put toward an individual's appearance may have an *augmenting* effect on attractiveness—an attractive woman may be seen as more so if she is believed to have no makeup on. This is because her attractiveness is more likely to be attributed to her actual beauty (internal cause) as the perceived attractiveness (an effect) occurs

despite low effort in the form of no makeup (an inhibitory factor), given that makeup is typically seen as an external factor that enhances attractiveness. By contrast, the discounting principle states that a cause is discounted for an effect if another plausible cause, a facilitatory factor, is present. Thus, information that high effort was put toward an individual's appearance may lead others to *discount* the beautifying effects of those efforts—an attractive woman may be seen as less so if she is thought to have a two-hour makeup routine. This is because her attractiveness is less likely to be ascribed to her actual beauty (internal cause) as the attractiveness (an effect) occurs with the high effort of applying makeup (a facilitatory factor).

Thus, when individuals signal low effort via highlighting that their appearance is natural, others should augment their attractiveness. Conversely, when individuals signal that their appearance involves high effort, others should discount their attractiveness. Hence, in response to the call to look natural, we propose that consumers strategically manage others' beliefs about how much effort went into enhancing their appearance to influence others' attributions of their attractiveness. Below, we elaborate on this linkage between consumers' awareness of these attributional processes and their subsequent self-presentational behaviors.

The construction of naturalness as a self-presentational strategy

Researchers have recognized that while others are "intuitive scientists" when assessing the cause of individuals' actions, individuals themselves are often "intuitive politicians" in that they strategically try to manage how others view the cause of their actions (Tetlock, 1981). In other words, people often engage in impression-management or self-presentational tactics in which they may manipulate and even misrepresent their image in order to be viewed more positively (e.g., DeAndrea et al., 2012; Goffman, 1959; Leary, 1995; Toma et al., 2008).

We propose that self-presentational concerns may drive how consumers respond to the call to look natural. Specifically, calls to look natural make consumers more sensitive to the fact that others may augment (vs. discount) their attractiveness in response to signals of low (vs. high) effort. Critically, however, we propose that calls to look natural do not diminish the value placed on looking attractive. That is, others may be more likely to augment the attractiveness of individuals whose natural appearance is seen as attractive. It follows that less attractive individuals who signal that their appearance is natural may be less likely to receive a boost in attractiveness from others. Thus, we propose that the call to look natural does not necessarily encourage consumers to forgo appearance-enhancement efforts but rather encourages them to use appearance-enhancement products to *construct* a natural appearance.

Constructing a natural appearance may be an effective self-presentational strategy. First, it takes advantage of the attributional principles by signaling low effort to others, thus augmenting the individual's attractiveness. Second, the individual also receives a boost in attractiveness with the use of appearance-enhancement products such as cosmetics, which have been found to increase attractiveness (Mulhern et al., 2003; Nash et al., 2006). Thus, consumers who construct their natural appearance likely receive the enhancing effect of cosmetics without the discounting effects of others' awareness that this enhancement involved effort. Below, we test this reasoning across two analyses of archival social media data and a set of experiments.

Overview of studies

Study 1a explored the relationship between the rise of the no-makeup movement on Twitter and Nielsen cosmetic sales. Study 1b then examined whether consumers indeed construct their natural appearance via cosmetics despite claiming to be makeup-free in Instagram posts and used machine learning approaches to explore how constructed (vs. real) natural appearances influence attractiveness ratings and others' reactions to the posts. Studies 2–4 tested the underlying process behind these effects. Study 2 first tested whether others assess an individual's attractiveness via augmenting and discounting principles. Study 3 then tested a boundary condition by examining whether these attributional processes attenuate for individuals of low attractiveness, thus providing further insight into why consumers may construct their natural appearance. Lastly, Study 4 tested whether consumers engage in a self-presentational strategy in which they construct natural appearances via cosmetics to take advantage of the attributional processes that others will likely use to assess their appearance.

Study 1a: The rise of #nomakeup on Twitter and cosmetic sales

Data collection

We scraped Twitter for all mentions of the #nomakeup to construct our independent variable. Our resulting dataset includes the cumulative number of #nomakeup tweets since the beginning of the movement for each week of 2009–2016 (see Web Appendix A).

We used weekly AC Nielsen sales data[1] of all available facial cosmetic products as our dependent variable. The panel

[1] Researchers own analyses calculated (or derived) based in part on data from Nielsen Consumer LLC and marketing databases provided through the NielsenIQ Datasets at the Kilts Center for Marketing Data Center at The University of Chicago Booth School of Business. The conclusions drawn from the NielsenIQ data are those of the researchers and do not reflect the views of NielsenIQ. NielsenIQ is not responsible for, had no role in, and was not involved in analyzing and preparing the results reported herein.

dataset includes all the weekly sales scanner data across 206 geographical areas of the United States for the years 2006–2016. There was a total of ten facial cosmetic product categories: blushers, concealers, eyebrow and eyeliner, eye shadows, false eyelashes, face powder, foundation-cream and powder, foundation-liquid, lipsticks, and mascara. To avoid selection bias, we included all available facial cosmetics in the analysis.

Empirical analysis

We estimated two log-log models. In the first model, we estimated the impact of the no-makeup movement on all cosmetic sales, with the cumulative number of #nomakeup tweets as the focal independent variable and the sales of all products as the dependent variable. The model also controlled for the product price and age in addition to month, year, DMA (designated market area), and product fixed effects. To further address the possibility of omitted variable bias or simultaneity, we also conducted an endogeneity correction (see Web Appendix B). In the second model, we included all the controls and the endogeneity correction as in the first model, but our focal independent variable was the interactions between the cumulative number of #nomakeup tweets and the product dummy variables for each respective category in order to estimate product-specific coefficients.

Results and discussion

The first model revealed that the cumulative number of #nomakeup tweets had a significant positive impact on the sales of cosmetics collapsed across all product categories ($b = .03$, $p < .001$) (see Fig. 1, Panel a). In other words, the no-makeup movement was associated with an overall increase in cosmetic sales.

The second model examined whether the positive association between #nomakeup and cosmetic sales was consistent for each product category (see Fig. 1, Panel a). We added the main impact and interaction terms together to construct the total impact of #nomakeup on each product category (see Fig. 1, Panel b). The rise of the #nomakeup was positively associated with a majority of the product category sales, including false eyelashes, concealers, eyebrow and eyeliners, face powder, mascara, lipsticks, eye shadows, and foundation-liquid. Only blushers was insignificant, and foundation-cream and powder was negatively associated with #nomakeup.

In sum, although the no-makeup movement encouraged everyday consumers and celebrities to free themselves from the use of cosmetics (Shapiro, 2014), we found that the rise of this popular natural appearance movement on social media was not associated with an overall decline in cosmetic sales. Instead, it was associated with an increase in sales across most cosmetic categories, suggesting that the no-makeup movement did not coincide with decreased artificial appearance-enhancement consumption.

Study 1b: Image analysis of no-makeup selfies

Study 1b employed an image analysis of #nomakeup selfies to explore why the no-makeup movement may not have discouraged cosmetic consumption. We propose that the call to look natural may have encouraged consumers to *construct* natural appearances rather than forgo appearance-enhancement efforts. This self-presentational strategy may be effective because it allows consumers to receive the enhancing effect of cosmetics without the discounting effects of others' awareness that this enhancement involved effort.

As a preliminary test of this reasoning, we analyzed a set of #nomakeup selfies posted on Instagram. First, we examined whether a subset of consumers who claim that they are not wearing makeup, in fact, are wearing makeup (i.e., they have constructed their natural appearance). Second, we tested whether constructed naturalness is indeed an effective self-presentational strategy using machine learning approaches. Specifically, we compared whether constructed natural appearances were perceived to be more attractive and received more likes relative to "real" natural appearances (i.e., actual bare-faced selfies).

Method

We used image processing techniques to provide two scores for a set of #nomakeup selfies on Instagram: the degree to which the selfie showed makeup traces and the degree of attractiveness. Below, we detail the two stages of the algorithm for the image analysis.

The first stage was model learning. We constructed an image dataset with 784 selfies from Instagram that had been posted with the #nomakeup and manually composed two labels. The first label was whether the selfie was "real" or "constructed." Real natural appearance selfies were images in which the individual appeared to truly wear no makeup. Constructed natural appearance selfies were those with signs of makeup. This label was on a binary scale (0 = *Real*; 1 = *Constructed*). The second label was the attractiveness of the individual in the post rated on a continuous scale (1 = *Not Attractive*; 7 = *Very Attractive*). We then used these scores to train the model to "learn" the probability of whether a selfie was real versus constructed and the level of the selfie's attractiveness. To do so, we first extracted a set of image features, including the selfie's texture, shape, and facial characteristics, enabling us to assess the presence of makeup on a face and the attractiveness of a face (see Web Appendix C for all feature descriptions). We then used the extracted features to fit the binary real (vs. constructed) label and the attractiveness score

(a)

Logged Variable	Model 1, DV=log Total Sales	Model 2, DV=log Product Sales
Tweets	.03033*** (.00177)	-.0099*** (.0016)
Price	.1979*** (.0039)	-.1423*** (.0036)
Age	-.1499*** (.01496)	-.1289*** (.0133)
Tweets*Blushers		.01148*** (.000298)
Tweets*Foundation-Liquid		.0185*** (.000297)
Tweets*Eye Shadows		.02268*** (.000297)
Tweets*Lipsticks		.0254*** (.000297)
Tweets*Mascara		.0279*** (.000298)
Tweets*Face Powder		.0330*** (.000297)
Tweets*Eyebrow and Eyeliner		.0392*** (.000299)
Tweets*Concealers		.0910*** (.00030)
Tweets*False Eyelashes		.1034*** (.000297)
Year PE	Yes	Yes
Month PE	Yes	Yes
DMA FE	Yes	Yes
Product FE	Yes	Yes
No. of Observations	834,293	834,293
R Squared	.9690	.9755

***p < .001 Significance Level, Standard Errors in Parentheses

(b)

Product Category	Total Impact of #nomakeup on Product Sales
Foundation-Cream and Powder†	-.0099***
Blushers	.00158
Foundation-Liquid	.0086***
Eye Shadows	.01278***
Lipsticks	.0155***
Mascara	.018***
Face Powder	.0231***
Eyebrow and Eyeliner	.0293***
Concealers	.0811***
False Eyelashes	.0935***

†base product

Fig. 1 Estimation results of Models 1–2 (Panel **a**) and total impact of #nomakeup on product sales (Panel **b**)

with Gradient Boosted Regression Trees models (Robin et al., 2011).

The second stage applied the fitted model to a set of Instagram selfies. In this step, we collected #nomakeup selfies from the top posts section of Instagram and extracted the image features described in the first stage. The image collection and analysis started in September 2018 and ended in December 2018 when the computation results stabilized, with 3155 total images. Using the model learned in the first stage, we obtained the estimated probability of wearing makeup as the "constructed" score and the estimated attractiveness level as the attractiveness score. The images were split into two subsets: relatively more real versus relatively more constructed natural appearance groups at the median of the constructed score. Within each subset, we calculated the overall level of attractiveness and the number of likes the post received.

Results and discussion

Attractiveness score The more constructed natural appearance subset had a significantly higher overall score in attractiveness (M = 4.52, SD = 0.80) compared to the more real natural appearance subset (M = 2.89, SD = 0.64; $t(3001) = 63.0$, $p < .001$, $d = 2.25$; Levene's test was significant, and thus equal variances were not assumed).

Number of likes The more constructed natural appearance subset had a significantly higher average number of likes (M = 870.2, SD = 4538.2) compared to the more real natural appearance subset (M = 434.3, SD = 1559.2; $t(1944) = 3.61$, $p < .001$, $d = 0.13$; Levene's test was significant, and thus equal variances were not assumed).

Study 1b provided potential insight into why the no-makeup movement may not have had its intended negative impact on cosmetic consumption. First, we confirmed that individuals in #nomakeup selfies often posted selfies with makeup (i.e., the natural appearance was constructed) rather than posting actual bare-faced selfies. This finding supports our reasoning that the no-makeup movement often encouraged self-presentational behaviors rather than leading consumers to actually give up appearance-enhancement efforts.

Second, we examined whether constructed naturalness is an effective self-presentational strategy. The constructed natural appearance subset indeed received a higher attractiveness score and more likes compared to the real natural appearance subset. We reason that this is likely due to constructed naturalness allowing consumers to receive both the augmented attractiveness benefit from appearing low effort and the enhancing benefit of makeup. Thus, *seeming* low effort (i.e., constructing naturalness) was overall superior to *being* low effort (i.e., being bare-faced).

Studies 1a–b showed that calls to look natural do not necessarily discourage artificial appearance enhancement in real-world settings. We propose that this is driven by calls to look

natural motivating consumers to construct natural appearances in order to signal low effort to others, thereby enhancing perceived attractiveness. Next, we measure others' assessments of an individual's effort and attractiveness to offer further evidence for our proposed process.

Study 2: How natural appearance claims influence others' attributions of effort and attractiveness

Study 2 aimed to provide insight into why consumers may promote that their appearance is natural to others. We propose that natural appearance claims signal low effort to others which, in turn, takes advantage of the ways others make attributions of an individual's attractiveness. We reason that in the presence of a natural appearance claim (e.g., an individual promotes that she is wearing no makeup), others should perceive that the individual put less effort into her appearance, thus leading others to augment her attractiveness. This is because effort is thought to facilitate attractiveness, thus its absence (i.e., no makeup) should augment perceived attractiveness. By contrast, its presence (i.e., makeup) should discount perceived attractiveness.

To test this reasoning, participants evaluated either a woman's selfie in which she claimed to be wearing no makeup (natural claim condition) or the *same* woman's selfie in which she stated that she was wearing makeup (no natural claim condition). We predicted that she would be seen as more attractive in the natural claim condition compared to the no natural claim condition. We, in turn, expected that perceived lower effort would mediate this augmented attractiveness. We also included a third condition in which the woman made no claim about her appearance (no claim condition) to test others' default attributions of effort and attractiveness.

Method

We recruited 633 participants (45.7% female; M_{age} = 39.32) from Positly, an online participant recruitment site. We included an attention check at the end of all studies designed to ensure participants viewed the stimuli. In hindsight, this attention check may have overlapped with the manipulation, and thus, we use all participants for the analyses. Results are consistent across all studies with or without the attention check (see Web Appendix D for items) and data for all experiments are available on OSF (https://osf.io/cmx3t/). All participants were asked to imagine they were scrolling through Instagram and came across a woman's selfie. They were randomly assigned to one of three conditions: no natural claim, no claim, and natural claim (see Fig. 2). Those in the no natural claim condition viewed a caption underneath the selfie in which the woman stated she was wearing makeup: "Midweek selfie. Decided to put on a full makeup kit #makeup #wednesday." Those in the no claim condition read: "Midweek selfie. #wednesday." Finally, those in the natural claim condition viewed a caption in which the woman stated she was not wearing makeup: "Midweek selfie. Decided to go makeup free #nomakeup #wednesday." Importantly, the woman's selfie was visually identical across conditions.

To ensure engagement, we asked all participants to complete an open response question in which they described the woman's caption. They then rated the woman's attractiveness: "To what extent do you think the woman in the photo is physically attractive?" (1 = *Not very physically attractive*; 7 = *Very physically attractive*). To capture perceptions of effort, participants rated the following: "To what extent did the woman put effort into her appearance before taking the photo?" (1 = *She put in very little effort*; 7 = *She put in a lot of effort*).

To check whether the woman's natural appearance signaling was effective, we asked: "To what degree did you think this woman's physical appearance was natural (i.e., did not involve products like makeup)?" (1 = *Not at all natural*; 7 = *Very natural*). Participants also completed two other naturalness checks (see Web Appendix E), the attention check, and demographic items.

Results and discussion

Naturalness manipulation check A one-way ANOVA revealed a significant effect of appearance claim ($F(2, 630) = 32.64$, $p < .001$). Participants thought the woman's appearance was more natural in the natural claim condition (M = 5.16, SD = 1.56) than in the no natural claim condition (M = 4.15, SD = 1.65; $t(630) = 6.56$, $p < .001$, $d = 0.63$). Moreover, the woman in the natural claim condition was also seen as more natural than the same woman in the no claim condition (M = 4.05, SD = 1.49; $t(630) = 7.35$, $p < .001$, $d = 0.73$). The no natural claim and no claim conditions did not differ from each other ($t(630) = -0.60$, $p = .55$, $d = 0.06$).

Perceived attractiveness A one-way ANOVA on perceived attractiveness revealed an effect of appearance claim ($F(2, 630) = 9.66$, $p < .001$; see Fig. 3). The woman was seen as more attractive when she made a natural appearance claim (M = 5.63, SD = 1.03) than when she made no natural appearance claim (M = 5.31, SD = 1.21; $t(630) = 2.81$, $p = .005$, $d = 0.28$). The woman in the natural claim condition was also seen as more attractive than the woman in the no claim condition (M = 5.14, SD = 1.24; $t(630) = 4.33$, $p < .001$, $d = 0.43$). Again, the no natural claim and no claim conditions did not differ from each other ($t(630) = -1.42$, $p = .16$, $d = 0.14$).

Perceived effort The same one-way ANOVA revealed an effect of appearance claim ($F(2, 630) = 24.12$, $p < .001$; see Fig. 3). Participants thought the woman in the natural claim condition (M = 4.55, SD = 1.62) put less effort into her

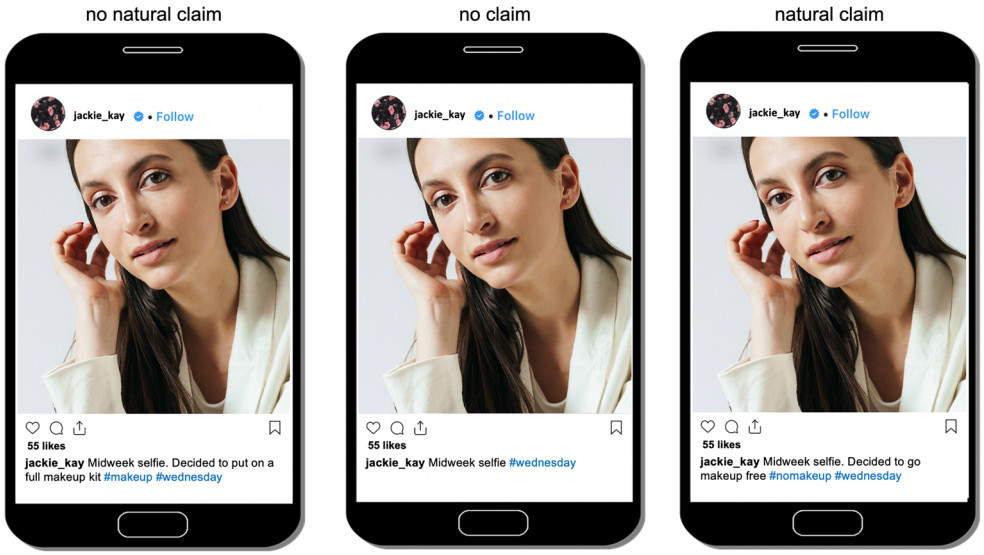

Fig. 2 Stimuli in Study 2

appearance than the same woman in the no natural claim condition (M = 5.42, SD = 1.30; $t(630) = -6.25$, $p < .001$, $d = 0.59$). The woman in the natural claim condition was seen as putting less effort into her appearance relative to the woman in the no claim condition (M = 5.33, SD = 1.28; $t(630) = -5.74$, $p < .001$, $d = 0.53$). The no natural claim and no claim conditions did not differ ($t(630) = -0.67$, $p = .51$, $d = 0.07$).

Mediation We ran a mediation analysis (10,000 resamples) with the natural claim versus no natural claim condition as the independent variable, perceived attractiveness as the dependent variable, and perceived effort as the mediator (Model 4, Hayes, 2018). The result revealed that perceived effort significantly mediated the effect of claim condition on perceived attractiveness (indirect effect = −.05, SE = .02, 95% CI = [−.10, −.01]; see Web Appendix F for figure). We ran the same analysis but with the natural claim versus no claim condition as the independent variable and found a consistent result (indirect effect = −.11, SE = .04, 95% CI = [−.19, −.04]).

Study 2 provided insight into why consumers promote to others that their appearance is natural. Participants believed the woman put less effort toward her appearance in the natural claim condition relative to the no natural or no claim condition. These lower effort perceptions mediated the increase in attractiveness between the natural and no natural claim conditions and between the natural and no claim conditions. These findings support the reasoning that natural appearance claims leverage others' tendency to augment (vs. discount) an individual's attractiveness in relation to signals of low (vs. high) appearance-enhancement effort.

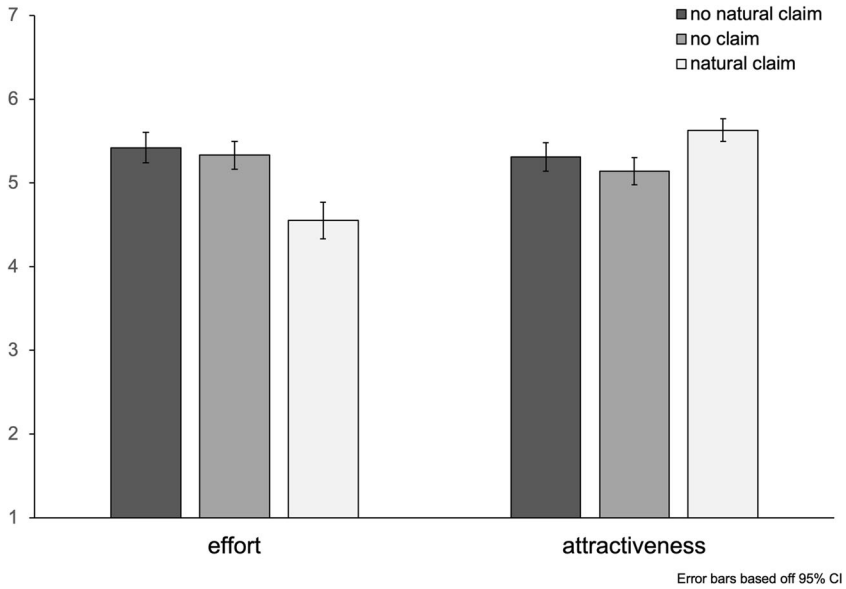

Fig. 3 Effort and attractiveness results in Study 2

Of note, the no natural and no claim conditions did not vary from each other. This is suggestive that people may, in general, assume that women have put some degree of effort toward enhancing their appearance. Thus, a signal of low effort via claiming no makeup leads to augmented attractiveness because the low effort signal is in contrast to the expectation that effort was put toward the appearance (e.g., by default, people might assume women wear makeup). In the next study, we build on these findings by examining a boundary condition.

Study 3: Moderation by individual's attractiveness level

The aim of Study 3 was to examine a boundary condition and replicate the effects in Study 2 using a new woman. Specifically, we were interested in identifying a boundary condition that might shed light on why consumers may construct their natural appearance rather than actually going bare-faced. In Study 1b, we found that constructed natural appearances were seen as more attractive and received more likes than real natural appearances. This is suggestive that others may reward natural appearances more to the extent that the individual is at a certain level of attractiveness. Indeed, the woman selected in Study 2 was perceived to be attractive (her overall attractiveness rating across conditions was significantly above the mean; M = 5.36, SD = 1.18, $t(632) = 28.94$, $p < .001$). It could be that when an individual is seen as attractive, the no-makeup signal is more effective because others, by default, may assume that some appearance-enhancement effort may be the cause of her attractiveness. Thus, the no-makeup signal reduces perceived effort, thereby augmenting perceived attractiveness. However, if an individual is perceived to be less attractive, it is less likely that others assume that effort went into enhancing her appearance. Hence, others are less likely to augment the individual's attractiveness because the information that her appearance involves low effort should not deviate from expectations.

To test this reasoning, we varied whether a woman's selfie was high versus low in attractiveness, in addition to varying whether the woman claimed to be wearing no makeup (natural claim condition) or made no claim about her appearance (no claim condition). We predicted that, as in Study 2, in the high attractiveness conditions, the woman would be seen as putting less effort into her appearance when she made a natural claim, which would augment her attractiveness relative to when she made no claim. By contrast, in the low attractiveness conditions, we predicted that differences in perceived effort and attractiveness would be attenuated between the claim conditions.

Method

We recruited 803 participants (47.1% Female, $M_{age} = 41.82$) from Positly. As in Study 2, all participants were asked to imagine that they were on Instagram and came across a woman's selfie. We used a different woman's selfie from Study 2 to ensure that our core effect was not unique to the woman used in the previous study. To manipulate attractiveness, we varied whether the woman's skin had no blemishes (high attractiveness condition) or blemishes (low attractiveness condition) (see Web Appendix G for stimuli). To manipulate the appearance claim conditions, we altered whether the caption underneath the selfie contained a natural claim or no claim using the same language in Study 2. This resulted in a 2 (appearance claim: natural claim vs. no claim) × 2 (attractiveness: high vs. low) between-subjects design.

All participants completed an open response item in which they described the woman's caption and then rated perceived attractiveness and perceived effort as in Study 2. To provide further evidence that our effects are driven by the proposed process rather than by other positive inferences, we measured perceived morality: "To what extent do you think the woman in the photo is moral?" (1 = *Not at all moral*; 7 = *Very moral*). Participants rated a naturalness signaling check: "I think that this woman is trying to let others know that her appearance is natural (i.e., did not involve products like makeup)" (1 = *Not at all*; 7 = *Very much so*). Lastly, they completed two other naturalness checks (see Web Appendix H), an attention check, and demographic items.

Results and discussion

Naturalness signaling manipulation check A 2 (appearance claim: natural claim vs. no claim) × 2 (attractiveness: high vs. low) between-subjects ANOVA showed that the naturalness signaling manipulation was effective. There was a main effect of appearance claim, with the woman seen as signaling naturalness more in the natural claim conditions (M = 6.45, SD = 0.91) than in the no claim conditions (M = 5.08, SD = 1.69; $F(1, 799) = 232.38$, $p < .001$, $d = 1.01$). There was a main effect of attractiveness ($M_{high} = 5.50$, SD = 1.61; $M_{low} = 6.07$, SD = 1.35; $F(1, 799) = 50.74$, $p < .001$, $d = 0.38$) and an interaction simply due to differences in magnitude but not in directionality between the attractiveness conditions ($F(1, 799) = 24.52$, $p < .001$, $\eta_p^2 = .03$). That is, the high ($M_{natural\_claim} = 6.36$, SD = 0.95; $M_{no\_claim} = 4.51$, SD = 1.66; $F(1, 799) = 207.89$, $p < .001$, $d = 1.37$) and low ($M_{natural\_claim} = 6.56$, SD = 0.86; $M_{no\_claim} = 5.62$, SD = 1.55; $F(1, 799) = 51.98$, $p < .001$, $d = 0.75$) attractiveness conditions had the same pattern.

Perceived attractiveness The same 2 × 2 analysis showed a main effect of appearance claim: the woman was viewed as more attractive in the natural claim conditions (M = 5.05, SD

= 1.47) than in the no claim conditions (M = 4.62, SD = 1.41; $F(1, 799) = 15.35$, $p < .001$, $d = 0.30$). A main effect of attractiveness revealed that the woman was viewed as more attractive in the high attractiveness conditions (M = 5.49, SD = 1.16) than in the low attractiveness conditions (M = 4.17, SD = 1.43; $F(1, 799) = 202.47$, $p < .001$, $d = 1.01$). There was a marginal interaction ($F(1, 799) = 2.96$, $p = .086$, $\eta_p^2 = .004$; see Fig. 4) likely due to the fact that the attractiveness manipulation was conservative as we used the same woman in both the high and low attractiveness conditions rather than two different women. Importantly, in the high attractiveness conditions, the woman was seen as more attractive in the natural claim condition (M = 5.72, SD = 1.06) than in the no claim condition (M = 5.21, SD = 1.22; $F(1, 799) = 16.20$, $p < .001$, $d = 0.45$). By contrast, in the low attractiveness conditions, this difference became insignificant ($M_{natural\_claim} = 4.27$, SD = 1.50; $M_{no\_claim} = 4.07$, SD = 1.35; $F(1, 799) = 2.37$, $p = .12$, $d = 0.14$).

Perceived effort The same 2 × 2 analysis revealed a main effect of appearance claim, with the woman seen as putting less effort into her appearance in the natural claim conditions (M = 3.38, SD = 1.83) than in the no claim conditions (M = 3.50, SD = 1.83; $F(1, 799) = 4.02$, $p = .045$, $d = 0.07$). There was a main effect of attractiveness, with perceived effort rated higher in the high attractiveness conditions (M = 4.38, SD = 1.72) than in the low attractiveness conditions (M = 2.46, SD = 1.37; $F(1, 799) = 317.75$, $p < .001$, $d = 1.23$). There was an interaction ($F(1, 799) = 13.56$, $p < .001$, $\eta_p^2 = .017$; see Fig. 4). In the high attractiveness conditions, perceived effort was lower in the natural claim condition (M = 4.10, SD = 1.79) than in the no claim condition (M = 4.72, SD = 1.57; $F(1, 799) = 16.48$, $p < .001$, $d = 0.37$). However, in the low attractiveness conditions, the difference in perceived effort was not significant ($M_{natural\_claim} = 2.55$, SD = 1.51; $M_{no\_claim} = 2.37$, SD = 1.23; $F(1, 799) = 1.38$, $p = .24$, $d = 0.13$).

Perceived morality We also ran the same 2 × 2 analysis on perceived morality. There was a main effect of appearance claim, with perceived morality higher in the natural claim conditions (M = 5.21, SD = 1.16) than in the no claim conditions (M = 4.96, SD = 1.14; $F(1, 799) = 10.58$, $p = .001$, $d = 0.22$). There was a main effect of attractiveness ($M_{high} = 5.00$, SD = 1.16; $M_{low} = 5.18$, SD = 1.16; $F(1, 799) = 5.99$, $p = .015$, $d = 0.16$) and, importantly, no significant interaction ($F(1, 799) = 0.28$, $p = .59$, $\eta_p^2 = .0004$).

Moderated mediation We predicted that the enhanced attractiveness of the woman with the natural claim would be explained by lower perceived effort when the woman's attractiveness was high than when her attractiveness was low. To test this, we ran a moderated mediation (Model 7, Hayes, 2018) with claim condition as the independent variable, perceived attractiveness as the dependent variable, perceived effort as the mediator, and the attractiveness level of the woman as the moderator. This analysis (10,000 resamples) revealed a significant moderated mediation (indirect effect = −.28, SE = .08, 95% CI = [−.44, −.13]). As expected, when the woman's attractiveness was high, perceived effort mediated the effect of natural claim on attractiveness (indirect effect = −.22, SE = .06, 95% CI = [−.34, −.10]). By contrast, when the woman's attractiveness was low, perceived effort did not mediate (indirect effect = .06, SE = .05, 95% CI = [−.03, .16]). We ran the same analysis with perceived morality as a competing mediator and found perceived effort was significant (indirect effect = −.29, SE = .08, 95% CI = [−.45, −.14]) but not perceived morality (indirect effect = −.03, SE = .05, 95% CI = [−.13, .08]).

Study 3 reinforced the findings of Study 2 and revealed a boundary condition. When the woman's attractiveness was high, others rated her as more attractive when she signaled her appearance was natural relative to when she did not. This boost in attractiveness was mediated by decreased per-

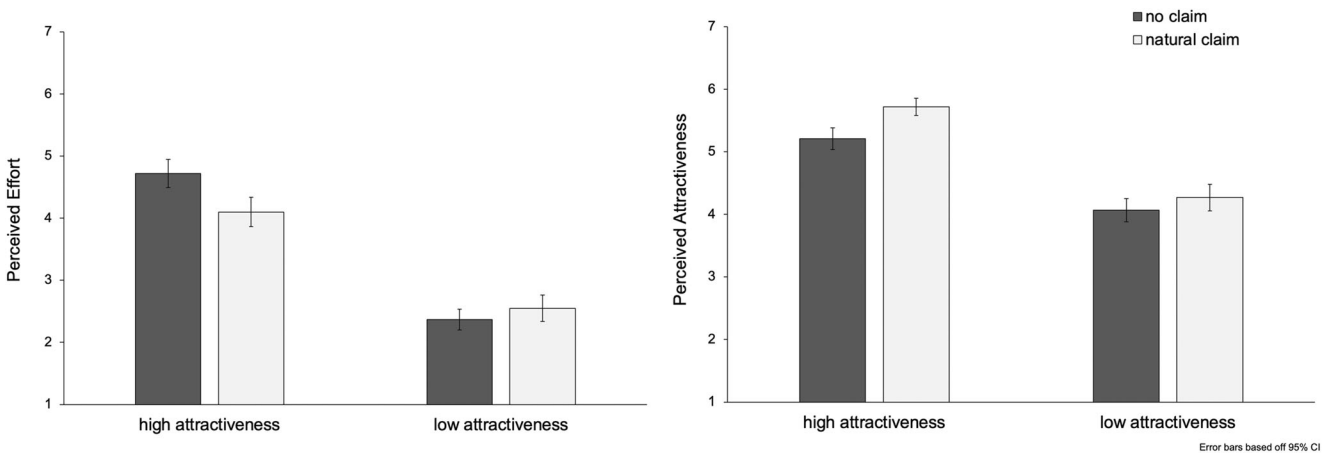

Fig. 4 Effort and attractiveness results in Study 3

ceived effort. By contrast, when the woman's attractiveness was low, she did not receive a significant boost in attractiveness when she claimed her appearance was natural relative to when she did not. Perceived effort also did not differ between these claim conditions.

These results also provide insight into why consumers may construct their natural appearance rather than going barefaced. Specifically, the boost in attractiveness others give to those who signal that their appearance is natural is likely stronger to the extent that the individual is attractive. In the final study, we test whether consumers indeed take into account the attributional processes tested above when buying cosmetic products.

Study 4: Consumers' use of attributional principles in the context of beauty product purchase

Study 4 tested whether consumers construct natural appearances as a self-presentational strategy to manage the attributional processes identified in Studies 2–3. Specifically, we propose that consumers may gravitate toward artificial appearance-enhancement products that create a seemingly natural appearance to receive the enhancing effect of cosmetics without the discounting effects of others' awareness that this enhancement involved effort.

To test this reasoning, we varied whether participants viewed a cosmetic brand that focused on making products designed to create a natural look or a beautiful look. We predicted that participants exposed to natural (vs. beautiful) look messaging would be more likely to purchase the products. Importantly, we predicted that this increase would be explained by participants' intuitive use of augmenting and discounting principles. That is, we propose that the natural look messaging will highlight to participants that others may augment (vs. discount) their attractiveness in relation to signals of low (vs. high) effort. Thus, we reasoned that the increased purchase of natural look cosmetics would be driven by the same process. Participants would purchase such products because they believe that the cosmetics will enhance their appearance while also signaling low effort to others, thus augmenting their attractiveness.

Method

We recruited 300 female-identified participants (M_{age} = 20.24) from a public university. Participants were randomly assigned to assess a hypothetical cosmetic brand's mission statement either in the natural or beautiful look condition. In the natural look condition, participants read: "Here at Jules Cosmetics, we believe in helping women look natural. We develop and design products so that you achieve a natural look." Those in the beautiful look condition read: "Here at Jules Cosmetics, we believe in helping women look beautiful. We develop and design products so that you achieve a beautiful look" (see Web Appendix I for stimuli). The beautiful look served as a control because we reasoned that looking beautiful is desirable.

All participants were then asked to describe the beauty brand's mission to ensure engagement. To capture beauty product purchase intention, they then rated: "I would be likely to try makeup by this brand"; "I would be likely to purchase makeup by this brand"; "I am interested in buying makeup by this brand" (1 = *Strongly Disagree*; 7 = *Strongly Agree*). These items were highly reliable (α = .97) and were averaged to create a composite measure of beauty product purchase intention. Participants then answered an item designed to capture how much effort others would perceive they put into their appearance if they used makeup by the brand: "I think using makeup by this brand would make me look like I put a lot of effort and time into my physical appearance" (1 = *Not at all*; 7 = *Very much so*). They also rated their perceived attractiveness if they wore makeup by the brand: "I think using makeup by this brand would make me look more attractive" (1 = *Strongly Disagree*; 7 = *Strongly Agree*). They rated an additional attractiveness item: "I think using makeup by this brand would make me look more naturally attractive" (1 = *Strongly Disagree*; 7 = *Strongly Agree*). As a naturalness check, participants rated: "I think using makeup by this brand would make me look natural" (1 = *Strongly Disagree*; 7 = *Strongly Agree*). Lastly, they completed the attention check and demographic items.

Results and discussion

Naturalness manipulation check Participants in the natural look condition (M = 5.48, SD = 1.45) thought that they would look more natural relative to those in the beautiful look condition (M = 2.90, SD = 1.37; $t(298) = 15.83$, $p < .001$, $d = 1.83$).

Beauty product purchase intention Participants were more likely to purchase makeup from the brand in the natural look condition (M = 4.52, SD = 1.56) than in the beautiful look condition (M = 3.25, SD = 1.33; $t(298) = 7.63$, $p < .001$, $d = 0.88$).

Perceived effort Participants thought that they would look like they put less effort into their appearance in the natural look condition (M = 2.31, SD = 1.17) than in the beautiful look condition (M = 3.98, SD = 1.45; $t(296) = -11.03$, $p < .001$, $d = 1.27$; Levene's test was significant, and thus equal variances were not assumed).

Perceived attractiveness Participants thought they would look more attractive in the natural look condition (M = 4.25, SD = 1.54) than in the beautiful look condition (M = 3.77, SD = 1.41; $t(298) = 2.79$, $p = .006$, $d = 0.33$). The additional attractiveness item was consistent ($M_{natural\_look} = 5.38$, SD = 1.52; $M_{beautiful\_look} = 3.11$, SD = 1.49; $t(298) = 13$, $p < .001$, $d = 1.51$).

Mediation To test our proposed process, we ran a serial mediation model (Model 6, Hayes, 2018) with natural look versus beautiful look condition as the independent variable, perceived effort and primary attractiveness item as sequential mediators, and purchase intention as the dependent variable. The serial mediation (10,000 resamples) revealed that those in the natural (vs. beautiful) look condition thought others would think they put less effort into their appearance, which, in turn, increased their perceived attractiveness and subsequently enhanced their purchase intention (indirect effect = −.43, *SE* = .08, 95% CI = [−.61, −.28]; see Fig. 5). We also tested the reverse model with attractiveness preceding effort and found that the indirect effect was not significant (indirect effect = .02, *SE* = .01, 95% CI = [−.0005, .05]).

Study 4 linked the findings of Studies 2–3 to beauty product purchase interest. Participants were more willing to buy beauty products with natural (vs. beautiful) look messaging. This increased purchase intention was mediated by our proposed process, wherein participants demonstrated intuitive use of the attributional logic identified in Studies 2–3. Our serial mediation model revealed that the relationship between the makeup messaging and purchase intention was mediated by participants' belief that the natural look makeup would lead others to think they put less effort into their appearance which would then augment their attractiveness. Thus, these results are consistent with the reasoning that constructing natural appearances is a self-presentational strategy that consumers use to receive the enhancing effect of cosmetics without the discounting effects of others' awareness that this enhancement involved effort.

General discussion

We found convergent evidence across a variety of empirical strategies that calls to look natural may not discourage artificial appearance-enhancement consumption. This is because such calls to look natural tend to encourage a self-presentational strategy in which consumers *construct* a natural appearance that appears low effort to others to augment their attractiveness.

Study 1a found that the rise of the no-makeup movement on social media was positively rather than negatively associated with cosmetic sales. Study 1b then revealed that individuals in #nomakeup selfies often post selfies with makeup (i.e., the natural appearance was constructed) rather than posting actual bare-faced selfies. The image analysis of these selfies also showed that constructed (vs. real) natural appearances received a higher attractiveness score and more likes, suggesting that constructing naturalness is an effective self-presentational strategy.

Studies 2–4 then directly tested our proposed process via experiments. Study 2 found that natural appearance claims indeed lead others to believe the individual exerted low (vs. high) appearance-enhancement effort, in turn, leading others to augment (vs. discount) an individual's attractiveness. Study 3 provided a boundary condition of these effects, revealing that the boost in attractiveness others give to those who signal that their appearance is natural is stronger to the extent that the individual is attractive. Finally, Study 4 showed that consumers make use of others' attributional logic via the purchase of cosmetic products that simulate naturalness.

Theoretical contributions

Prior work has examined the consumer desire for naturalness in the context of food (Berry et al., 2017; Hingston & Noseworthy, 2018; Rozin et al., 2004) and medicine (Scott et al., 2020; Rozin et al., 2004). Here, we are the first, to our knowledge, to examine how consumers respond to naturalness in the context of appearance enhancement. We find that the consumer interest in natural appearances may reflect a desire for a constructed aesthetic. Thus, consumers may not actually desire naturalness but merely its appearance in certain consumption domains. Relatedly, brands have been found to misleadingly claim that their products are "all natural" (e.g., Berry et al., 2017). Consistent with these findings, we show that consumers can also claim that aspects of themselves are natural even though artificial intervention was involved.

Furthermore, although prior work has shown that effort toward appearance-enhancement can result in negative judgments of individuals such as reducing their perceived morality (Samper et al., 2018), here, we identify the novel relationship between effort and attractiveness. Drawing from the attributional principles of augmenting and discounting (e.g., Brandt et al., 2011), we find that the appearance of low (vs. high) effort tends to lead others to augment (vs. discount) an individual's attractiveness. Thus, these findings not only build on attribution theory (e.g., Weary et al., 2012) but also shed light on another potential cost that consumers may incur if they put effort toward their appearance.

These findings also contribute to self-presentation theory (e.g., Goffman, 1959; Leary, 1995). We show that consumers intuitively use augmenting and discounting principles to manage the amount of effort others believe they put toward their appearance to enhance their attractiveness. In line with prior work that has shown that people are likely to misrepresent their height and weight in the dating context in order to be

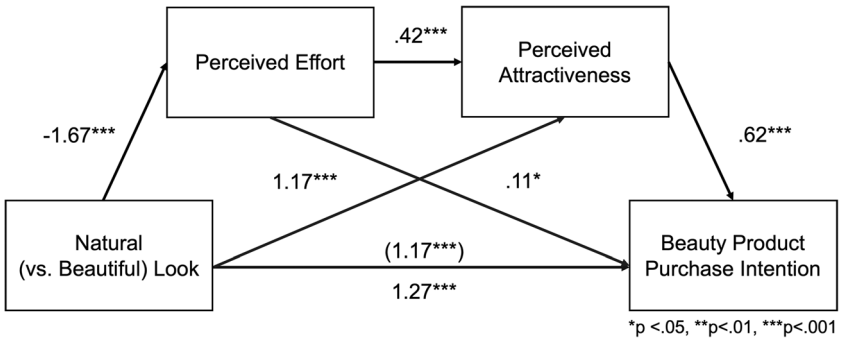

Fig. 5 Serial mediation between condition and purchase intention in Study 4

seen as more attractive (e.g., DeAndrea et al., 2012; Toma et al., 2008), we show that consumers can similarly misrepresent their appearance-enhancement effort via consumption choices in service of appearing more attractive. In essence, consumers are willing to put in significant effort to appear effortless to others.

Managerial contributions

Our findings may provide managers insight into the broader consumer desire for naturalness. We find that the consumer interest in natural appearances often reflects a constructed aesthetic rather than an appearance that is untouched by external intervention. This is suggestive that companies will likely need to assess whether consumers seek truly natural products and/or experiences or simply a natural aesthetic.

We also show that companies may want to consider how consumers use their consumption choices to manage self-presentational concerns. We find that consumers often choose not only products that enhance their appearance, but also products that can conceal their appearance-enhancement efforts to others. Analogous to prior work that has examined the role of subtle signaling in consumption (Berger & Ward, 2010), we highlight the need for companies to offer products and services that can appear effortless. Our work suggests that other consumption domains related to appearance (e.g., clothing, hair-dyeing, plastic surgery) may be subject to a similar process in which consumers may seek to conceal their appearance-enhancement effort.

Our results also highlight the importance of understanding how consumers use social media to signal their behavior to others (Alexandrov et al., 2013; Appel et al., 2020). We show the benefits of examining consumers' social media posts for both image and text. Specifically, in response to the no-makeup movement, we found that consumers often claimed that they were not using certain products (e.g., makeup), but the image analysis in study 1b revealed that they were doing the opposite of what they claim (i.e., they were wearing makeup). Thus, firms may want to be aware that consumers may signal their involvement in social movements (e.g., calls to go green) via social media in ways that might not reflect their actual degree of involvement.

Limitations and future directions

The present work leaves open several questions that may provide fruitful avenues for future research. First, as noted above, there may be other product domains where consumers are motivated to achieve an appearance of effortlessness. For instance, it is typical for consumers to spend a lot of money on jeans and other clothing items that are designed to look torn or faded. However, in these cases, effortlessness may be related to managing perceptions of coolness or uniqueness rather than attractiveness. Future work could unpack how the consumer motivation to appear effortless varies across different consumption contexts.

Our work primarily focused on the effects of natural appearance claims on the consumption habits of relatively young women; however, future work could examine how different demographic groups experience various pressures to disguise their appearance-enhancement effort. For instance, men are typically subject to less stringent beauty standards (Demarest & Allen, 2000) and thus may be less concerned about others' judgments of their appearance-enhancement effort. However, men may be more subject to ridicule for enhancing their appearance as it is less normative, and thus, may be more inclined to hide their effort. Relatedly, people from different racial, cultural, or socio-economic backgrounds may be subject to unique appearance pressures (e.g., Craig, 2002) that influence the extent to which they manage others' beliefs about their appearance-enhancement effort.

Finally, future work could further examine consumer lay theories of what constitutes a valued natural appearance. Our work suggests that consumers do not necessarily value appearances that are in fact natural, but rather, value those that have been enhanced in a seemingly natural way. Thus, natural beauty appears to be operating as a normative beauty standard rather than reflecting an appearance untouched by artificial practices. For instance, society typically celebrates naturally attractive women who often engage in practices that alter their

appearance, such as plucking their eyebrows, shaving their armpit hair, straightening and whitening their teeth, engaging in skincare regimes, etc. (Shea, 2016). Future work could examine whether consumers "count" such practices as natural.

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References

Alexandrov, A., Lilly, B., & Babakus, E. (2013). The effects of social-and self-motives on the intentions to share positive and negative word of mouth. *Journal of the Academy of Marketing Science, 41*(5), 531–546.

Appel, G., Grewal, L., Hadi, R., & Stephen, A. T. (2020). The future of social media in marketing. *Journal of the Academy of Marketing Science, 48*(1), 79–95.

Berger, J., & Ward, M. (2010). Subtle signals of inconspicuous consumption. *Journal of Consumer Research, 37*(4), 555–569.

Berry, C., Burton, S., & Howlett, E. (2017). It's only natural: The mediating impact of consumers' attribute inferences on the relationships between product claims, perceived product healthfulness, and purchase intentions. *Journal of the Academy of Marketing Science, 45*(5), 698–719.

Brandt, A. C., Vonk, R., & van Knippenberg, A. (2011). Augmentation and discounting in impressions of targets described by third parties with ulterior motives. *Social Cognition, 29*(2), 210–220.

Craig, M. L. (2002). *Ain ' t I a beauty queen?: Black women, beauty, and the politics of race*. Oxford University Press.

Creswell, J. (2017). Millennials' lust for makeup driving a boom in the cosmetics industry. *Financial Post*. https://business.financialpost.com/news/retail-marketing/millennials-lust-for-makeup-driving-a-boom-in-the-cosmetics-industry

DeAndrea, D. C., Tom Tong, S., Liang, Y. J., Levine, T. R., & Walther, J. B. (2012). When do people misrepresent themselves to others? The effects of social desirability, ground truth, and accountability on deceptive self-presentations. *Journal of Communication, 62*(3), 400–417.

Demarest, J., & Allen, R. (2000). Body image: Gender, ethnic, and age differences. *The Journal of Social Psychology, 140*(4), 465–472.

Dion, K., Berscheid, E., & Walster, E. (1972). What is beautiful is good. *Journal of Personality and Social Psychology, 24*(3), 285–290.

Etcoff, N. L., Stock, S., Haley, L. E., Vickery, S. A., & House, D. M. (2011). Cosmetics as a feature of the extended human phenotype: Modulation of the perception of biologically important facial signals. *PLoS One, 6*(10), 1–9.

Fales, M. R., Frederick, D. A., Garcia, J. R., Gildersleeve, K. A., Haselton, M. G., & Fisher, H. E. (2016). Mating markets and bargaining hands: Mate preferences for attractiveness and resources in two national US studies. *Personality and Individual Differences, 88*, 78–87.

Feldman, J. (2016). Alicia keys has started a #nomakeup movement, and it's amazing. *Huffington Post*. https://www.huffpost.com/entry/alicia-keys-no-makeup_n_575175f3e4b0ed593f140fd8

Folkes, V. S. (1988). Recent attribution research in consumer behavior: A review and new directions. *Journal of Consumer Research, 14*(4), 548–565.

Goffman, E. (1959). *The presentation of self in everyday life*. Doubleday.

Hayes, A. F. (2018). *Introduction to mediation, moderation, and conditional process analysis: A regression-based approach*. The Guilford Press.

Heider, F. (1958). *The psychology of interpersonal relations*. Lawrence Erlbaum Associates.

Hingston, S. T., & Noseworthy, T. J. (2018). Why consumers don ' t see the benefits of genetically modified foods, and what marketers can do about it. *Journal of Marketing, 82*(5), 125–140.

Kelley, H. H. (1973). The processes of causal attribution. *American Psychologist, 28*(2), 107–128.

Kwan, S., & Trautner, M. N. (2009). Beauty work: Individual and institutional rewards, the reproduction of gender, and questions of agency. *Sociology Compass, 3*(1), 49–71.

Langlois, J. H., Kalakanis, L., Rubenstein, A. J., Larson, A., Hallam, M., & Smoot, M. (2000). Maxims or myths of beauty? A meta-analytic and theoretical review. *Psychological Bulletin, 126*(3), 390–423.

Leary, M. R. (1995). *Self-presentation: Impression management and interpersonal behavior*. Westview Press.

Mulhern, R., Fieldman, G., Hussey, T., Lévêque, J. L., & Pineau, P. (2003). Do cosmetics enhance female Caucasian facial attractiveness? *International Journal of Cosmetic Science, 25*(4), 199–205.

Nash, R., Fieldman, G., Hussey, T., Lévêque, J. L., & Pineau, P. (2006). Cosmetics: They influence more than Caucasian female facial attractiveness. *Journal of Applied Social Psychology, 36*(2), 493–504.

Robin, M., & Trakoshis, A. (2020). *The 30 most stunning makeup-free celebrity selfies*. Allure. https://www.allure.com/gallery/makeup-free-celebrity-selfies

Robin, X., Turck, N., Hainard, A., Tiberti, N., Lisacek, F., Sanchez, J. C., & Müller, M. (2011). pROC: An open-source package for R and S+ to analyze and compare ROC curves. *BMC Bioinformatics, 12*(1), 77.

Rozin, P., Spranca, M., Krieger, Z., Neuhaus, R., Surillo, D., Swerdlin, A., & Wood, K. (2004). Preference for natural: Instrumental and ideational/moral motivations, and the contrast between foods and medicines. *Appetite, 43*(2), 147–154.

Samper, A., Yang, L. W., & Daniels, M. E. (2018). Beauty, effort, and misrepresentation: How beauty work affects judgments of moral character and consumer preferences. *Journal of Consumer Research, 45*(1), 126–147.

Scott, S. E., Rozin, P., & Small, D. A. (2020). Consumers prefer "natural" more for preventatives than for curatives. *Journal of Consumer Research, 47*(3), 454–471.

Shapiro, B. (2014). Beauty unmasked for all to see. *New York Times*. https://www.nytimes.com/2014/05/08/fashion/no-makeup-look-as-a-new-beauty-standard.html

Shea, M. (2016). The no-makeup movement is great–If you're young and rich. *New York Post*. https://nypost.com/2016/10/23/the-no-makeup-movement-is-great-if-youre-young-and-rich/

Sorvino, C. (2017). Why the $445 billion beauty industry is a gold mine for self-made women. *Forbes*. https://www.forbes.com/sites/chloesorvino/2017/05/18/self-made-women-wealth-beauty-gold-mine/#135c0ef82a3a

Tetlock, P. E. (1981). The influence of self-presentation goals on attributional reports. *Social Psychology Quarterly, 44*, 300–311.

Toma, C. L., Hancock, J. T., & Ellison, N. B. (2008). Separating fact from fiction: An examination of deceptive self-presentation in online dating profiles. *Personality and Social Psychology Bulletin, 34*(8), 1023–1036.

Van Overwalle, F. (2006). Discounting and augmentation of dispositional and causal attributions. *Psychologica Belgica, 46*(3), 211–234.

Verhulst, B., Lodge, M., & Lavine, H. (2010). The attractiveness halo: Why some candidates are perceived more favorably than others. *Journal of Nonverbal Behavior, 34*(2), 111–117.

Watkins, L. M., & Johnston, L. (2000). Screening job applicants: The impact of physical attractiveness and application quality. *International Journal of Selection and Assessment, 8*(2), 76–84.

Weary, G., Stanley, M. A., & Harvey, J. H. (2012). *Attribution*. Springer Science & Business Media.