Objectifying The Body Positive Movement: The Effects of Sexualizing and Digitally Modifying Body-Positive Images on Instagram

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Highlights:

- Body-positive images shared on social media can enhance positive body image.

- We experimentally document how the beneficial effects of these images can be diminished.

- Sexualized images led to more support of traditional beauty ideals and self-serving reasons.

- Sexualized images also instigated other-objectification.

- Images thought to be digitally modified were less effective and more negatively evaluated.

Abstract

The body positive movement on social media seeks to challenge narrow conceptualizations of beauty that media outlets traditionally perpetuate and reinforce. Through a 2 x 2 between-subjects online experiment, we examined how the nature and authenticity of body-positive imagery on social media affects female viewers and their evaluations of body-positive content (N = 425, M_{age} = 35.47, SD_{age} = 13.52). Specifically, participants viewed and reacted to a series of 10 body-positive images of women on social media varying in their degree of sexualization (sexualized vs. non-sexualized) and evidence of digital photo modifications (modification icons vs. no modification icons). A control group that featured landscape images was also included. Results indicate body-positive images that are considered sexualized and are believed to be digitally modified can undercut the movement's intended aims: Participants who viewed body-positive images that were sexualized (vs. non-sexualized) and included photo modification icons (vs. no modification icons) reported greater endorsement of traditional beauty ideals (e.g., thinness) and thought the images were shared for self-serving reasons (e.g., to gain likes/shares/endorsements); these relationships were mediated by the extent to which viewers believed these images were sexualized and digitally modified. Further, results indicate that sexualized body-positive images can instigate sexual objectification of others and oneself. Those who viewed control images (vs. experimental body-positive images) produced significantly fewer sexually objectifying words about others and themselves. Implications for both viewers and producers (e.g., individuals, corporations) of body-positive imagery on social media are discussed in light of objectification theory.

Keywords: body positive; objectification; sexualization; photo modification; Instagram

1. Introduction

In recent years, the body positive movement has rapidly evolved into a social media trend in which typically young women share photos of their bodies and messages of body acceptance to a social network (Cohen, Irwin, et al., 2019; Cwynar-Horta, 2016; Lazuka et al., 2020). Body-positive content on social media oftentimes emulates the key characteristics or definitions of positive body image, such as more diverse and naturalistic portrayals of women (Cohen, Irwin, et al., 2019; Lazuka et al., 2020). However, the movement has come under scrutiny for mimicking problematic aspects of sociocultural ideals of appearance and beauty, such as hypersexualized depictions and the use of digital photo editing techniques (Cwynar-Horta, 2016; Gill & Elias, 2014). As such, the present study sought to determine how viewers evaluate and are affected by body-positive imagery on social media that they perceive to be sexualized and digitally modified.

1.1. The Body Positive Movement on Social Media

The body positive movement on social media grew out of concerns about the negative effects of exposure to narrowly defined beauty norms mainstream media outlets commonly perpetuate (e.g., magazines, advertisements, television; Afful & Ricciardelli, 2015; Cwynar-Horta, 2016; Sastre, 2014). Considerable research has focused on the harmful effects of exposure to the thin ideal and hypersexualized depictions of women (Grabe et al., 2008; Groesz et al., 2002; Want, 2009; Ward, 2016) and media representations have long been the target of such research and criticism (American Psychological Association, 2007; Levine & Murnen, 2009). These depictions reinforce that sexual attractiveness and thinness (rather than competencies or talents) are valued characteristics for women, despite the fact that these standards are generally difficult or impossible to attain (Fredrickson & Roberts, 1997).

In response, social media platforms have increasingly become an outlet for dispensing images and content that challenge sociocultural ideals of appearance and promote acceptance of diverse body types. For instance, body-positive imagery tends to include bodies of diverse sizes, shapes, and appearances (e.g., larger bodies, cellulite, rolls, stretch marks; Cohen, Irwin, et al., 2019; Cwynar-Horta, 2016; Lazuka et al., 2020). The body positive movement was popularized through online forums and photo-sharing social media outlets (Rodgers et al., 2020), specifically Instagram (Cohen, Irwin, et al., 2019; Cwynar-Horta, 2016; Lazuka et al., 2020; Webb et al., 2017). In contrast to traditional mass media, social media content is user-generated, involves fewer gatekeepers to entry, and allows users to promote their content to a broad online network.

1.2. Critiques of the Body Positive Movement

Although evidence exists that body-positive content on social media can have positive effects such as increasing body satisfaction and appreciation (e.g., Cohen, Fardouly, et al., 2019; Hendrickse et al., 2020; Tiggemann et al., 2020), there is concern that certain aspects of the movement may have unintended effects (see Cohen et al., 2020). Although there is a push for more authentic or realistic depictions of women, many individuals and corporations (purportedly diversifying beauty standards) still exploit digital photo-editing techniques (e.g., Photoshop; Murphy & Jackson, 2011; Murray, 2012) and oftentimes display women who only slightly deviate from normative ideals of attractiveness (Kadir & Tidy, 2011; Rodrigues, 2012).

A review of body-positive images on Instagram indicates that images tend to adhere to traditional norms of femininity found in advertising and pornography, such as the use of photo editing and sexually suggestive poses (Cwynar-Horta, 2016). Two recent content analyses of body-positive content on Instagram similarly found images are oftentimes appearance-focused and objectifying (e.g., revealing clothing); at the same time, the majority of these images

conformed to definitions of positive body image, including the portrayal of diverse body sizes (Cohen, Irwin, et al., 2019; Lazuka et al., 2020). Though these findings demonstrate progress in body size inclusion, there are some ways that body-positive images may mirror, rather than challenge, narrow definitions of beauty, attractiveness, and sexualization (Sastre, 2014; Rodgers et al., 2020).

Nonetheless, a variety of studies consistently document that young women's exposure to average-size or plus-size women, compared to thin-ideal women, has a positive effect on body image outcomes (Clayton et al., 2017; Diedrichs & Lee, 2011; Halliwell & Dittmar, 2004; Hendrickse et al., 2020; Holmstrom, 2004). A recent experiment found that exposure to thin-ideal women on Instagram, compared to average-size women, led to greater body dissatisfaction, less body appreciation, and more appearance comparison (Tiggemann et al., 2020). Another experiment found that exposure to body-positive Instagram images led to a more positive mood, greater body satisfaction and appreciation, and more positive attitudes toward body-positive content, relative to thin-ideal or appearance-neutral images; however, both those exposed to body-positive and thin-ideal Instagram images experienced heightened state self-objectification relative to appearance-neutral images (Cohen, Fardouly, et al., 2019). Given the potential benefits and prominent criticisms of the body positive movement (particularly on social media), it is important to consider how people react to body-positive images that vary in ways critics have argued are problematic. The following sections explain two areas that warrant further attention related to the body positive movement on social media: sexual objectification of women and perceptions of photo modification.

1.3. Sexual Objectification of Women

A broad body of scholarly work focuses on sexual objectification of women and its associated negative consequences (Calogero et al., 2011; Fredrickson & Roberts, 1997; Szymanski et al., 2011). Objectification theory posits that women are socialized, through media representations and social interactions, to view themselves as objects valued on their physical appearance (i.e., self-objectification; Fredrickson & Roberts, 1997). Self-objectification is linked to detrimental outcomes, including body shame, anxiety, depression, and eating disorders (Moradi & Huang, 2008). Past research indicates that women who appear in a sexualized manner are more likely to be objectified, dehumanized, and considered more sexually experienced (e.g., Puvia & Vaes, 2013; Vaes et al., 2011), as indicated in a comprehensive review of objectification theory and related research by Roberts and colleagues (2018). People tend to ascribe less charitable attributions to sexualized women—such as lower competence, intelligence, agency, self-respect, and morality—and viewing sexualized women can lead to heightened self-objectification (Cikara et al., 2011; Daniels, 2012; Daniels & Wartena, 2011; Daniels & Zurbriggen, 2016; Glick et al., 2005; Graff et al., 2012; Gurung & Chrouser, 2007; Halliwell et al., 2011; Heflick & Goldenberg, 2009; Loughnan et al., 2010; Puvia & Vaes, 2013; Strelan & Hargreaves, 2005; Vaes et al., 2011; Vaillancourt & Sharma, 2011).

As previously noted, recent content analyses suggest that body-positive imagery emulates themes of sexual objectification, including sexually suggestive poses, specific body part focus, and revealing clothing (e.g., swimwear, lingerie; Cwynar-Horta, 2016; Cohen, Irwin, et al., 2019; Lazuka et al., 2020; Webb et al., 2017). Although empirical research well documents the impact of sexualization with thin images of women, it is worth exploring to what extent exposure to sexualized body-positive imagery impacts not only viewers' evaluations of other women, but also perceptions of themselves. Specifically, it is important to explicitly examine how

perceptions of sexualization affect the way body-positive images are evaluated. Recent work by

Biefeld et al. (2021) investigated from an intersectional perspective how (a) sexualized media

depictions of women can elicit different reactions depending on the characteristics of the

perceiver and the target, and (b) how sexualization and appearance orientation are related, yet

distinct constructs. They note how plus-sized women can be seen as less sexually attractive (e.g.,

Fikkan & Rothblum, 2012) and less sexually relevant. As such, sexualized body-positive images

of plus-sized women might not only differ from non-sexualized body-positive images in the

degree to which they are sexualized, but also might differ in that the former (sexualized)

functions to violate expectations (see Burgoon, 1993) while the latter (non-sexualized) does not;

such differences can be compounded when considering body-positive images intentionally

deviate from traditional media depictions of women by highlighting and embracing body "flaws"

and including more women of color (see Cohen, Irwin, et al., 2019). By focusing exclusively on

perceptions of sexualization in this study, we hope to isolate how this particular perception of

body-positive images influences important outcomes, establishing a baseline for future

intersectional work to draw upon. Based on past research, we expected the following:

> H1: Those who viewed sexualized (vs. non-sexualized) body-positive images would
>
> sexually objectify women in the images to a greater extent, and this relationship would be
>
> mediated by higher levels of perceived sexualization.
>
> H2: Those who viewed sexualized (vs. non-sexualized) body-positive images would
>
> experience heightened state self-sexualization, and this relationship would be mediated
>
> by higher levels of perceived sexualization.
>
> H3: Those who viewed sexualized (vs. non-sexualized) body-positive images would
>
> report (a) less favorable attitudes toward the photos, (b) more perceived self-interested

reasons for sharing the images, and (c) greater endorsement of traditional beauty ideals;

and these relationships would be mediated by higher levels of perceived sexualization.

1.4. Photo Modification on Social Media

Another concern with body-positive imagery is the extent to which images are modified.

Just as mainstream media images are commonly Photoshopped and digitally altered, research

suggests most people presume social media photos to be edited in some way (Marwick, 2015).

By comparison, popular clothing companies, like Aerie, have executed major social media

advertising campaigns (e.g., *Aerie Real*) to advocate for more inclusive and realistic depictions

of women by using more diverse models and unretouched images to promote their products

(Convertino et al., 2019). Rodgers and colleagues (2019) found that Aerie is considered more

authentic and elicited more positive attitudes and purchase intentions compared to other

advertising campaigns.

One perspective that can inform our understanding of how digitally modified images

affect viewers is warranting theory (DeAndrea, 2014; Walther & Parks, 2002). Warranting

theory was developed to explain/predict how people evaluate the authenticity of information that

appears online. A central premise of warranting theory is that people consider who can control or

manipulate information that appears online (i.e., its warranting value). When information online

appears to benefit an entity (e.g., person, business, organization), viewers consider whether the

entity controlled or manipulated the information; greater perceived control or manipulation leads

viewers to discount the information and its authenticity (DeAndrea & Vendemia, 2019).

Researchers have examined the effects of various forms of information control and distortion

online such as entities selectively deleting user posts, modifying user contributions, and

obfuscating the true source of messages. These forms of information control have been

demonstrated to influence how people evaluate the authenticity of information in a variety of contexts; the more people perceive that individuals (Carr et al., 2017; Hong et al., 2012), companies (DeAndrea & Vendemia, 2016; Johnson et al., 2015), or political organizations (Vendemia et al., 2019) control information that (respectively) portrays these entities favorably online, the more viewers discount the veracity of such messages.

In the context of viewing thinspiration images on Instagram, researchers have experimentally demonstrated that the more viewers believed thin, sexualized images of women were digitally modified, the less they internalized the thin ideal and liked these images (Vendemia & DeAndrea, 2018). In essence, the perceived inauthenticity of the images may have dampened the negative effects such images typically produce. Germane to the current study, the more viewers believe body-positive images shared on Instagram are digitally modified, the less authentic they should find the images to be, thus undermining the efficacy of the body positivity imagery and messaging. That is, whereas recognizing the inauthenticity of thin, sexualized images can help reduce the propagation of unrealistic and potentially harmful beauty ideals, recognizing the inauthenticity of body-positive images should reduce the positive influence the images are intended to have in promoting more inclusive beauty norms. As such, we predicted:

> H4: Those who viewed body-positive images with indications of photo modification (vs. without indications of photo modification) would report (a) less favorable attitudes toward the photos, (b) more perceived self-interested reasons for sharing the images, and (c) greater endorsement of traditional beauty ideals; and these relationships would be mediated by higher levels of perceived photo modification.

Finally, to explore the overall effects body-positive images (that vary in perceived sexualization and digital modification) have on viewers, we propose the following research question:

RQ1: How are those who viewed body-positive images (that vary in perceived

sexualization and digital modification) affected by such images relative to those who

viewed images containing no body-positive content (control group)?

2. Method

2.1. Participants

A U.S. sample of 457 women was recruited through Prime Panels; 32 participants were

excluded from analyses for the following reasons: 16 did not meet the inclusion criteria for the

study (i.e., female; adult at least 18 years of age; Instagram user with an active account), 13

failed a single-item attention check, and 3 provided incoherent responses in the open-ended

measures. Thus, the final sample included 425 participants.

Ages ranged from 18 to 79 ($M = 35.47$, $SD = 13.52$). Participants identified as "White"

(67%), "Black/African American" (11.8%), "Hispanic/Latina" (6.4%), "Asian/Asian American"

(6.4%), "American Indian or Alaska Native" (0.5%), "Multiracial" (6.4%), and "Other" (1.4%).

2.2. Stimulus Materials

Each body-positive image (a total of 10 in each condition, except for the control group)

featured a full body shot of a woman. Consistent with prior experimental work and content

analyses, the body-positive images were operationalized as women who displayed larger bodies

(e.g., U.S. women's "plus-size" clothing, visible body fat, overweight or obese; see Cohen,

Fardouly, et al., 2019), appeared to be 20 to 30 years of age (Cohen, Irwin, et al., 2019; Lazuka

et al., 2020), and were of different races/ethnicities (50% non-White women; Cohen, Irwin, et

al., 2019). The images also contained a body-positive hashtag above the photos (e.g.,

#bodypositivity, #bodyacceptance). Images were sourced from publicly available Instagram

accounts that contained body-positive hashtags (e.g., #bopo).

For each condition (except for the control group), sexualization was manipulated by choosing separate images of the same women that appeared either in a sexually suggestive manner or not, to hold the sources constant. In the sexualized conditions, all women conformed to definitions of sexual objectification, specifically wearing minimal clothing (e.g., lingerie, bikini), exposing a high proportion of their body (at least 75%), and engaging in a sexually suggestive pose (e.g., seductive gaze, arching back, tilting head toward camera; Aubrey et al., 2009; Bell et al., 2018). In the non-sexualized conditions, the same women appeared fully clothed and were not posed in an inherently sexually suggestive manner (e.g., sitting, standing).

Evidence of photo modification was manipulated through different descriptions of symbols in the cover story and the presence of icons under the photos. None of the images were clearly altered or digitally modified by the researchers in any way. The modification conditions included icons that indicated the images were edited in Photoshop and applied an Instagram filter. The no modification conditions included a "no modifications" icon to indicate the photos were not altered.

The control condition included landscape images without humans, consistent with control conditions used in body image research (e.g., Brown & Tiggemann, 2016; Cohen, Fardouly, et al., 2019; Tiggemann & Zaccardo, 2015).

2.3. Measures

2.3.1. Perceived sexualization. The extent to which the photos were viewed as sexually objectifying was assessed via three items created for purposes of this study on seven-point semantic differential scales; these items were averaged to create an overall score, with higher scores suggesting more sexualization. A factor analysis revealed a single-factor structure that explained 68.32% of the variance with an eigenvalue of 2.05 and factor loadings ranging from

.76 to .90. The stem stated, "The women in the photos appeared in a way that was…" with the following endpoints: Not sexual/Very sexual, Not revealing/Very revealing, and Fully clothed/Minimally clothed (Cronbach's α = .76).

2.3.2. Perceived photo modification. The extent to which the photos seemed digitally modified was assessed with six Likert-style items (1 = *strongly disagree*; 7 = *strongly agree*); these items were averaged to create an overall score, with higher scores reflecting stronger beliefs that the photos were modified. The original scale items were previously validated with an undergraduate student sample and a nationally representative U.S. adult sample (DeAndrea & Carpenter, 2016). Subsequent work adapted these items to focus more narrowly on photos with a female undergraduate student sample, yielding good internal consistency (α = .88; Vendemia & DeAndrea, 2018). Sample items include: "The women edited their photos," "The women digitally altered their photos," and "The women changed how their photos originally looked" (α = .94).

2.3.3. Attitudes toward photos. Attitudes toward the source and image were assessed via 10 items on seven-point semantic differential scales (averaged) based on McCroskey and Tevan's (1999) source credibility scale and items developed specifically for purposes of this study. A factor analysis supported a single-factor structure that explained 62.87% of the variance with an eigenvalue of 6.29 and factor loadings ranging from .74 to .84. Higher scores indicate more favorable attitudes toward the photos. One stem stated, "The people sharing the photos are…" with the following endpoints: Dishonest/Honest, Untrustworthy/Trustworthy, Not credible/Credible, Unprofessional/Professional, Unintelligent/Intelligent, and Incompetent/Competent. Another stem stated, "The photos are…" with the endpoints: Low quality/High quality, Bad/Good, Unappealing/Appealing, and Negative/Positive (α = .93).

2.3.4. Self-interested reasons. The extent to which participants ascribed self-serving reasons for why the source shared the images on Instagram was measured with five items (Vendemia & DeAndrea, 2018; 1 = *strongly disagree*; 7 = *strongly agree*); items were averaged, with higher scores reflecting more self-promotional rationale for sharing images. Vendemia and DeAndrea (2018) originally developed these items with a female undergraduate student sample, yielding a single-factor structure and good internal consistency (α = .84). The stem stated, "They shared these images on Instagram…" with the following reasons: "to gain likes/shares/endorsements," "to show off," "to brag," "to attract a mate or romantic partner," and "to sell something" (α = .81).

2.3.5. Endorsement of beauty ideals. The extent to which women endorsed traditional Western beauty ideals was measured using 15 items (averaged) from the Importance of Beauty, Importance of Thinness, and Appearance > Competence subscales of Forbes et al.'s (2007) Endorsement of Beauty Ideals Scale (1 = *strongly disagree*; 7 = *strongly agree*); higher scores reflect greater endorsement of Western beauty ideals. The construct validity and reliability of the subscales have been previously established with a female undergraduate student sample. Example items are: "A thin woman deserves more respect than a heavy woman," "It is more important for a woman to be pretty than to be smart," "The most important asset a woman can have is her looks," "Thin women are more attractive than other women," and "In most situations, a woman will get further by being attractive than by being competent" (α = .96).

2.3.6. Other-objectification (hashtags). The extent to which participants focused on physical appearance in the photos was assessed through analyzing the hashtags they suggested for each post (30 total hashtags). As participants viewed images, they were asked to provide three hashtags (#) for each photo. Two undergraduate research assistants then independently

coded their responses into one of six primary categories (Fredrickson et al., 1998): 1 = *physical appearance* (e.g., #beautiful, #fat, #sexy, #thicc, #plussize, #curvy, #cute, #biggirl, #chubby, #ugly, #hair, #fashion, #makeup); 2 = *demographic labels* (e.g., #female, #Latina, #blackgirl, #person); 3 = *roles* (e.g., #student, #athlete); 4 = *traits and interests* (e.g., #smart, #adventurous, #confident); 5 = *states* (e.g., #happy, #tired); 6 = *none of the above/unclear*. Words related to body positivity and the body positive movement (e.g., #bopo, #bodypositive, #BeautyRedefined, #effyourbeautystandards, #bodyacceptance) were coded as a separate category (0 = *body positive*).

Coders were masked to the experimental conditions. Any discrepancies were resolved through discussion with a third research assistant and the lead author. Responses coded as *physical appearance* (1) were added together for each coder and then averaged to produce an objectification score. Other-objectification scores ranged from 0 to 28, with higher scores indicating greater objectification; inter-coder reliability was high (Cohen's $\kappa = .95$).

Other-sexualization (hashtags). Hashtags coded as *physical appearance* (1) were then coded for sexualization: 0 = *non-sexual*; 1 = *sexual*. Responses coded as *sexual* (1) were added together to determine the extent to which participants generated sexually-charged reactions to the images, ranging from 0 to 20.50 ($\kappa = .94$). Examples of sexual hashtags include: #boobs, #naked, #sexy, #milf, #booty, #exposed, and #sex.

2.3.7. State self-objectification (TST). The extent to which participants thought about their own physical appearance after viewing the images was assessed with 20 open-ended statements, a modified version of the Twenty Statements Test (TST). Participants were asked to indicate how the photos made them feel about themselves and their identity by responding to "I am" statements (Fredrickson et al., 1998). Using the same coding scheme as the other-

objectification measure, research assistants then coded their responses into one of six categories:

1 = *physical appearance*; 2 = *demographic labels*; 3 = *roles*; 4 = *traits and interests*; 5 = *states*; 6

= *none of the above/unclear*. Responses coded as *physical appearance* (1) were added together

for each coder and then averaged to produce a state self-objectification score for each participant.

State self-objectification scores ranged from 0 to 13.50, with higher scores indicating greater

state self-objectification (κ = .97).

   State self-sexualization (TST). Similar to the other-objectification (hashtags) scores,

words related to *physical appearance* (1) were then coded for sexualization: 0 = *non-sexual*; 1 =

sexual. Responses coded as *sexual* (1) were added together to determine the extent to which

participants described themselves with sexually-charged language, ranging from 0 to 5 (κ = .94),

with higher scores indicating greater self-sexualization.

2.4. Procedure

   Study procedures were approved by the Institutional Review Board (IRB) at the lead

author's university. Participants were told they would view and react to 10 photos shared on

Instagram. They were randomly assigned to one of five experimental conditions (i.e., sexualized

women + modification icons; sexualized women + no modification icons; non-sexualized women

+ modification icons; non-sexualized women + no modification icons; control). Participants read

a cover story that described symbols that indicated photos were digitally modified or not.

Specifically, one group was told that "We are interested in your thoughts about features that

indicate to viewers when someone has edited or digitally modified their photos (for example,

photo retouching or airbrushing) with Photoshop and/or Instagram filters" and the following

symbols are used to show when a photo "has been altered." The other group was told "We are

interested in your thoughts about features that indicate to viewers when someone has not edited

or digitally modified their photos in any way (for example, unretouched or raw photos)" and the

following symbols are used to show when a photo "has not been altered."

They were also instructed to contribute three hashtags to each photo (as a measure of

other-objectification and to ensure they spent time on the page before advancing to the next

image). After viewing the images, participants completed an online questionnaire that assessed

perceptions of sexualization and photo modification for the experimental groups (excluding

control group), as well as attitudes toward the photos, self-interested reasons for sharing the

images, endorsement of beauty ideals, and state self-objectification for all conditions. Prime

Panels then compensated participants in the amount that they agreed to prior to entering the

study.

3. Results

SPSS Statistics (Version 26) was used for all analyses. Our analytic plan includes two

main parts. First, analyses of variance (ANOVAs) were run to test if the experimental inductions

operated as anticipated. Mediation analyses were then used to see if the experimental factors

affected outcomes through specific, proposed mediating variables (see Figure 1 and Figure 2).

This approach allows for a direct estimation of the degree to which our anticipated causal factors

(i.e., perceptions of sexualization and perceptions of photo modification) affect each

conceptually and empirically distinct (see Table 1 for correlation matrix) outcome measure. All

mediation analyses were conducted with the PROCESS macro on SPSS (Hayes, 2018) which

allows for the estimation of indirect effects and their associated 95% bias-corrected bootstrap

confidence intervals, based on 10,000 resamples. Participants' age served as covariate in all

analyses. Please see Table 1 for zero-order correlations, means, and standard deviations. No

interaction effects were detected or predicted between sexualization and photo modification, thus

the following analyses are reported separately.

3.1. Sexualization

The first set of formal hypotheses examined the effects of sexualization in body-positive images. A one-way ANOVA was conducted to test the effect of exposure to sexualized (vs. non-sexualized) body-positive images on perceptions of sexualization. Women who were exposed to sexualized images reported heightened perceptions of sexualization, $M = 4.96$, $SD = 1.15$, relative to women who were exposed to non-sexualized images, $M = 2.94$, $SD = 1.35$, $F(1, 332) = 238.27$, $p < .001$, $\eta^2 = .40$.

Mediation analyses were then used to estimate the indirect effects the sexualization induction had on participants' sexual objectification of other women captured via sexual hashtags (H1), state self-sexualization (H2), attitudes toward photos (H3a), self-interested reasons for sharing the images (H3b), and endorsement of beauty ideals (H3c). The PROCESS macro Model 4 (Hayes, 2018) was run to estimate the indirect effects. Results indicate significant indirect effects of the sexualization induction, through participants' perceptions of sexualization, on their sexual objectification of other women (H1), point estimate = 1.35, 95% CI = [0.74, 2.06]; state self-sexualization (H2), point estimate = 0.16, 95% CI = [0.04, 0.30]; perceived self-interested reasons for sharing the images (H3b), point estimate = 0.57, 95% CI = [0.33, 0.82]; and endorsement of beauty ideals (H3c), point estimate = 0.45, 95% CI = [0.18, 0.73]. H1, H2, H3b, and H3c were supported. No support was found for attitudes toward photos (H3a), point estimate = -0.08, 95% CI = [-0.32, 0.17].

3.2. Photo Modification

The next set of hypotheses examined the effects of photo modification on body-positive images. A one-way ANOVA was conducted to test the effect of exposure to body-positive

images with modification icons (vs. no modification icons) on perceptions of photo modification. The results show a significant difference in perceptions of photo modification in the predicted direction. Women who were exposed to images that displayed evidence of photo modification reported heightened perceptions of photo modification, $M = 4.04$, $SD = 1.58$, compared to women who were exposed to images that did not display evidence of photo modification, $M = 2.98$, $SD = 1.46$, $F(1, 332) = 42.21$, $p < .001$, $\eta^2 = .11$.

Mediation analyses were again used to estimate the indirect effects the photo modification induction had on participants' attitudes toward photos (H4a), self-interested reasons for sharing the images (H4b), and endorsement of beauty ideals (H4c). The PROCESS macro Model 4 (Hayes, 2018) was run to estimate the indirect effects. Results indicate significant indirect effects of the photo modification induction, through participants' perceptions of photo modification, on their attitudes toward photos, point estimate = -0.12, 95% CI = [-0.22, -0.03]; perceived self-interested reasons for sharing the images, point estimate = 0.36, 95% CI = [0.22, 0.53]; and endorsement of beauty ideals, point estimate = 0.35, 95% CI = [0.20, 0.53]. H4a, H4b, and H4c were supported.

Post-hoc Monte Carlo power analyses for mediation models (Schoemann et al., 2017) determined our sample achieved sufficient power for most outcomes based on conventional values (power = .81-1.00). Ideally, a larger sample is needed to achieve adequate power for the effects of exposure to sexualized (vs. non-sexualized) women, through perceived sexualization, on attitudes toward photos and state self-sexualization.

Finally, to address RQ1, we examined how each experimental condition compared to the offset control group that viewed landscape images on every outcome. Table 2 includes a summary of descriptive statistics by experimental condition and the results of pairwise

comparisons across conditions for each variable, controlling for age. Overall, there were not

significant main effects across conditions for the attitudes toward photos, self-interested reasons

for sharing the images, or endorsement of beauty ideals outcome measures. However, differences

were detected in levels of self- and other- objectification and sexualization via the open-ended

hashtags and TST, such that the control condition objectified themselves and others to a lesser

extent than the experimental conditions. Participants who viewed the control images produced

significantly fewer objectifying and sexual hashtags than the experimental body-positive image

conditions. Moreover, the control group reported fewer self-objectifying statements than most

body-positive image conditions (see Table 2).

4. Discussion

The goal of this study was to determine how female viewers react to varying degrees of

sexualization and indications of photo modification in body-positive imagery on social media.

The results indicate that the more viewers felt women in the photos were sexually objectified, the

more they sexually objectified themselves, the more they thought these images were shared for

self-serving reasons (e.g., to gain likes/shares/endorsements, to sell something) and endorsed

traditional beauty ideals (e.g., beauty, thinness, appearance). However, no differences were

detected in attitudes toward the photos. The results also indicate that the more viewers believed

the images were digitally modified, the more they negatively evaluated the photos, thought the

images were shared for self-serving reasons, and endorsed traditional beauty ideals, as

anticipated. Collectively, the results of the mediation analyses provide specific empirical

evidence that the perceived sexualization and modification of body-positive images substantively

influence how viewers evaluate and respond to body-positive images on Instagram. Lastly, those

in the control condition objectified themselves and others to a lesser extent than the experimental

conditions. These findings have important practical implications for female viewers and

producers (e.g., individuals, corporations) of body-positive imagery on social media, as well as

contribute to the literature on the sexual objectification of women.

Theoretical and Practical Implications

Through the lens of objectification theory, body-positive imagery on social media might

be considered inherently objectifying (see Roberts et al., 2018). The ways in which the

movement manifests on social media (e.g., Instagram) is highly visual and body-focused

(Cwynar-Horta, 2016; Cohen, Irwin, et al., 2019; Lazuka et al., 2020). Our research found that

sexualized body-positive images are more likely to elicit sexually-objectifying reactions by

audience members relative to non-sexualized body-positive images. Hashtags were used to

qualitatively gauge viewers' natural responses to body-positive images. In practice, hashtags are

a common means for social media users to reach a target audience and categorize online content.

Our findings provide further support that sexualized portrayals of women—even those that

challenge traditional beauty ideals—can lead to other-objectification and dehumanization

(Cikara et al., 2011; Daniels, 2012; Daniels & Wartena, 2011; Daniels & Zurbriggen, 2016;

Glick et al., 2005; Graff et al., 2012; Gurung & Chrouser, 2007; Halliwell et al., 2011; Heflick &

Goldenberg, 2009; Loughnan et al., 2010; Puvia & Vaes, 2013; Strelan & Hargreaves, 2005;

Vaes et al., 2011; Vaillancourt & Sharma, 2011); these findings are noteworthy given content

analyses that document the ubiquity of sexualized body-positive images on social media

(Cwynar-Horta, 2016; Cohen, Irwin, et al., 2019; Lazuka et al., 2020; Webb et al., 2017).

Women who post sexualized body-positive content on social media may receive sexually

objectifying reactions in the form of appearance comments. It is also important to note that

positive body image is hindered by appearance commentary (Tylka & Wood-Barcalow, 2015)

because these comments can lead to dysfunctional appearance investment and self-objectification (Calogero et al., 2009). As research has predominantly focused on appearance commentary in face-to-face encounters (Calogero et al., 2009; Herbozo et al., 2017), future work should consider how appearance commentary and reactions impact social media users, in particular, that may be less visible and more ephemeral than what exists online. Building on past objectification research that typically categorizes open-ended responses on whether or not words focus on physical appearance (see Fredrickson et al., 1998), we further categorized appearance-focused responses based on their sexual nature. Future work should continue to develop more nuanced coding schemes to capture different facets of sexual objectification (e.g., Aubrey et al., 2009) and body-positive themes (e.g., Cohen, Irwin, et al., 2019; Lazuka et al., 2020; Tylka & Wood-Barcalow, 2015).

Interestingly, although viewers generated more sexual language to describe sexualized targets, they did not evaluate the women more negatively or experience heightened self-objectification relative to those who viewed non-sexualized women, in contrast with past research (Cikara et al., 2011; Daniels, 2012; Daniels & Wartena, 2011; Daniels & Zurbriggen, 2016; Glick et al., 2005; Graff et al., 2012; Gurung & Chrouser, 2007; Halliwell et al., 2011; Heflick & Goldenberg, 2009; Loughnan et al., 2010; Puvia & Vaes, 2013; Strelan & Hargreaves, 2005; Vaes et al., 2011; Vaillancourt & Sharma, 2011). One possibility is that this occurred because, unlike thin-ideal imagery, sexualized body-positive images are not as personally threatening or considered intrasexual competition (e.g., Vaillancourt & Sharma, 2011). Moreover, self- and other-objectification scores were relatively stable across all experimental conditions that viewed women compared to the control group (see Table 2). This is consistent with a recent experiment that found both body-positive and thin-ideal images on Instagram

heightened objectification relative to control images (Cohen, Fardouly, et al., 2019). Together, these findings suggest merely seeing female targets on social media that have a strong visual orientation (e.g., Instagram) may prime thoughts about one's appearance. Future research may wish to consider other ways of communicating body-positive themes on social media (e.g., text-based captions or hashtags; Betz & Ramsey, 2017; Hendrickse et al., 2020; Tiggemann et al., 2020) and how a combination of visual and textual content can assist or detract from the body positive movement's aims (Gill & Elias, 2014; Webb et al., 2017).

In terms of warranting theory, past research documents that cues that heighten perceptions of modification usually diminish the authenticity of information and result in less favorable evaluations (e.g., DeAndrea et al., 2018; Vendemia et al., 2018). More recently, warranting theory has been applied to understand the effects of photo modification on women's body image (Vendemia & DeAndrea, 2018). In the case of thin-ideal imagery, evidence of photo modification diminished the negative effects of exposure to such content. In this study, the less authentic body-positive images seemed, due to perceived digital modifications, the more viewers embraced traditional beauty ideals and discounted the body-positive messaging. That the images were held constant across the modification conditions in our study speaks to the strength and importance of directly assessing how *perceptions* of modification can meaningfully influence how images are evaluated and internalized.

A number of studies on digitally modified images have explored the role of disclaimer and warning labels yielding mixed support for their effectiveness (e.g., Ata et al., 2013; Bury et al., 2014, 2016a, 2016b; Fardouly & Holland, 2018; Slater et al., 2012; Tiggemann et al., 2013, 2014, 2017; Veldhuis et al., 2014). There are some critical differences between related past research and our work. First, most research on modified imagery has focused on idealized

depictions of women (e.g., the thin ideal). The main reason for highlighting image modifications

is because these images are unattainable for most women which leaves them feeling negatively

about themselves. Our work suggests these effects are not limited to thin-ideal images and could

diminish the value of more diverse and inclusive body types represented online. Second, our

study more directly assesses the effects of digital modifications by specifically measuring the

extent to which participants actually perceived the images to be digitally modified and formally

including this measure in our analyses. This allows researchers to not only understand the degree

to which particular cues successfully indicate modifications have occurred, but also allows for a

direct examination of how variability in perceptions of image modification affects important

outcomes (e.g., attitudes toward photos, endorsement of beauty ideals). Third, the way in which

we operationalized photo modification cues with icons was to reduce the possibility of

psychological reactance in viewers. Research on warning and disclaimer labels typically employs

text-based descriptions to indicate modified images pose a threat to viewers rather than simply

suggesting alterations have occurred.

From a practical standpoint, social media sites, like Instagram, have photo editing tools

embedded within the platforms that enable users to alter images with relative ease. The

accessibility of these tools challenges the body positive movement by making it possible to

create flawless (albeit unrealistic) images. Social media users who wish to instill positive body

image in their audience members should consider ways in which it is clear that their images have

not been edited. Companies have also recognized the opportunity to market their products and

services with more realistic and relatable portrayals of women. For example, Aerie has

effectively developed clear messaging about their unretouched photo practices (Convertino et al.,

2019; Rodgers et al., 2019). At the same time, other brands, like Dove, have been widely

criticized in their attempts to capitalize on principles of the body positive movement to promote

beauty products (Bissell & Rask, 2010; Murray, 2013). Future research should consider how

people evaluate commercially-oriented, body-positive imagery relative to individuals or social

media influencers. It would also be interesting to empirically investigate if product type matters

(e.g., beauty products), as some companies have been censured for their contradictory messaging

(Gill & Elias, 2014).

In general, our study provides an initial step in identifying boundaries conditions for

effectively communicating body-positive ideals on social media. The fact that viewers endorsed

prominent beauty ideals, such as thinness, to a greater extent when exposed to sexualized or

modified images suggests some images undermine the intent of the body positive movement. On

one hand, the movement does present more inclusive and diverse bodies that are traditionally

underrepresented in the mainstream media. On the other hand, postfeminist critiques and content

analyses of social media content indicate there is still a heavy focus on appearance (Cohen,

Irwin, et al., 2019; Cwynar-Horta, 2016; Gill & Elias, 2014; Lazuka et al., 2020; Webb et al.,

2017). As positive body image is associated with mental and physical health benefits (Andrew et

al., 2016a, 2016b; Calogero et al., 2019; Swami et al., 2018; Tylka, 2018), it is critical to better

understand reactions to this movement on social media.

Given that popular hashtags (e.g., #bopo) function to organize content on Instagram at a

very broad level, critiques of the body positive movement are especially relevant to consider

because content that undermines the movement can be directly linked to the movement via

hashtags. Indeed, recent content analyses of body-positive images on social media have created

an important foundation to understand the current strengths and limitations of the movement

(Cohen, Irwin, et al., 2019; Cwynar-Horta, 2016; Lazuka et al., 2020; Webb et al., 2017). As

previously noted, these content analyses suggest body-positive images commonly reflect traditional feminine norms of beauty, attractiveness, and sexualization. Future studies might seek to examine if the sexualization of body-positive content can be explained by recent integrations of objectification theory and system justification theory that clarify why those disadvantaged in society comply with status quo preferences against their own interests (Roberts et al., 2018).

A strength of the current study is our focus on comparing different types of body-positive content that the aforementioned content analyses clearly indicate exist online. To date, most experimental studies have focused on comparisons between thin-ideal and body-positive (average-size or plus-size) imagery (e.g., Betz & Ramsey, 2017; Bissell & Rask, 2010; Clayton et al., 2017; Cohen, Fardouly, et al., 2019; Diedrichs & Lee, 2011; Halliwell & Dittmar, 2004; Hendrickse et al., 2020; Ogden et al., 2020; Tiggemann et al., 2020; Williamson & Karazsia, 2018). Further, few experiments account for the physical attractiveness of female targets (Halliwell & Dittmar, 2004) and oftentimes study demands require the use of stimuli with different female targets across experimental conditions reducing experimental control (Betz & Ramsey, 2017; Clayton et al., 2017; Cohen, Fardouly, et al., 2019; Diedrichs & Lee, 2011; Ogden et al., 2020; Tiggemann et al., 2020). More work is needed that holds the source of body-positive images as constant as possible, but varies specific aspects of the images such as their sexualization and promotion of other prominent beauty ideals beyond body size (Gill & Elias, 2014). Further, work that examines how specific cues (e.g., clothing type, pose) influence perceptions of sexualization or how individual difference variables (e.g., age, BMI) might minimize or augment the degree to which people perceive images to be sexualized is needed.

Limitations and Future Directions

Although this research provides more nuance in understanding the effects of body-positive content on social media, it is not without limitations. First, it is important to note that positive body image is not exclusively about the reduction of negative body image, rather enhancement of body image (Tylka & Wood-Barcalow, 2015). As Tylka and Wood-Barcalow (2015) state "…it is imperative for our field to study positive body image and how to promote it, because working to understand and reduce negative body image alone will be insufficient" (p. 120). Our study involves a brief, one-shot exposure experiment to determine short-term effects of body-positive imagery. Future studies should implement longitudinal designs to address long-term effects of such imagery and should include nuanced assessments of various source and message characteristics. In addition, future work might seek to examine how the outcome variables in this study relate to other relevant outcomes such as body appreciation and body satisfaction in an effort to understand if certain variables (e.g., attitudes toward the source of body-positive content; attributions of source motives for posting) differ in the regard to which they might be related to or influence positive body image. Specifying the conditions under which certain outcomes examined in this study relate to promoting positive body image could better inform media literacy programs and interventions used to promote positive body image.

Second, there are several methodological considerations that future work should address. Although our sample was diverse in age, it consisted of mostly White women (67%). Content analyses indicate young (ages 20 to 30), White women are most frequently found in body-positive social media content (Cohen, Irwin, et al., 2019; Lazuka et al., 2020). However, women of color are most stigmatized for violating traditional appearance ideals, particularly thinness (Chrisler, 2012). Our images included racially diverse women with larger bodies (e.g., U.S. women's "plus-size" clothing, visible body fat, overweight or obese) to capture diversity in body

size. Future studies should consider more racially diverse sampling and other forms of diversity and inclusion represented in images (Biefeld et al., 2021), such as older women and women with disabilities. Though experimental body image research commonly uses landscape or non-human images as a control group (e.g., Brown & Tiggemann, 2016; Cohen, Fardouly, et al., 2019; Tiggemann & Zaccardo, 2015), it is worth noting that research suggests landscape images may promote positive body image (Swami et al., 2018). More work is needed to make comparisons between body-positive imagery and non-human images that help facilitate positive body image. Further, the current study only examined how social media posts can promote positive body image for women. Future work should seek to examine how gender identification influences the process through which social media posts can promote positive body image.

5. Conclusion

In sum, the body-positive movement on social media intends to promote diverse bodies and redefine standards of beauty. Our work takes an initial step in assessing how the nature and authenticity of body-positive imagery impact female viewers. Moving forward, it is essential to continue to investigate the characteristics of images that aid and detract from positive body image. The results of this study indicate that sexualized and digitally modified body-positive images have the potential to undermine the intended aims of the body positive movement.

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Table 1

Zero-Order Correlations, Means, and Standard Deviations

Variable	1	2	3	4	5	6	7	8	9	10	*M*	*SD*
1. Perceived sexualization	1	.07	-.10	.25**	.13*	-.11*	.36**	.003	.11*	.18**	3.98	1.61
2. Perceived photo modification		1	-.16**	.35**	.33**	.01	-.02	.01	.06	-.11*	3.50	1.60
3. Attitudes toward photos			1	-.11*	-.11*	.10*	.07	.03	.13*	-.02	5.82	1.00
4. Self-interested reasons				1	.32**	.05	.08	.09	.13**	.13**	4.13	1.23
5. Endorsement of beauty ideals					1	.03	.08	-.01	.16**	.07	2.20	1.35
6. Other-objectification (hashtags)						1	.44**	.26**	.19**	-.08	10.07	6.91
7. Other-sexualization (hashtags)							1	.10*	.33**	.08	2.31	3.51
8. State self-objectification (TST)								1	.41**	-.05	2.16	2.13
9. State self-sexualization (TST)									1	.03	0.20	0.56
10. Age										1	35.47	13.52

*p < .05. **p < .01 (two-tailed).

Table 2

Summary of Descriptive Statistics by Experimental Condition

Variable	Sexualized, Modification ($n = 86$)		Sexualized, No Modification ($n = 87$)		Non-Sexualized, Modification ($n = 79$)		Non-Sexualized, No Modification ($n = 83$)		Landscapes (Control) ($n = 90$)	
	M	SD	M	SD	M	SD	M	SD	M	SD
Perceived sexualization	4.94_a	1.20	4.99_a	1.12	3.08_b	1.44	2.80_b	1.24	--	--
Perceived photo modification	3.84_a	1.54	2.80_b	1.44	4.25_a	1.59	3.18_b	1.46	--	--
Attitudes toward photos	5.67	1.10	5.79	1.17	5.86	0.93	5.93	0.86	5.85	0.89
Self-interested reasons	4.06	1.20	4.28	1.35	4.18	1.26	4.08	1.18	4.05	1.19
Endorsement of beauty ideals	2.01	1.18	2.27	1.42	2.37	1.48	2.18	1.34	2.17	1.30
Other-objectification (hashtags)	11.48_a	5.57	10.14_a	5.59	13.52_b	6.29	14.58_b	5.11	1.46_c	1.63
Other-sexualization (hashtags)	4.12_a	3.76	3.74_a	4.01	1.87_b	3.06	1.80_b	3.42	0.07_c	0.29
State self-objectification (TST)	2.35_a	2.09	2.31_a	2.06	2.67_a	2.64	$2.15_{a,b}$	2.17	1.41_b	1.41
State self-sexualization (TST)	0.25_a	0.67	$0.20_{a,b}$	0.52	0.34_a	0.77	$0.17_{a,b}$	0.46	0.08_b	0.27

Note. All closed-ended measures were on seven-point semantic differential or Likert-style scales. Other-objectification and other-sexualization (hashtags) could range from 0 to 30. State self-objectification and self-sexualization (TST) scores could range from 0 to 20. Subscripts letters indicate significant mean differences across conditions using post-hoc LSD pairwise comparisons ($p < .05$), controlling for participants' age.

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