



An Initial Test of the Cosmetics Dehumanization Hypothesis: Heavy Makeup Diminishes Attributions of Humanness-Related Traits to Women

Philippe Bernard¹ · Joanne Content¹ · Lara Servais¹ · Robin Wollast¹ · Sarah Gervais²

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Abstract

Objectification theory suggests that sexualization has significant dehumanizing consequences for how perceivers see women. To date, research has mostly documented how sexualized bodies in the mass media are objectified and dehumanized. The purpose of the present work was to test the novel cosmetics dehumanization hypothesis (CDH), that is, that subtler manifestations of sexualization, such as heavy makeup, might influence the way people attribute humanness-related traits to women. Across four experiments, 1000 participants (mostly from the United Kingdom and United States) were asked to evaluate women's faces with or without heavy makeup. Consistent with the CDH, results showed that faces with makeup were rated as less human while using complementary indicators of dehumanization: They were perceived as possessing less humanness, less agency, less experience (Experiment 1), less competence, less warmth, and less morality (Experiments 2–4) than faces without makeup. This pattern of results was observed for faces of both models (Experiments 1–2) and ordinary women (Experiments 3–4). In Experiment 4, we manipulated the part of the face that wore makeup (eye makeup vs. lipstick) and found that faces with eye makeup were attributed the least amount of warmth and competence. A meta-analysis based on Experiments 2–4 confirmed the robustness of the findings, which were not moderated by either participant gender or sexual orientation. Whereas prior studies suggested that a focus on faces may serve as an antidote for objectification and related dehumanization, the present set of experiments indicates that this strategy might not always be effective.

Keywords Objectification · Dehumanization · Makeup · Sexualization · Agency · Mind · Social perception · Warmth · Competence · Morality

The face plays a crucial role in person perception. People spend more time looking at faces than other body areas (Hewig et al. 2008) because faces provide a wealth of information about other human beings including identity, emotions, behavioral intentions, health, and social categories (Ekman 1993; see also Hall et al. 2005). At the same time,

focusing on people's bodies is associated with seeing them as less human, including denying them competence, agency, and moral status (Gray et al. 2011; Loughnan et al. 2010). The present paper examines, for the first time, whether dehumanization can emerge when people focus on women's faces wearing heavy makeup.

Electronic supplementary material The online version of this article (<https://doi.org/10.1007/s11199-019-01115-y>) contains supplementary material, which is available to authorized users.

✉ Philippe Bernard
pbernard@ulb.ac.be

¹ Center for Social and Cultural Psychology, Université libre de Bruxelles, CP 122, Avenue F. Roosevelt, 50, 1050 Brussels, Belgium

² Subtle Prejudice Lab, University of Nebraska-Lincoln, Lincoln, NE 68588, USA

Objectification, Cosmetics Use, and Social Perception

Objectification theory suggests that women are reduced to their appearance, body, and sexualized body parts in Western cultures (Fredrickson and Roberts 1997). One of the primary contributors of this objectification of women is the pervasive sexualization of their bodies in the media. Indeed, 45.5% of young female actors on primetime television are sexualized (Smith et al. 2012) and 22% of television commercials contain

sexualized women (Messineo 2008). Likewise, 49% of the time, women who are shown on video game covers are sexualized (Burgess et al. 2007; for a review, see Ward 2016).

Consistent with the tenets of objectification theory, body sexualization fundamentally changes social perception. Sexualized women presented in underwear or lingerie and with sexually suggestive postures are visually processed in ways that resemble object perception (Bernard et al. 2018a; Bernard et al. 2018d, Bernard et al. 2019b), and they are attributed less agency (Cikara et al. 2011), less uniquely human traits (Vaes et al. 2011), less mind and moral status (Loughnan et al. 2010), and less warmth, competence, and morality (Bernard and Wollast 2019) by both male and female participants.

These lines of research have been informative regarding how people objectify and dehumanize people with sexualized bodies (for reviews, see Bernard et al. 2018c; Heflick and Goldenberg 2014; Ward 2016), but they have not illuminated how potentially subtler manifestations of sexualization, such as the use of heavy makeup, might affect humanness attributions. Further, these studies have primarily focused on women who appear in mass media (e.g., models), so we know considerably less about the attribution of humanness to “ordinary” women. To fill these gaps in the literature, the present paper tests the cosmetics dehumanization hypothesis (CDH), that is, that women’s faces with heavy makeup may be perceived as possessing less humanness than faces without makeup.

The CDH may seem at odds with the large literature inspired by objectification theory, suggesting that a focus on faces may serve as an antidote for objectification and related dehumanization (for reviews, see Bernard et al. 2018c; Ward 2016). Eye-tracking studies found that both men and women look at people’s faces for more time when they evaluate people’s personality than when they evaluate people’s physical appearance (Bernard et al. 2018b; Gervais et al. 2013). Relatedly, Loughnan et al. (2010) asked participants to view images of women having high facial prominence (faces only) versus low facial prominence (faces and sexualized bodies) versus zero facial prominence (headless sexualized bodies) and found that the attribution of mind decreased as face-focus decreased among male and female participants (see also Gray et al. 2011). Yet, makeup remained constant across conditions in these important studies, leaving open the possibility that women’s faces with heavy makeup may be attributed less humanness than women’s faces without makeup.

Research on sexualization, especially studies inspired by objectification theory, often focus on *bodily* sex appeal and sexual *body* parts. A closer look at media studies reveals that sexualization is communicated through bodily cues (Burgess et al. 2007; Smith et al. 2012), but also communicated through facial cues (e.g., puckering lips or batting eyelashes: Messineo 2008). Sexualization is promoted through heteronormative messages pressuring girls and women to sexualize themselves

in myriad ways, including emphasizing their sexiness through their behaviors, bodies, and faces (Smolak et al. 2014; see also American Psychological Association, Task Force on the Sexualization of Girls 2007).

Relatedly, attractiveness and sexualization are often linked, but not interchangeable constructs. Whereas an “attractive” appearance meets social norms regarding feminine appearance, sexualization refers specifically to a “sexy” appearance that represents a focus on sexiness and sexual appeal (Smolak et al. 2014). To illustrate, college women reported presenting themselves as attractive (e.g., through well-fitting clothing, and *light* makeup), but not sexy during the week when attending class, whereas they reported presenting themselves as sexy (e.g., through tight-fitting clothing, low-cut dresses, and *heavy* makeup) for weekend parties (Smolak et al. 2014). Thus, self-sexualization appears to be context-dependent and manifests not only in bodily sexualization such as wearing low-cut dresses, but also in face sexualization including wearing heavy makeup (Smolak et al. 2014). No known research, however, has examined whether these subtler means of sexualization, including heavy cosmetic use, affect the way perceivers attribute mind and humanness to women.

The CDH suggests that people will attribute less humanness to women wearing heavy makeup (vs. no makeup) because heavy makeup causes perceivers to focus more on their sexiness and sexual appeal rather than their internal characteristics. Consistent with this possibility, research has found that women’s faces with heavy makeup prompt perceptions of promiscuity and sexual availability among perceivers (Batres et al. 2018; Mileva et al. 2016) as well as lower attribution of morality and increased perceptions of frivolity and superficiality (Huguet et al. 2004; Workman and Johnson 1991; for a review, see Richetin et al. 2007). Although these findings are suggestive, they do not speak directly to the possibility that heavy cosmetic use undermines humanness attribution.

Overview of the Present Work

In the present work, we provide an initial test of the cosmetics dehumanization hypothesis (CDH). The CDH suggests that if faces contain heavy makeup (vs. no makeup), then they will be dehumanized. We conducted four experiments in which we manipulated the presence of heavy makeup and measured dehumanization. We initially tested the CDH in Experiments 1–2 with the use of models, as in previous objectification research (Bernard et al. 2018d; Loughnan et al. 2010), and then we examined its applicability to ordinary women in Experiments 3–4.

Seeing someone as less human is theorized as a multidimensional construct (Haslam 2006; Gray et al. 2007), so we used a multiple-pronged approach to measure dehumanization

in our experiments. First, mind perception theory (MPT; Gray et al. 2007) posits that people attribute minds to others as a function of two fundamental dimensions: agency (i.e., the capacity to act; e.g., self-control abilities) and experience (i.e., the capacity to feel; e.g., feeling emotional states such as hunger and fear). Both dimensions are core elements of humanness (for a review, see Waytz et al. 2010). To illustrate, people attribute more agency and experience to men and women than to robots and objects (Gray et al. 2007).

Second, a vast body of research in social psychology documents that warmth (i.e., friendly intentions) and competence (i.e., capability) drive the way people form impressions of others (Cuddy et al. 2008; Fiske et al. 2002). Although the stereotype content model (SCM; Fiske et al. 2002) was not originally proposed as a model of dehumanization, it subsequently was conceptualized in dehumanization terms (Fiske 2013). The SCM competence dimension overlaps with the evaluations of capability and cognitive capacities that are at the core of the MPT agency dimension, and the SCM warmth dimension, in which the judgments of emotionality are essential, parallels the MPT experience dimension. Just like MPT experience and agency dimensions, warmth and competence can be used as complementary indicators of dehumanization (Harris and Fiske 2009; Li et al. 2014). To illustrate, research has found that sexualized women are dehumanized: People attribute less agency, and experience (Gray et al. 2011), but also less warmth and competence to them (Bernard and Wollast 2019). Relatedly, people attribute fewer mental states to people who are perceived as low in the warmth and competence dimensions (Semin and Fiedler 1988). These people also trigger lower activation of the medial prefrontal cortex areas that typically activate when people engage in social cognition more generally (for reviews, see Harris and Fiske 2009; Mar 2011) and when people attribute warmth and competence more specifically (Harris and Fiske 2006, see also Ma et al. 2016; Van Overwalle et al. 2016).

We also measured perceived morality as another, complementary indicator of dehumanization in Experiments 2–4. Although many social perception researchers focus on competence and warmth, others have suggested that morality (i.e., trustworthiness) is a related, but distinct construct (Anderson and Sedikides 1991; Leach et al. 2007). Honest people are not necessarily friendly, and the opposite is also true. Whereas warmth refers to sociability traits, such as friendliness, that are associated with cooperative relations, morality refers to fairness traits, such as trustworthiness, that are critical to establishing just relations in which social values and ethics are respected. Importantly, morality has a primary role in forming impressions about individuals and groups (Brambilla and Leach 2014; Leach et al. 2007). In line with body sexualization and

appearance-focus objectification research (Bernard and Wollast 2019; Gray et al. 2011; Heflick and Goldenberg 2009; Loughnan et al. 2010), we utilized these measures to examine whether heavy makeup causes more dehumanization of women's faces. Using similar measures as in previous studies allows more direct comparisons between past research on body sexualization and the present research on face sexualization.

In sum, we hypothesized that faces with heavy makeup (vs. no makeup) will be dehumanized through diminished attributions of humanness, agency, and experience (Experiment 1) and diminished attributions of competence, warmth, and morality (Experiments 2–4). Recent calls for meta-analysis highlight the benefit of aggregating information across studies to provide a more robust and precise estimate of findings (Cumming 2014; Goh et al. 2016). In order to obtain a more accurate estimated effect size associated with the effects of makeup on our dehumanization measures, we also performed a meta-analysis on data from Experiments 2–4, all of which assessed attributions of competence, warmth, and morality as indicators of dehumanization. Finally, because neither participant gender nor participant age differences typically emerge in sexualization and dehumanization research (for a review, see Ward 2016), we did not expect that participant gender (and/or participant age and/or sexual orientation) would moderate the dehumanizing effects of heavy makeup. These variables were, thus, omitted from analyses in individual experiments (but were nonetheless integrated into our meta-analysis).

Experiment 1: Makeup and Attribution of Humanness, Agency, and Experience

In an initial investigation of the CDH, we manipulated facial makeup and measured humanness perceptions (Andrighetto et al. 2017), agency, and experience (Gray et al. 2007; Loughnan et al. 2010). We hypothesized that women's faces with heavy makeup would be evaluated as possessing less humanness (Hypothesis 1a), less agency (Hypothesis 1b), and less experience (Hypothesis 1c) than faces without makeup.

Method

Based on effect sizes found in studies investigating the effects of body sexualization (Loughnan et al. 2013) and appearance-focus (Heflick et al. 2011) on dehumanization, our sample size was calculated to detect a moderate size effect of makeup on the dehumanization measures ($d = .5$) with a power of .90, which translated into a required sample size of 140. Initially 138 UK participants completed an online survey via a link posted on Prolific and received monetary compensation of

.20£ (USD \$.30; hourly wage = 6£; USD \$9). No participant failed the two attention check questions included within the questionnaires (participants were asked to select a specific number on a 7-Likert point scale). However, two participants who indicated 7 on all items for the dependent variables, suggesting a lack of attention to the item content, were removed from the sample. We used this same approach in all of our experiments. The final sample was, thus, composed of 136 participants ($M_{\text{age}} = 24.08$, $SD = 3.36$, range = 18–29, 71 women; 89% of the sample reported being heterosexual). Participants were assigned to one of the two conditions (makeup, no makeup) and were asked to complete a questionnaire assessing their perceptions of three women. We utilized images of three women's faces with neutral facial expressions that were freely available on the internet. Virtual makeover technology (ModiFace®) was used to create three faces with heavy makeup (see the [online supplement](#)). As a function of the condition, participants saw either three pictures of faces with heavy makeup or the same three pictures without makeup for 10 seconds.

Participants were asked to rate the extent to which the woman appearing in the picture brought to mind words associated with humanness (“Please rate the extent to which this woman called to your mind each of the following words”), with words including human being, person, individual, and subject on a 7-point Likert-type scale ranging from 1 (*Not at all*) to 7 (*Very much*) (Andrighetto et al. 2017). Although the humanness scale displayed acceptable reliability ($\alpha = .74$), deleting the item “subject” substantially improved the reliability ($\alpha = .91$). Consequently, this one item was removed from the scale.

For mind attribution, we used a modified version of the Mind Perception Scale (Gray et al. 2007), which includes two subscales (i.e., agency and experience). For the agency subscale, we selected items that loaded highest on the agency factor and that loaded lowest on the experience factor (self-control, acting morally, and memory; $\alpha = .92$) in the original research (Gray et al. 2007). We used the same criterion for the experience subscale (hunger, fear, and pain; $\alpha = .96$). For both subscales, the instructions were “Please rate the extent to which you think this woman is capable of experiencing the following mental activities” on a 7-point Likert-type scale ranging from 1 (*Not at all*) to 7 (*Very much*).

At the end of the questionnaire, participants completed two manipulation check questions. Specifically, they viewed the pictures for a second time and were asked to rate the extent to which each woman was wearing a lot of makeup (“This person is wearing a lot of makeup”) and was sexualized (“This person is depicted in a sexualized way”) on a 7-point Likert-type scale ranging from 1 (*Not at all*) to 7 (*Very much*). The questionnaire ended after a series of demographic questions.

Results

Each of the two manipulation check measures was submitted to a separate one-way Analysis of Variance (ANOVA) including makeup (makeup, no makeup) as a between-participant factor. The manipulation checks confirmed that faces with makeup ($M = 5.81$, $SD = .92$) were rated as wearing a lot of makeup to a greater extent than faces without makeup ($M = 2.60$, $SD = 1.10$), $F(1, 134) = 334.24$, $p < .001$, $\eta_p^2 = .71$. Faces with makeup ($M = 3.45$, $SD = 1.48$) were also rated as more sexualized than faces without makeup ($M = 1.83$, $SD = 1.00$), $F(1, 134) = 57.25$, $p < .001$, $\eta_p^2 = .30$. Relatedly, makeup and sexualization were positively correlated, $r(134) = .55$, $p < .001$.

A multivariate analysis of variance (MANOVA) revealed a main effect of the makeup condition on the humanness measures (humanness, agency, and experience), $F(3, 132) = 4.58$, $p = .004$, $\eta_p^2 = .09$. Each dehumanization measure was then submitted to a separate one-way ANOVA including makeup (heavy makeup, no makeup) as a between-participant factor. Consistent with Hypotheses 1a, 1b, and 1c, univariate ANOVAs revealed main effects of makeup on humanness, agency, and experience (see Table 1): Faces with heavy makeup, compared to those without makeup, were seen as possessing less humanness, $F(1, 134) = 12.71$, $p = .001$, $\eta_p^2 = .09$, less agency, $F(1, 134) = 8.54$, $p = .004$, $\eta_p^2 = .06$, and less experience, $F(1, 134) = 4.03$, $p = .047$, $\eta_p^2 = .03$.

Discussion

Experiment 1 provided initial evidence for the CDH: Women with heavy makeup were attributed lower attributions of humanness, agency, and experience. One potential limitation of Experiment 1 is that our measures of dehumanization were quite obvious. Although our design was based on prior research, participants may have presumed that we expected women with heavy makeup to be seen as less human. Thus, we utilized a less apparent, but still conceptually related measure of dehumanization in Experiment 2.

Table 1 Descriptive statistics for humanness, agency and experience as a function of makeup conditions, Experiment 1

	No makeup <i>M</i> (<i>SD</i>)	Makeup <i>M</i> (<i>SD</i>)
Humanness	5.75 (1.08) _a	5.02 (1.29) _b
Agency	5.36 (1.07) _a	4.82 (1.07) _b
Experience	4.79 (1.62) _a	4.26 (1.45) _b

Means across each row with different subscripts are significantly different, $ps < .05$

Experiment 2: Heavy Makeup and the Fundamental Dimensions of Social Perception

In Experiment 2, we aimed to conceptually replicate Experiment 1 by examining attribution of competence, warmth, and morality as fundamental dimensions of social perception (Fiske et al. 2002; Leach et al. 2007) and as additional indicators of dehumanization (Bernard and Wollast 2019; Heflick et al. 2011). Based on the CDH, we hypothesized that women's faces with heavy makeup would be seen as possessing less competence (Hypothesis 2a), less warmth (Hypothesis 2b), and less morality (Hypothesis 2c) than faces without makeup.

Method

Initially 242 UK participants completed Experiment 2. Attention checks were inadvertently omitted. However, a visual inspection of the data revealed that one participant indicated 7 for all items on all scales, suggesting a lack of attention to the item content. Using the same approach as Experiment 1, this participant was removed from further analysis. The final sample included 241 participants ($M_{\text{age}} = 23.80$, $SD = 4.19$, range = 18–61; 138 women; 82% of the sample reported being heterosexual). The sample size was calculated based on the mean effect size associated with the main effects of makeup on dehumanization measures observed in Experiment 1 ($d = .43$) to achieve a power greater than .90. The procedure was the same as Experiment 1. The survey link was posted on Prolific and was not available to participants who completed Experiment 1. Following Heflick et al. (2011), we used two items to assess competence (intelligent, capable; $\alpha = .90$), warmth (kind, friendly; $\alpha = .91$), and morality (sincere, trustworthy; $\alpha = .86$). For all pictures, participants were given the following instructions: "Please rate the extent to which you think the following traits are representative of her" on a 7-point Likert-type scale ranging from 1 (*Not at all*) to 7 (*Very much*). The questionnaire ended with the same manipulation check questions as Experiment 1 and a series of demographic questions.

Results

The manipulation checks confirmed that faces with heavy makeup ($M = 5.45$, $SD = 1.13$) were rated as wearing a lot of makeup to a greater extent than faces without makeup ($M = 2.34$, $SD = 1.21$), $F(1, 239) = 419.42$, $p < .001$, $\eta_p^2 = .64$. Faces with heavy makeup ($M = 3.25$, $SD = 1.62$) were also rated as more sexualized than faces without makeup ($M = 1.76$, $SD = 1.13$), $F(1, 239) = 70.11$, $p < .001$, $\eta_p^2 = .23$, indicating that cosmetics use was associated with higher sexualization. Relatedly, the amount of

makeup was positively correlated with sexualization, $r(239) = .61$, $p < .001$.

A MANOVA revealed a main effect of the makeup condition on the humanness-related measures (competence, warmth, and morality), $F(3, 237) = 2.93$, $p = .034$, $\eta_p^2 = .036$. Consistent with Hypotheses 2a, 2b, and 2c, univariate ANOVAs revealed effects of makeup on attribution of competence, warmth, and morality (see Table 2). Faces with heavy makeup were perceived as possessing less competence, $F(1, 239) = 4.65$, $p = .032$, $\eta_p^2 = .02$, less warmth, $F(1, 239) = 7.02$, $p = .009$, $\eta_p^2 = .03$, and less morality, $F(1, 239) = 8.35$, $p = .004$, $\eta_p^2 = .03$, than faces without makeup.

Discussion

Together, Experiments 1 and 2 provide evidence for the CDH. As in Experiment 1, women's faces with heavy makeup were seen as less human—less warm, less competent, and less moral—relative to women's faces without makeup. One limitation of Experiments 1 and 2 is that we used models, similar to most research in the area of objectification. However, this similarity raises the possibility that the CDH may be limited to models and not generalized to less selectively attractive, ordinary women. We addressed this issue in Experiment 3.

Experiment 3: Heavy Makeup and Ordinary Women's Faces

Although Experiments 1 and 2 provided strong evidence for the CDH, these two studies suffered from poor ecological validity with respect to ordinary women given that we relied on images of models' faces. Although our work represents an important contribution given the degree to which people are exposed to attractive models in media (e.g., advertising), we wanted to further test the applicability of the CDH to less attractive, ordinary women. In Experiment 3, we relied on pictures of real women's faces, which were indeed rated as less attractive than models' faces. (Information about the pilot testing of these stimuli can be found in the [online supplement](#)). As in Experiment 2, we hypothesized that faces with heavy makeup would be evaluated as possessing less competence

Table 2 Descriptive statistics for competence, warmth, and morality as a function of makeup conditions, Experiment 2

	No makeup <i>M</i> (<i>SD</i>)	Makeup <i>M</i> (<i>SD</i>)
Competence	4.90 (.82) _a	4.67 (.81) _b
Warmth	4.53 (.81) _a	4.26 (.79) _b
Morality	4.53 (.78) _a	4.24 (.77) _b

Means across each row with different subscripts are significantly different, $ps < .05$

(Hypothesis 2a), less warmth (Hypothesis 2b), and less morality (Hypothesis 2c) than faces without makeup.

Method

Initially 245 participants completed Experiment 3. Using the same approach as Experiments 1 and 2, seven participants who failed two attention check items and one participant who indicated 1 on all items assessing the dependent variables were excluded from further analysis. The final sample thus included 237 participants ($M_{\text{age}} = 24.90$, $SD = 3.01$, range = 18–29; 178 women, 86% of the sample included UK participants; 81% of the sample reported being heterosexual). We included a similar sample size as Experiment 2, assuming similar effect sizes. The procedure was the same as in Experiment 2, except that we used pictures of ordinary women's faces. We took these pictures ourselves, and these women agreed that these pictures could be used for research purposes. We again used ModiFace™ to create the stimuli for the sexualized face condition (see the [online supplement](#)). The survey link was again posted on Prolific. Finally, we used the same measures of competence ($\alpha = .87$), warmth ($\alpha = .92$), and morality ($\alpha = .80$), as well as the same manipulation check and demographic questions in Experiment 2.

Results

The manipulation checks confirmed that faces with heavy makeup ($M = 4.93$, $SD = 1.09$) were rated as wearing a greater amount of makeup than with faces without makeup ($M = 2.14$, $SD = .88$), $F(1, 235) = 474.12$, $p < .001$, $\eta_p^2 = .67$. Faces with heavy makeup ($M = 2.68$, $SD = 1.40$) were also rated as more sexualized than faces without makeup ($M = 1.47$, $SD = .68$), $F(1, 235) = 73.20$, $p < .001$, $\eta_p^2 = .24$. As in Experiments 1 and 2, the amount of makeup was positively correlated with sexualization, $r(235) = .57$, $p < .001$.

A MANOVA revealed a main effect of the makeup condition on the humanness-related measures (competence, warmth, and morality), $F(3, 233) = 8.84$, $p < .001$, $\eta_p^2 = .10$. A series of univariate ANOVAs revealed effects of makeup on attributions of competence and warmth (see [Table 3](#)). Consistent with Hypotheses 2a and 2b, faces with makeup were perceived as possessing less competence, $F(1, 235) = 8.68$, $p = .004$, $\eta_p^2 = .04$, and less warmth, $F(1, 235) = 12.50$, $p < .001$, $\eta_p^2 = .05$, than faces without makeup. However, inconsistent with Hypothesis 3c, faces with makeup were seen as possessing similar morality as faces without makeup, $F(1, 235) = 1.26$, $p = .26$, $\eta_p^2 = .005$.

Discussion

In Experiment 3, we conceptually replicated, for the most part, the results of Experiments 1 and 2. We also extended our

consideration of the CDH from female models who were very attractive to real, ordinary women. Consistent with the CDH, we found that women with makeup were perceived as less competent and less warm than women with faces without makeup. Together, Experiments 1–3 speak to the robustness of the support for the CDH. The hypothesis has been replicated across several measures of dehumanization as well as for models and ordinary women. Given that the null effect on morality in Experiment 3 was unexpected, we included this measure again in Experiment 4. Additionally, if a focus on sexual appeal is, at least in part, responsible for dehumanization of women who are subtly sexualized through makeup, then it would be valuable to identify which facial parts may be driving the dehumanization effects. Experiment 4 aimed to manipulate the face part that contained makeup to disentangle whether the dehumanization occurring as a result of makeup use is mostly driven by eye makeup versus lipstick.

Experiment 4: Eye Makeup, Lipstick, and Focus on Face Parts

Although Experiments 1–3 provided support for the CDH with multiple conceptual replications, in Experiment 4 we aimed to examine the role of the face part (eye vs. mouth) containing makeup on dehumanization, specifically whether dehumanization is driven more by eye makeup (Hypothesis 3a) versus lipstick (Hypothesis 3b). A secondary purpose of Experiment 4 was to examine whether eye makeup and lipstick increase the focus on face parts (Hypothesis 4), with a heightened focus on the eyes in the eye makeup condition (Hypothesis 4a) and with a heightened focus on the mouth in the lipstick condition (Hypothesis 4b) as compared to the no makeup condition.

Method

Given that we used approximately 120 participants per condition in Experiments 2 and 3, we did the same in Experiment 4 assuming that 360 participants would be needed given the presence of three conditions. Initially 375 participants completed Experiment 4. Six participants who failed two attention

Table 3 Descriptive statistics for competence, warmth, and morality as a function of makeup conditions, Experiment 3

	No makeup <i>M</i> (<i>SD</i>)	Makeup <i>M</i> (<i>SD</i>)
Competence	4.54 (.63) _a	4.27 (.77) _b
Warmth	4.24 (.61) _a	3.93 (.73) _b
Morality	4.16 (.65) _a	4.06 (.74) _a

Means across each row with different subscripts are significantly different, $ps < .05$

checks and two additional participants who completed the questionnaire carelessly (indicating 1 or 7 on all dehumanization questions) were excluded from further analysis. The final sample, thus, included 367 participants ($M_{\text{age}} = 24.77$, $SD = 3.18$, range = 18–29; 238 women, 70% of the sample included UK participants and 24% included US participants; 84% of the sample reported being heterosexual). The procedure was similar to Experiments 1–3. However, we included an eye makeup only condition as well as a lipstick only condition (instead of the combined heavy eye makeup and lipstick condition in Experiments 1–3) in addition to the no makeup condition (see the [online supplement](#)). The survey link was again posted on Prolific and was unavailable to participants from previous experiments.

The dehumanization measures, which were the same as in Experiment 3, had very good reliabilities ($\alpha = .86$ for competence; $\alpha = .92$ for warmth; $\alpha = .89$ for morality). Finally, toward the end of the questionnaire, participants were asked to indicate for all pictures whether they focused on face parts. To assess the focus on face parts, participants were asked to answer the following two questions: “When I first saw this picture, I mostly focused on the eyes” and “When I first saw this picture, I mostly focused on the mouth.” Rating were done using a 7-point Likert-type scale ranging from 1 (*Not at all*) to 7 (*Very much*). The questionnaire ended with manipulation check questions and a series of demographic questions.

Results

The manipulation checks indicated a main effect of the makeup conditions on the amount of makeup, $F(2, 364) = 42.95$, $p < .001$, $\eta_p^2 = .19$, and sexualization ratings, $F(2, 364) = 4.72$, $p = .009$, $\eta_p^2 = .03$. Women in the eye makeup condition ($M = 3.67$, $SD = 1.18$) were evaluated as wearing a greater amount of makeup than women in the lipstick condition ($M = 3.09$, $SD = 1.33$), $p < .001$, and women in the lipstick condition were evaluated as wearing more makeup than women in the no makeup condition ($M = 2.29$, $SD = .98$), $p < .001$. Moreover, faces in the eye makeup ($M = 1.93$, $SD = 1.01$) and lipstick conditions ($M = 1.92$, $SD = 1.05$) were evaluated as being sexualized to the same extent ($p > .99$), and they were both perceived as being more sexualized than faces without makeup ($M = 1.60$, $SD = .87$), $ps < .03$. As in Experiments 1–3, the amount of makeup was positively correlated with sexualization, $r(365) = .45$, $p < .001$ (and this pattern emerged in the three makeup conditions; all $ps < .001$).

A MANOVA revealed a main effect of the makeup conditions on the humanness-related measures (competence, warmth, and morality), $F(6, 726) = 4.19$, $p < .001$, $\eta_p^2 = .03$. Univariate ANOVAs revealed effects of makeup on attributions of competence, $F(2, 364) = 3.77$, $p = .024$, $\eta_p^2 = .02$, and warmth, $F(2, 364) = 8.13$, $p < .001$, $\eta_p^2 = .04$, whereas the effect of makeup conditions on morality was again not

significant, $F(2, 364) = 2.75$, $p = .065$, $\eta_p^2 = .02$ (see Table 4). Consistent with Hypothesis 3a (and thus inconsistent with Hypothesis 3b), post-hoc tests indicated that faces with eye makeup were attributed the least amount of competence and warmth. For competence, faces with eye makeup were evaluated as possessing less competence than faces without makeup ($p = .046$) and faces with lipstick ($p = .048$), whereas ratings of competence for faces without makeup and faces with lipstick did not differ ($p > .99$). Regarding the warmth dimension, faces with eye makeup were rated as possessing less warmth than faces without makeup ($p < .001$). Faces with eye makeup and faces with lipstick were rated as equally warm ($p = .18$). Regarding morality, post-hoc tests did not reveal significant differences between the makeup conditions (all $ps > .051$).

Finally, a MANOVA revealed a main effect of the makeup conditions on eyes and mouth focus, $F(4, 728) = 19.26$, $p < .001$, $\eta_p^2 = .10$. ANOVAs revealed effects of makeup on eyes, $F(2, 364) = 15.43$, $p < .001$, $\eta_p^2 = .08$, and mouth focus, $F(2, 364) = 22.13$, $p < .001$, $\eta_p^2 = .11$. Consistent with Hypothesis 3a, participants focused to a greater extent on the eyes when viewing faces with eye makeup ($M = 4.45$, $SD = 1.17$) than when viewing faces without makeup ($M = 3.96$, $SD = 1.33$; $p = .006$), and they focused on the eyes to a greater extent when viewing faces without makeup than in the lipstick condition ($M = 3.58$, $SD = 1.17$), $p = .036$. Finally, consistent with Hypothesis 4b, participants focused to a greater extent on the mouth in the lipstick condition ($M = 3.27$, $SD = 1.15$) than in the no makeup ($M = 2.50$, $SD = 1.08$), $p < .001$, and eye makeup conditions ($M = 2.50$, $SD = .89$), $p < .001$.

In sum, Experiment 4 showed that faces with eye makeup were attributed the least amount of competence and warmth. In addition, makeup caused an increased focus on the eyes in the eye makeup condition and on the mouth in the lipstick condition.

Meta-Analysis on Competence, Warmth and Morality (Experiments 2–4)

Because we had some conflicting findings across experiments (e.g., heavy makeup influenced morality in some experiments,

Table 4 Descriptive statistics for competence, warmth, and morality as a function of makeup conditions, Experiment 4

	No makeup <i>M</i> (<i>SD</i>)	Eyes makeup only <i>M</i> (<i>SD</i>)	Lipstick only <i>M</i> (<i>SD</i>)
Competence	4.49 (.71) _a	4.28 (.69) _b	4.49 (.67) _a
Warmth	4.34 (.75) _a	3.97 (.72) _b	4.14 (.67) _{a,b}
Morality	4.27 (.80) _a	4.06 (.70) _a	4.15 (.69) _a

Means across each row with different subscripts are significantly different, $ps < .05$

but not others), we conducted a meta-analysis to assess the robustness of the support for the CDH, in line with current recommendations (Cumming 2014; Giner-Sorolla 2012; Goh et al. 2016). The meta-analysis only included data from Experiments 2–4 because we included different dependent variables in Experiment 1. First, we examined whether faces with makeup were perceived as wearing more makeup and as being more sexualized than faces without makeup (i.e., manipulation check questions). Second, and more importantly, we compared whether women with makeup (heavy makeup in Experiments 2–3; eye makeup and lipstick conditions in Experiment 4) were evaluated as possessing less competence, less warmth, and less morality (Experiments 2–4) than women without makeup. Importantly, this analysis also aimed to examine whether the effect of cosmetics on ascription of humanness was more or less pronounced as a function of the experiment. We also tested whether participants' gender moderated the effect of makeup on dehumanization. In total, the overall sample size for this meta-analysis included 845 participants (554 women; $M_{\text{age}} = 24.53$, $SD = 3.48$, range = 18–61; 82% of the sample reported being heterosexual).

Manipulation Checks

Regarding the amount of makeup and sexualization (i.e., manipulation check questions), we performed two separate ANOVAs including makeup (makeup, no makeup) as a between-participant factor. Consistent with the results found in the individual experiments, we found a main effect of makeup conditions on the perceived amount of makeup. Not surprisingly, faces with makeup were indeed rated as wearing more makeup than faces without makeup, $F(1, 843) = 474.62$, $p < .001$, 95% CI [1.82, 2.18], Cohen's $d = 1.50$. Moreover, faces with makeup were rated as being more sexualized than faces without makeup, $F(1, 843) = 96.14$, $p < .001$, 95% CI [.66, .99], Cohen's $d = .67$. Also consistent with the correlational patterns found in each individual experiment, the amount of makeup was positively associated with sexualization, $r(843) = .57$, $p < .001$, $r^2 = .33$. In sum, these results corroborated the notion that women's faces with heavy makeup are perceived as more sexualized than women's faces without makeup (Messineo 2008; Smolak et al. 2014).

Effects of Makeup on Dehumanization Measures

A MANOVA including makeup (makeup, no makeup), participants' gender (male, female), and experiment (experiment 2, experiment 3 and experiment 4) as between-participant factors was conducted to examine the main effects of makeup on the dehumanization measures (competence, warmth, and morality) and to test whether the effects of makeup were moderated by participants' gender and experiment. This analysis

revealed a main effect of makeup on the dehumanization measures, $F(3, 831) = 7.73$, $p < .001$, Cohen's $d = .33$, and this effect was not moderated by either participants' gender, $F(3, 831) = 1.87$, $p = .13$, Cohen's $d = .17$, or experiment, $F(6, 1664) = 1.81$, $p = .09$, Cohen's $d = .15$.

For each dehumanization measure, we then performed separate ANOVAs including makeup (makeup, no makeup), participants' gender (male, female), and experiment (experiment 2, experiment 3 and experiment 4) as between-participant factors (see Table 5). Faces with makeup were evaluated as possessing less competence, $F(1, 833) = 14.73$, $p < .001$, 95% CI [−.33, −.11], Cohen's $d = .26$, less warmth, $F(1, 833) = 21.20$, $p < .001$, 95% CI [−.37, −.15], Cohen's $d = .32$, and less morality, $F(1, 843) = 12.18$, $p = .001$, 95% CI [−.31, −.09], Cohen's $d = .24$, than faces without makeup. These effects did not differ across Experiments 2–4 (all $ps > .26$ and all Cohen's $d < .12$) and were not moderated by participants' gender (all $ps > .16$ and all Cohen's $d < .10$). Moreover, adding participants' age as a covariate in this model did not change the pattern of results reported previously.

Although the individual experiments did not enable us to test whether the results were moderated by sexual orientation, we examined the interaction between sexual orientation and makeup condition for the dehumanization measures and these interactions were not significant (all $ps > .08$ and all Cohen's $d < .12$). Relatedly, we conducted a separate MANOVA to examine whether the effects of makeup were significant among participants who reported being bisexual, gay or lesbian ($n = 149$; 71 participants in the no makeup conditions and 78 participants in the makeup conditions). This analysis revealed a main effect of makeup on the dehumanization measures, $F(3, 145) = 5.16$, $p = .002$, Cohen's $d = .65$, and the separate ANOVAs further showed the expected makeup effects for each dehumanization measure (all $ps < .01$, all Cohen's $d > .54$). Overall, this analysis suggests that the effects of makeup on dehumanization occurred regardless of participants' sexual orientation.

Table 5 Descriptive statistics for competence, warmth, and morality as a function of makeup conditions, meta-analysis, Experiments 2–4

	No makeup <i>M</i> (<i>SD</i>)	Makeup <i>M</i> (<i>SD</i>)
Competence	4.65 (.75) _a	4.43 (.75) _b
Warmth	4.37 (.74) _a	4.07 (.74) _b
Morality	4.32 (.76) _a	4.13 (.72) _b

Means across each row with different subscripts are significantly different, $ps < .05$. The results of eye makeup and lipstick conditions in Experiment 4 were aggregated in the makeup conditions for the meta-analysis

Additional Exploratory Analysis

The critical test of the CDH was to examine whether women's faces with heavy makeup were perceived as possessing less humanness-related traits than women's faces without makeup. Our data provide ample support in favor of this hypothesis. Given the robust main effects of heavy makeup on both sexualization and dehumanization measures, one may wonder whether the dehumanizing effect of makeup was mediated by sexualization.

Given that we did not hypothesize such a mediational model a priori, we did not, as a result, either perform or report these analyses in the individual experiments. Nonetheless, we examined this possibility when analyzing the meta-analytic data, but correlations between sexualization and dehumanization measures were not significant (all $ps > .30$). In sum, makeup increased sexualization and caused dehumanization but sexualization was not the mechanism underlying the dehumanization of faces with makeup.

General Discussion

The present set of studies provided an initial test of the cosmetics dehumanization hypothesis (CDH). Based on a novel integration of objectification theory (Fredrickson and Roberts 1997) and recent research on cosmetics use and social perception (Batres et al. 2018; Mileva et al. 2016), we posited and found that women's faces with heavy makeup were denied humanness, agency, and experience (Experiment 1) as well as were seen as less competent, warm, and moral (Experiments 2–4). These effects emerged for models (Experiments 1 and 2) as well as ordinary women (Experiments 3 and 4) and were similar across experiments. In addition, these results were not moderated by participants' gender.

Limitations and Future Research

Objectification scholars have posited that sexual objectification occurs when a woman is reduced to her body parts (Bartky 1990; Fredrickson and Roberts 1997), a phenomenon that is associated with dehumanization. Supporting this view, past research has found that body sexualization leads to dehumanization (Bernard and Wollast 2019; Loughnan et al. 2010; Vaes et al. 2011). Although objectification theory has suggested and found that a focus on the face can serve as an antidote for the dehumanizing effects of body sexualization (Loughnan et al. 2010), data supporting the CDH suggest that focusing on the face may not always attenuate dehumanization. Our work is the first known to find that cosmetics, particularly heavy makeup, can lead to the dehumanization of women's faces. We conceptually replicated this effect across

experiments with models' and ordinary women's faces as well as with different dehumanization measures, suggesting that this phenomenon is quite robust. However, given that we did not assess how heavy makeup affects the attributions of humanness, agency, and experience to ordinary women, we invite researchers to do so to further test the robustness and replicability of our findings.

Interestingly, in Experiment 4, women with eye makeup were dehumanized more than women without makeup and (for the most part) women with lipstick. One might have posited that makeup accentuating the eyes (vs. lips) would lead to greater humanization (rather than dehumanization), given adages suggesting that the eyes are the window to the soul. One possibility is that eye makeup directs attention toward the global eye region while simultaneously interfering with the ability for perceivers to focus specifically on the eyes (e.g., pupils) to make inferences about humanness-related traits. Stated differently, people may have focused on the makeup visible above and below the eyes instead of focusing on the eyes themselves, which is critical to attributing mind to others (Baron-Cohen et al. 2001). Further research using eye-tracking devices could directly examine this and related possibilities. We would expect people to focus more on the pupils for faces without eye makeup than faces with makeup (despite directing greater attention to the overall eye region with a focus on cosmetics above and below the eyes).

An important avenue for future research will be to identify the mechanisms that underlie the dehumanization of faces with heavy makeup. Based on the objectification literature, one might have expected that this dehumanizing effect was driven by sexualization. Across all experiments, faces with heavy makeup were systematically rated as more sexualized than faces without makeup. Yet, ratings were under the midpoint of the scale, suggesting that heavy makeup had a small effect on sexualization ratings. These results are nonetheless consistent with the notion that sexualization can be communicated through facial cues (Messineo 2008; Smolak et al. 2014), which trigger perceptions of promiscuity and sexual availability (Batres et al. 2018; Mileva et al. 2016). However, the meta-analysis failed to find significant correlations between sexualization and dehumanization measures. In sum, although heavy makeup both increased sexualization and caused dehumanization, the effect of makeup on dehumanization was not mediated by sexualization.

Nonetheless, we believe that further research should explore sexualization as a psychological mechanism underlying the dehumanization of women's faces. Indeed, it is worth noting that the formulation of our sexualization item was vague ("Is this person depicted in a sexualized way?") so that we do not know what specific characteristics participants actually evaluated when answering that question. Sexualization is a multi-faceted concept (Hatton and Trautner 2011), and our general item did not assess different facets of sexualization

such as perceived sexual readiness and sexual availability. Consistent with research which found that heavy makeup is connoted as conveying promiscuity and superficiality (Mileva et al. 2016; Workman and Johnson 1991), the dehumanizing effect of heavy makeup might be mediated by these specific sexualization-related variables. Consistent with this possibility, a recent study found a significant correlation between the amount of makeup and perceived socio-sexuality; that is, the more makeup women wore, the more people perceived these women as being comfortable and enjoying “casual” sex with different partners (Batres et al. 2018). In addition, recent research showed that sexual availability and dehumanization were correlated (Riemer et al. 2018).

Experiment 4 showed that eye makeup and lipstick were associated with a focus on these face regions, which provided preliminary evidence that makeup might cause people to appraise women’s faces less globally and more locally, focusing more on women’s facial parts than their entire face. Recent research found that sexualized bodies, akin to objects, are visually processed less globally (Bernard et al. 2018a, 2018d; Bernard et al. 2019b) and more locally (Bernard et al. 2018a) than nonsexualized bodies at a neural level (for a review, see Bernard et al. 2018c). Importantly, it has been recently found that faces with heavy makeup are processed less configurally than faces without makeup (Bernard et al. 2019a). Future investigations might use such paradigms to assess whether diminished configural processing is a cognitive mechanism driving the CDH. This possibility is consistent with research which has found that less configural face processing predicts lower attribution of humanness (Hugenberg et al. 2016; Wilson et al. 2018). In addition, recent research showed that sexualized women are more likely to be categorized as doll-like objects (Vaes et al. 2019), so it would be interesting to examine whether the dehumanization of women with makeup might be mediated by perceptions of women as being doll-like at an early stage of person perception.

We compared the attributions of humanness to faces with heavy versus no makeup. Using such experimental conditions associated with extreme variations in makeup intensity was used as a first test of the CDH. One strength of this makeup manipulation is that we used the same makeup parameters while using virtual makeover technology, thereby ensuring that the makeup characteristics were the same for all faces. However, it might be interesting to rely on more nuanced makeup manipulations to test the generalizability of our findings and examine whether dehumanization might occur at lower levels of makeup intensity. Addressing this question would require gradually manipulating the amount of makeup (see Etcoff et al. 2011). Future researchers might also want to examine whether our findings can be replicated while controlling for knowledge of makeup techniques and for how realistic and common such makeup manipulations are evaluated by perceivers.

Additionally, subsequent investigations also might test whether other factors related to face sexualization, such as flirtatious facial expressions (e.g., puckering), trigger dehumanization. The participants who took part in our experiments were mostly British and American. In line with recent research that found that the dehumanizing effects of sexualization are more acute in Western nations than in Eastern countries (Gervais et al. 2015; Loughnan et al. 2015; but see Wollast et al. 2018), future researchers might want to replicate our findings within different nations to further assess the robustness of the CDH. Finally, an interesting research question would be to identify the contexts in which makeup is more versus less expected, acceptable, or even normatively required, and how such situational features may affect social impressions in real social interactions.

Practice Implications

In addition to the scientific novelty and theoretical implications of our work, the present studies also have practical implications. Whereas most efforts to curb objectification have highlighted the importance of refocusing attention from the body to the face, our paper suggests that this strategy may not be efficacious for women wearing heavy makeup. For example, advertisements that align the viewer’s gaze to women’s faces may still result in dehumanization if these faces contain heavy makeup (e.g., bright red lipstick; smoky eyes).

Because women’s faces are naturally makeup free, we have considered the absence of makeup as the default, baseline condition and heavy makeup as the manipulated factor that prompts dehumanization. However, an alternate interpretation of our findings is that *not* wearing heavy makeup increases humanization. Of course, perceivers are solely responsible for the dehumanization of women wearing cosmetics (e.g., Batres et al. 2018), but it may also be useful for women to understand that they may still be dehumanized even when they are not wearing sexy clothing if they are still wearing heavy makeup (e.g., wearing heavy makeup with a business suit at work). Wearing lighter makeup might be another relevant strategy because light makeup can both increase attractiveness perceptions and sometimes trigger positive impression formation (Etcoff et al. 2011; Graham and Jouhar 1981), in contrast to the dehumanizing effects of heavy makeup evidenced in our paper.

Conclusions

Whereas prior studies suggested that a focus on faces may serve as an antidote for objectification and related dehumanization (Loughnan et al. 2010), the present set of experiments indicates that this strategy might not always be effective. Our

work provides the first known support of the cosmetics dehumanization hypothesis and suggests that heavy makeup affects the way people attribute humanness-related traits to women's faces. We hope that researchers will expand on our findings to further understand the causes and consequences of this phenomenon and will pinpoint effective interventions to reduce this subtle form of dehumanization occurring in the minds of perceivers.

Acknowledgements This research was supported by the National Fund for Scientific Research (FRS-FNRS, Belgium).

Funding Information This research was funded by the Belgian Fund for Scientific Research (grant number: 22340437).

Compliance with Ethical Standards The experiments presented in this paper involved participants recruited on Prolific pending monetary compensation. At the start of each study, a brief description of the impression formation was given. And participants were allowed to stop completing the study anytime.

Conflicts of interest We declare having no potential conflicts of interest.

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