Imagery versus captions: The effect of body positive Instagram content on young women's mood and body image

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Declarations of Interest: None

Author Contributions:

EC: Conceptualization, Methodology, Formal Analysis, Investigation, Data Curation, Writing -Original Draft

EG: Conceptualization, Methodology, Writing - Review and Editing, Supervision

AS: Conceptualization, Methodology, Writing - Review and Editing, Supervision

Abstract

Body positive social media content aims to positively impact young women's body image and mood by challenging traditionally narrow beauty ideals. This online experiment investigated the effect of viewing body positive Instagram posts on young women's body image and mood, whilst focusing on understanding the impact of the images and captions in the posts. Overall, 195 young women (18-30 years old) were randomly assigned to view either body positive (consisting of images and captions), body positive captions only, body positive images only, or thin-ideal Instagram posts. Positive mood increased in all conditions pre to post exposure. Further, body satisfaction and negative mood improved pre-post exposure for all body positive conditions. However, when controlling for trait body appreciation significant effects only remained for the combined image and caption body positive condition. There were no significant differences in positive mood, state body appreciation, self-objectification, or broad conceptualisations of beauty between the three body positive exposure conditions. Therefore, to improve body satisfaction and mood, body positive content should include a combination of images and captions.

Keywords: body image, body positivity, positive body image, Instagram, social media, social networking sites

1. Introduction

Body image concerns are common among young women, with many feeling unhappy with one or more aspect of their appearance (Frederick et al., 2016; Swami et al., 2010). Social media plays a part in influencing social norms and appearance standards, such as the idealisation of the 'thin ideal', which has a negative impact on how women feel about their appearance (Grabe et al., 2008). However, the increasingly popular social media trend of 'body positivity' content aims to challenge such appearance ideals (Darwin & Miller, 2021). An initial study by Cohen and colleagues (2019a) found brief exposure to body positive Instagram posts increased women's positive mood, body satisfaction, and body appreciation. The current study sought to replicate this experiment and extend it by examining whether these effects relate to the imagery or captions included in body positive posts representing a range of body shapes, sizes, colours, and messages.

1.1 Social media, self-objectification, and body image

Objectification theory (Fredrickson & Roberts, 1997) offers a framework to understand young women's body image concerns. The theory proposes that society encourages young women to 'self-objectify' by evaluating themselves based on their appearance and viewing their bodies as objects for the pleasure of others (Fredrickson & Roberts, 1997). Objectification theory is applicable when understanding the relationship between social media and young women's body image. For instance, past research has demonstrated that the negative consequences associated with viewing objectifying social media content include increased self-objectification, low self-esteem, weight-related appearance anxiety, body dissatisfaction, negative self-evaluations and self-monitoring, social comparisons, and increased negative body image in young women (Aubrey, 2006;

Fredrickson & Roberts, 1997; Harper & Tiggemann, 2008; Myers & Crowther, 2007; Slater & Tiggemann, 2015; Vandenbosch & Eggermont, 2016).

The social media platform Instagram offers a constant stream of image-based posts with captions that often depict beauty ideals; therefore, promoting self-objectification (Harper & Tiggemann, 2008). Indeed, previous research has found Instagram use is associated with an increased drive for thinness and higher levels of self-objectification, negative mood, and body dissatisfaction in women (Fardouly, Willburger & Vartanian, 2018; Hendrickse et al., 2017; Brown & Tiggemann, 2016; Robinson et al., 2017; Tiggemann & Zaccardo, 2015). Moreover, there is evidence to suggest that Instagram may have a greater impact on young women's body image and mood than other social media platforms (Mingoia et al., 2017). This is particularly concerning because Instagram use is high in young women, with 67% of users being 18-29 years old (Greenwood et al., 2016; Pew Research Centre, 2019). Therefore, Instagram may offer another environment in which sexual objectification and negative body image can occur.

1.2 Body Positivity on Instagram

The body positive, or 'BoPo', movement has become increasingly popular on Instagram (Darwin & Miller, 2021). Challenging the overabundance of posts promoting the thin ideal, body positive content seeks to present appearance diversity, including women with bodies of varying sizes, shapes, colours, and features (Cohen et al., 2021; Manning & Mulgrew, 2022; Sastre, 2014). This includes women living in average and larger bodies and unedited images that include features including stretch marks, wrinkles, stomach rolls, and cellulite (Cohen et al., 2019b). Body positive images and their accompanying posts typically convey messages of personal psychological liberation, including loving, accepting, and respecting the appearance and function of all bodies, and activism related to systemic change,

such as challenging clothing size discrimination and weight stigma (Cohen et al, 2021; Darwin & Miller 2011; Manning & Mulgrew, 2022; Tylka, 2018).

The overarching aims of the body positive movement are synonymous with the concept of positive body image, which is defined as unconditional love and respect for the body, including body appreciation, body acceptance, conceptualising beauty broadly, investing in body care, inner positivity, and being able to filter negative appearance-related information in a positive way (Avalos, Tylka & Wood-Barcalow, 2005; Tylka, 2018; Wood Barcalow, Tylka & Augustus-Horvath, 2010). As such, body positive content aims to challenge appearance ideals by displaying a variety of bodies to foster body appreciation (Cwynar-Horta, 2016). Indeed, it has been suggested that being exposed to wider conceptualisations of beauty on social media, such as differing appearances, body shapes, sizes, and ages may encourage respect and appreciation of one's own body and might help to improve young women's body image (Paraskeva et al, 2017). In support of this, research has identified that positive body image can be fostered through interventions and is associated with physical and psychosocial well-being, such as increased self-esteem, adaptive coping, physical activity, intuitive eating, life satisfaction, positive affect, and optimism (Andrew, Tiggemann & Clark, 2015;2016, Dalley & Vidal, 2013; Guest et al., 2019; Swami et al., 2018). Given that body positive content seeks to encourage aspects of positive body image, viewing such posts have the potential to act as micro interventions in themselves, thereby fostering positive body image in Instagram users who view them.

In line with this, Williamson and Karazsia (2018) found that exposing women to body positive social media images that do not conform to the thin-ideal improved young women's body appreciation. Similarly, Cohen et al. (2019a) found improvements in women's mood, body satisfaction, and body appreciation in those who viewed body positive Instagram posts

portraying a diverse range of women's bodies, compared to those who viewed thin-ideal and appearance neutral Instagram posts. Additionally, the women favoured the body positive accounts over the thin-ideal accounts (Cohen et al., 2019a). Therefore, exposure to body positive content may serve as a protective factor against the negative influence of social media on young women's body image and promote positive body image (Holmqvist & Frisén, 2012; Tylka, 2012).

While these findings are promising, Cohen and colleagues (2019a) also found that women viewing the body positive posts experienced higher levels of self-objectification than those in the thin ideal and appearance-neutral conditions. One explanation for this may be that body positive posts still reinforce society's focus on appearance over other personal attributes (e.g., intelligence, humour; Webb et al., 2017). Indeed, women featuring in body positive posts often correspond with societal ideals, such as being conventionally attractive, and conforming to traditional forms of femininity, such as posing in sexually suggestive and self-objectifying poses (Cwynar-Horta, 2016; Cohen et al., 2019b). Additionally, many accounts on Instagram promote appearance ideals under the guise of being body positive, which could be potentially harmful to those who follow them and creates some concerns over the benefits of the movement.

Body positive images are often accompanied by captions which convey messages relating to self-love, appreciation, acceptance, and broad conceptualisations of beauty, and include hashtags that relate to positive body image (e.g., #loveyourself or #bodypositive; Tylka, 2018; Wood Barcalow, Tylka & Augustus-Horvath, 2010). Given that the photographs used in these posts can encourage viewers to make appearance comparisons and may cause increased self-objectification, it would be beneficial to assess whether captions alone containing body positive messaging can have a positive impact on viewers (Cohen et al.,

2019a; Fardouly et al., 2017). However, current research into the impact of body positive captions is mixed. For example, Manning and Mulgrew (2022) examined the effects of body positive posts with or without body acceptance captions on body appreciation, appearance satisfaction, positive mood, broad conceptualizations of beauty, and social comparisons. Results showed an increase in body satisfaction following exposure to images and captions; however, effects were not found across other outcome measures, leading the authors to conclude that there is no strong evidence that body positive captions have a substantive benefit greater than viewing images in isolation. Additionally, broad conceptualisations of beauty was not a significant moderator.

On the other hand, Tiggemann, Anderberg and Brown (2020) found that women with high thin ideal internalisation experienced increased body appreciation when viewing body positive captions accompanying images of women with average sized bodies, but not when they accompanied images of thin women. This suggests that the type of appearance portrayed in the image may play an important role in this process. Additionally, Davies et al. (2020) examined the effect of fitspiration captions, body positive captions, and neutral captions accompanying images of thin, muscular, and attractive young women on women's mood and body-esteem. Findings revealed that the body positive captions were associated with improvements in women's body esteem compared to fitspiration and neutral captions but not mood. Given these mixed results, it would be beneficial to carry out further research to establish whether images, captions, or a combination of the two, are necessary to improve body image-related outcomes.

1.3 Broad conceptualisations of beauty

Broad conceptualisation of beauty, a component of positive body image, relates to finding a wide variety of appearances, including those that do not fit societal appearance

ideals, and inner characteristics beautiful (Tylka & Wood-Barcalow, 2015a). Much body positive content aims to heighten young women's diverse conceptualisation of beauty by displaying an array of body types to promote beauty as a broad concept, rather than highlighting narrow appearance ideals (Cohen et al., 2019a). In line with this, Cohen et al., (2019b) found that most body positive Instagram posts included in their content analysis aligned with the definition of broad conceptualisations of beauty. Similarly, Lazuka et al. (2020) found that approximately a third of body positive posts from public profiles featured broad conceptualisations of beauty. Cohen and colleagues (2019a) suggest that viewing body positive posts may foster broad conceptualisations of beauty in those who view them; however, this was not measured in their study, and it would therefore be beneficial to consider whether viewing body positive content can increase broad conceptualisations of beauty.

1.4 Research aims

In summary, previous research has suggested that body positive Instagram posts may have a beneficial impact on the body image and mood of those who consume it; however, there have also been concerns that it may increase self-objectification and there have been mixed findings in relation to the relative contribution of the images and captions in body positive posts, which requires further exploration.

Overall, the aim of the current study was to replicate and extend Cohen and colleagues' (2019a) body positive experiment by examining the effects of body positive Instagram posts on young women's mood and body image in comparison to thin-ideal Instagram posts. Body positive posts were conceptualised as those that display a wide range of bodies and messages of self-love, care and respect, and broad conceptualisations of beauty. In particular, the aims extend the previous study by investigating whether body

positive images and captions have an impact on body image and mood in isolation, and whether their affect is greater when combined. Additionally, we sought to examine the impact of body positive posts on broad conceptualisation of beauty and self-objectification.

The hypotheses were that body positive posts (consisting of images and captions) would improve young women's positive mood, body satisfaction, body appreciation and broad conceptualisations of beauty, and reduce young women's negative mood and self-objectification, compared to viewing thin-ideal Instagram posts. Given the lack of existing evidence, the study explored (without prediction) the relative impact of viewing body positive Instagram posts, consisting of both body positive images and captions, body positive captions only, and body positive images only, on young women's body image and mood. Finally, the present study explores women's attitudes towards these types of accounts, as well as whether viewing body positive content could have an effect even when controlling for trait body appreciation, as seen in Cohen et al. (2019a).

2. Method

2.1 Design

The study employed a between-subjects experimental design with 4 conditions: body positive posts (consisting of both images and captions), body positive captions only, body positive images only, and thin ideal posts. The dependent variables were mood, body satisfaction, body appreciation, self-objectification, and broad conceptualisation of beauty. The independent variables were time (pre-and-post-exposure) and condition.

2.2 Participants

G*Power determined a total sample size of 72 would be appropriate to detect a small or medium effect size with 95% power. Participants were 195 young women ranging from 18-30 years old (M = 21.21, SD = 2.90). A total of 274 participants agreed to take part in the study,

although 79 were excluded due to incomplete responses, lack of consent, or failing to meet the eligibility criteria (young women between 18-30 years old). Participants had an average body mass index (BMI) of 23.80 (*SD* = 4.29). Most of the sample identified as White (*n* = 166, 85.1%), followed by Asian/Asian British (*n* = 11, 5.64%), mixed/multiple ethnic groups (*n* = 8, 4.10%), Black/African/Caribbean/Black British (*n* = 7, 3.59%) and other (*n* =1, 0.51%).

2.3 Materials

2.3.1 Experimental stimuli: Instagram posts

The thin-ideal stimuli were replicated from Cohen et al. (2019a) and consisted of 20 posts from four Instagram accounts that emphasised the thin-ideal (@gabriellecaunesil, @Mayastepper, @dominiquelissa and @jayegreen). All 20 posts were used within the present study to maintain a consistent replication of Cohen et al (2019a). The thin-ideal Instagram posts included full-body shots of women with thin physiques either posing in fitness attire, bikinis, or form-fitting fashion. These Instagram posts included short captions that related to fashion or the weather (e.g., 'Time to go back to my natural state, in the nature, by the sea, covered in sand'; 'Nature always wears the colours of the spirit').

For the body positive stimuli, two body positive Instagram accounts (@bodyposipanda and @Beautyredefined) were replicated from the stimuli used by Cohen et al. (2019a). The researchers identified a further two Instagram accounts promoting body positivity (@Chessiekingg and @effyourbeautystandards). These accounts were chosen due to their high volume of followers (@Chessiekingg 809K; @effyourbeautystandards 432K), and their promotion of body positivity in their biographies on Instagram. The accounts consisted of posts including images of women living in average or larger bodies and portraying messages relating to self-love, body and functionality appreciation and respect, celebrations of body

diversity, and size activism. Additionally, the account @Beautyredefined, which was replicated from Cohen and colleagues' (2019a) study, included some cartoons of women, photographs of children, and pictures of self-love quotes (*n* = 3).

To ensure the body positive posts provided coverage of body positivity on Instagram, a pilot study was conducted with 21 female participants aged 18-30 years old. During the pilot study, participants were provided with a definition of body positivity: "*Body positivity refers to rejecting unrealistic body ideals and encouraging women to accept and love their bodies at any shape or size. Body positive Instagram posts tend to depict women proudly posting their unique bodies and captions about body acceptance"*.

In total, 40 body positive posts (4 Instagram accounts with 10 posts each) were presented to 21 female participants. Participants were asked to rate the extent to which each image and caption represented the definition of body positivity using a visual analogue scale (VAS; 0 = not at all, 100 = to a great extent). To be considered as representative of body positivity, both the body positive caption and body positive image had to be rated an average as 70/100 or above to be included in the final body positive stimuli.

Only 17 of the body positive images and captions scored above 70, therefore these posts were retained as they presented the most valid examples of body positivity. The final body positive stimuli consisted of 5 posts from @bodyposipanda, 3 from @beautyredefined, 3 from @effyourbeautystandards and 6 from @Chessiekingg. Specifically, 14 out of 17 body positive images contained women posing nude, in bikinis or in form-fitting fashion. The other three consisted of images of body positive quotes; one contained an image of children and one contained an illustration. Both these images emphasised being more than a body. The third image consisted of a body positive quote stating body confidence cannot be seen in photos. The body positive (consisting of images and captions) condition included 17 body

positive images and quotes accompanied by their original body positive captions as posted on Instagram by their creators. These body positive captions were lengthy and referred to loving one's body, being more than a body, channelling inner-positivity or challenging appearance ideals. The body positive images only condition included the same 17 body positive images and quotes however, the original body positive captions were removed. The body positive images containing quotes were included within this condition, despite featuring quotes rather than women, as they are representative of body positivity on Instagram; therefore, maintaining ecological validity. The body positive captions only condition included the 17 body positive captions used within the body positive (consisting of images and captions) condition however, the images were removed, and screenshots of the captions only were displayed. All posts were presented with Instagram borders and names to maintain ecological validity; however, comments and likes were removed to avoid confounding effects.

To maintain the replication from Cohen et al. (2019), the 20 posts used as thin ideal stimuli in the study were retained and used in the present study. Although the thin ideal condition consisted of 20 stimuli and the body positive conditions consisted of 17 stimuli, there were no significant differences in the overall length of time participants took to complete the experiment $F(3,190) = 0.87$, $p = 0.46$.

2.3.2 Social media use

The present study replicated Cohen and colleagues' (2019a) baseline measure of Instagram use to examine participants average daily Instagram use. Participants were asked to indicate how many times they access Instagram daily on a 7-point scale ranging from 'Hardly ever' (1) to 'More times than I can count' (7). In addition, participants were asked to indicate the average amount of time they spend on Instagram daily on a 13-point scale

ranging from '1-15 minutes' (1) to '10+ hours' (13). Scores were averaged with higher scores signifying greater Instagram use. For this study, the scale showed good reliability (α = .77).

2.3.3 Outcome Measures

2.3.3.1 State mood and body satisfaction.

Visual Analogue Scales (VAS), replicated from Cohen et al. (2019a), were used to measure state mood and body satisfaction pre- and post- exposure to experimental stimuli. Participants were asked to use a slider to mark on a 100mm horizontal line how they felt 'right now' on a scale from (0) 'not at all' to 'very much' (100) to increase sensitivity over brief periods. The four mood VAS, which were replicated from Cohen et al.'s (2019a) experiment, asked participants to rate how depressed, anxious, confident, and happy they were. Research has found that positive and negative mood are experienced independently in low stress situations; therefore, they should be measured separately (Reich et al, 2003). Higher scores represent greater positive state mood and negative state mood.

Additionally, the three body satisfaction VAS used were: satisfied with weight, satisfied with my overall appearance, and satisfied with my body shape, which were combined to form a measure of state body satisfaction (Cohen et al., 2019a). To help disguise the purpose of the study, participants were also asked about their satisfaction with their romantic relationships, financial status, housing situation, occupation/study, and social life. Higher scores represent greater body satisfaction. These mood and body satisfaction dimensions were chosen as previous research has shown the VAS to be a reliable measure of changes in mood and body satisfaction among young women (Pritchard & Tiggemann, 2012) and an appropriate measure for pre-post experimental designs (Heinberg & Thompson, 1995). In the present study, the negative mood and body satisfaction scale had a strong pre-post correlation r_s = .795, r_s = .816, and positive mood had a medium correlation, r_s = .563.

2.3.3.2 Self-objectification

A modified version of the Twenty Statements Test (Fredrickson et al, 1998), used by Cohen and colleagues (2019a), was used to measure state self-objectification post exposure to the experimental stimuli. Participants were asked to describe themselves by completing 10 statements starting with 'I am'. This measure of state self-objectification has been successful (Calogero, 2013; Harper & Tiggemann, 2008) and concurrent validity of the measure is supported by Hebl et al. (2004). The researcher and one independent researcher coded the responses into one of six categories: body shape and size (e.g., I am fat), other physical appearance (e.g., I am brunette), physical competence (e.g., I am strong), traits and abilities (e.g., I am kind), states or emotions (e.g., I am bored) and miscellaneous. The number of responses which fit into the first two categories produced a score ranging from 0 to 10 which represents state self-objectification. Greater scores indicated higher levels of self-objectification. In the present study, there was excellent inter-rater agreement for appearance items within the first two categories (Cohen's $\kappa = 0.82$).

The Self-Objectification Beliefs and Behaviours Scale (SOBBS; Lindner & Tantleff-Dunn, 2017) was used to measure trait self-objectification post exposure to the experimental stimuli. Participants were asked to respond to statements, such as 'How I look is more important to me than how I think or feel', on a scale from 1 (strongly disagree) to 7 (strongly agree). Higher scores indicate greater levels of self-objectification. Lindner and Tantleff-Dunn (2017) demonstrated sufficient reliability and validity of this scale, and in the current study the reliability was excellent ($\alpha = .90$).

2.3.3.3 State body appreciation

As per Cohen et al. (2019a), a modified version of the State Body Appreciation Scale-2 (SBAS-2; Homan, 2016) was used to measure state body appreciation post-exposure to the

experimental stimuli. The SBAS-2 was administered at post-exposure only to reduce the possibility of priming effects whereby completing a 10-item measure about body appreciation could have influenced participants' expectations about the true nature of the study. Cohen et al. (2019) adapted the SBAS-2 to a VAS format, whereby participants used a slider to mark on a 100mm horizontal line how they feel 'right now' on a scale from (0) 'not at all' to (100) 'very much' on items such as: 'At this moment I feel good about my body' and 'At this moment I feel love for my body'. Higher scores indicate higher levels of state body appreciation. Homan (2016) found the SBAS-2 to be a valid, reliable and sensitive measure of state body appreciation. The current study found the scale to demonstrate excellent reliability (α = .96).

2.3.3.4 Trait body appreciation

As per Cohen et al. (2019a), The Body Appreciation Scale-2 was used to measure trait body appreciation (Tylka & Wood-Barcalow, 2015b). Participants were asked to respond to 10 items on a 5-point scale ranging from (1) 'never' to (5) 'always'. Example items include 'I respect my body' and 'I appreciate the different and unique characteristics of my body'. Greater scores signify higher levels of trait body appreciation. Tylka and Wood-Barcalow (2015b) found the measure to have good internal consistency, test-retest reliability and construct validity. For this study, the scale showed excellent reliability (α = .95).

2.3.3.5 Broad conceptualisations of beauty

Due to the lack of a validated state measures, The Broad Conceptualisation of Beauty Scale (Tylka & Iannantuono, 2016) was used to assess trait broad conceptualised of beauty and examine how participants define women's beauty. Participants were asked to respond to 9 items on a 7-pont scale ranging from (1) 'strongly disagree' to (7) 'strongly agree'. Items include statements such as "I think that a wide variety of body shapes are beautiful for

women". Item 4 was reverse scored, and higher scores signify a broader conceptualisation of beauty. Tylka and Iannantuono (2016) reported high internal consistency, high discriminant validity and moderate convergent validity. For the present study, the scale showed excellent reliability (α= .80).

2.3.3.6 Attitudes towards social media accounts

Attitudes towards body positive accounts and thin-ideal accounts were compared. To do so, participants in the body positive conditions (body positive consisting of images and captions; body positive captions only; body positive images only) were presented with one body positive post from each of the four body positive Instagram accounts used within the study. Participants in the thin-ideal condition were presented with one thin-ideal post from each of the four thin-ideal Instagram accounts used within the study. All participants were asked to respond to three statements: 'I like the person who this account belongs to', 'I would want to be friends with this person' and 'I would want to follow this account' on a 5-point scale ranging from 'strongly disagree' (1) to 'strongly agree' (5). Total scores were derived by combining the items and calculating an overall mean, with higher scores indicating more positive attitudes. The current study found the scale demonstrated excellent reliability (α = .93).

2.4 Procedure

Following approval from the University Faculty Research Ethics Committee, participants were recruited via the University Psychology Participant Pool, a platform for undergraduates to take part in studies in return for course credit and social media pages. The project was advertised as an online study interested in how memory and attitudes are affected when viewing imagery on Instagram to reduce demand characteristics. The study

took place online via Qualtrics survey platform. Participants recruited via the participant pool were given course credit.

The current study replicated Cohen and colleagues' (2019a) cover story and all participants were told: *"We are interested in how your attention and memory are affected when viewing imagery on social media. After you finish viewing the images you will be asked questions about what you have seen so please pay close attention to the images presented. How you feel can also influence your attention, so we are also going to monitor your mood and how you feel throughout the study".*

Participants were asked to read an electronic information sheet before signing an electronic consent form. Participants were asked to report their age, ethnicity, height, and weight to calculate BMI, and daily Instagram use. Participants completed baseline measures of state mood (positive and negative) and state body satisfaction, among distractor items. Participants were randomly assigned, via the random allocation function on Qualtrics, to one of four types of Instagram exposure conditions: body positive (consisting of images and captions; *n* = 53), body positive captions only (*n* = 43), body positive images only (*n* = 48), or the thin-ideal (*n* = 50). The thin ideal condition included 20 posts, whereas the body positive (consisting of images and captions), the body positive caption only and body positive images only conditions included 17 posts. Each post was displayed for 10 seconds before participants were given the option to move onto the next post. Immediately after the experiment, participants completed VAS measures of state mood (positive and negative) and state body satisfaction again. Additionally, they completed post-only measures of state and trait body appreciation, state self-objectification (Twenty Statements Test), trait self-objectification (SOBBS), trait broad conceptualisations of beauty, and questions relating to their attitudes towards the Instagram accounts. Distractor items and memory questions were also included

to bolster the cover story. The experiment lasted approximately 20 minutes. An electronic debrief sheet was displayed to participants on completion of the study.

2.5 Analyses

Mixed repeated-measures ANOVAs were conducted to examine group differences over time for positive mood, negative mood, and body satisfaction. Additionally, one-way ANOVAs were carried out to look at group differences post-exposure for self-objectification, body appreciation, and broad conceptualisations of beauty and to determine whether positive attitudes scores differed between the types of Instagram exposure post intervention. Mixed repeated-measures ANCOVAs were used to test whether significant results remained when trait body image was used as a covariate. Significant results were followed up with analyses of simple main effects or Tukey post-hoc tests.

3. Results

3.1 Preliminary analyses

The data were screened for parametric assumptions and normality. There were outliers in the pre-post VAS measures, but removal of these outliers did not change the analysis outcomes, indicating variability in the measures rather than experimental error (Frost, 2020). Thus, outliers were not excluded. All variables were within a +/-2 skew and kurtosis range, which is an acceptable range for accepting normal distribution and conducting ANOVAs (George & Mallery, 2010).

Available item analysis was used to handle missing data (4.6% across all variables). One-way ANOVAs were conducted to assess whether there were baseline differences across the types of Instagram exposure. There were no significant group differences in age ($F(3,190) = .254$, $p = .858$, partial $\eta^2 = .004$), BMI ($F(3,186) = .492$, $p = .688$, partial $\eta^2 = .008$), pre-exposure positive mood ($F(3,190) = 2.03$, $p = .111$, partial $\eta^2 = .031$), pre-exposure negative

mood ($F(3,190) = .190$, $p = .903$, partial $\eta^2 = .003$), pre-exposure body satisfaction ($F(3,190) = 1.46$, $p = .227$, partial $\eta^2 = .023$), or post-exposure body appreciation ($F(3,189) = .538$, $p = .657$, partial $\eta^2 = .008$). A chi-square test revealed there was no relationship between ethnicity and the four types of Instagram exposure (χ^2 (12, $N = 193$) = 13.174, $p = .357$).

There were no significant group differences in the daily checking of Instagram ($F(3,190) = .521$, $p = .669$, partial $\eta^2 = .008$), nor in the amount of time spent on Instagram daily ($F(3,189) = .794$, $p = .499$, partial $\eta^2 = .012$). Participants assigned to the types of body positive Instagram exposure conditions did not significantly differ in their frequency of viewing body positive posts in their everyday lives ($F(2,141) = .077$, $p = .926$, partial $\eta^2 = .001$). The means and standard deviations for each outcome measure by the types of Instagram exposure are presented in Table 1 and a table presenting correlations between the variables can be found in Appendix 1.

Table 1

Mean (SD) for each outcome measure by the types of Instagram exposure.

1 * = p<.05; ** = p<.001

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	Condition			
	Body positive	**Body positive captions only**	**Body positive images only**	**Thin-ideal**
Positive Mood				
Pre-exposure	46.02 (22.15)	45.37 (21.64)	51.57 (24.57)	54.87 (20.61)
Post-exposure	55.92 (26.67)**	49.73 (26.76)**	55.83 (24.52)**	58.73 (24.81)**
Negative mood				
Pre-exposure	28.01 (25.01)	31.10 (23.83)	27.34 (28.50)	28.39 (23.20)
Post-exposure	20.73 (20.43)*	22.81 (20.76)	20.56 (25.50)*	30.86 (22.64)
Body satisfaction				
Pre-exposure	34.64 (26.30)	39.05 (21.57)	44.72 (28.68)	37.21 (22.21)
Post-exposure	48.01 (27.11)**	45.98 (23.41)*	53.49 (27.98)**	29.66 (25.44)**
Body appreciation				
Pre-exposure	-	-	-	-
Post-exposure	49.43 (27.83)	46.88 (24.25)	52.37 (31.18)	40.49 (25.02)
Self-objectification				
SOBBS				
Pre-exposure	-	-	-	-
Post-exposure	3.14 (0.74)	2.95 (0.77)	3.08 (0.71)	3.08 (0.65)
Ten Statements				
Pre-exposure	-	-	-	-
Post-exposure	1.09 (1.15)	0.70 (1.06)	1.27 (1.57)	1.14 (1.54)
Broad conceptualisations of beauty				
Pre-exposure	-	-	-	-
Post-exposure	5.87 (0.73)	5.75 (0.63)	5.61 (0.88)	5.69 (0.85)

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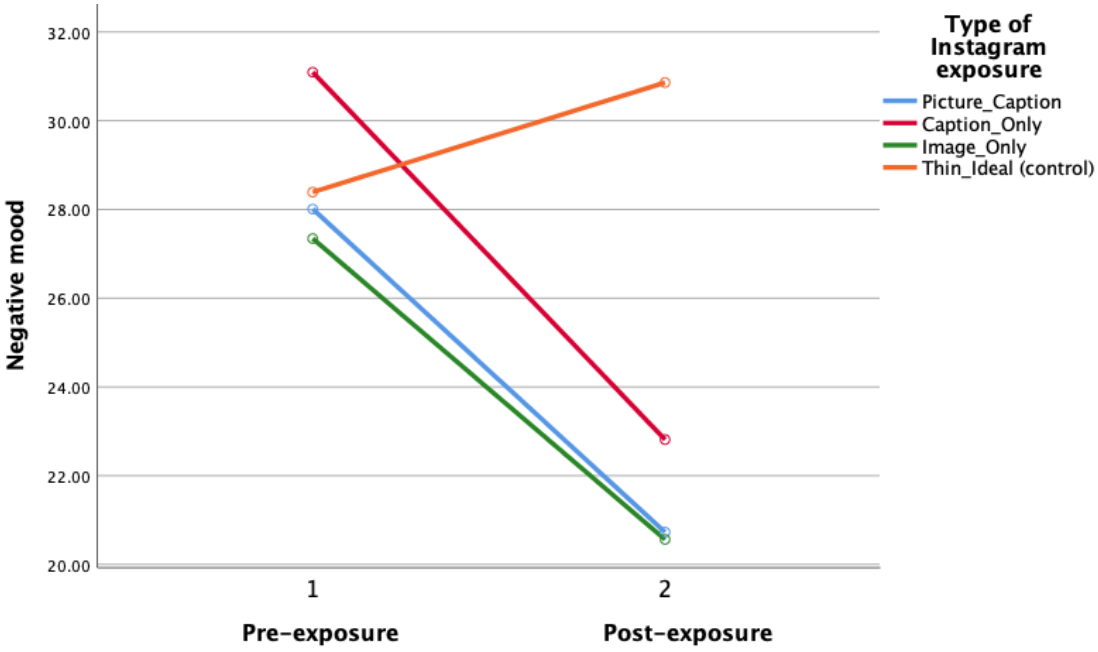
5 **3.2 Effect of type of Instagram exposure on mood**

For state positive mood, there was no main effect of group $F(3,190) = 1.61$, $p = .19$, partial $\eta^2 = .03$ and no interaction effect $F(3,190) = .82$, $p = .48$, partial $\eta^2 = 01$; however, there was a statistically significant main effect of time $F(1,190) = 11.64$, p, $<.001$, partial $\eta^2 = .06$ with positive mood increasing in all groups from pre- ($M = 49.59$; $SE = 1.73$) to post-exposure ($M = 55.19$; $SE = 1.73$).

For negative mood, there was no significant main effect of group $F(1,3) = 0.67$, $p = 0.57$, $\eta^2 = 0.01$; however, there was a main effect of time $F(1,3) = 21.49$, $p < 0.001$, $\eta^2 = 0.01$ and an interaction effect $F(1,3) = 5.53$, $p = < 0.001$ $\eta^2 = 0.01$. Simple main effects analysis showed that negative mood significantly decreased from pre to post exposure for all positive body image conditions: image and caption ($M_{pre} = 28.01$, $SE = 3.47$; $M_{post} = 20.73$, $SE = 3.08$, $F(1,190) = 8.40$, $p = <0.005$), caption only ($M_{pre} = 31.09$, $SE = 3.85$; $M_{post} = 22.81$, $SE = 3.42$, $F(1,190) = 18.90$, $p = <0.001$) and image only ($M_{pre} = 27.34$, $SE = 3.64$; $M_{post} = 20.56$, $SE = 3.24$, $F(1,190) = 10.88$, $p = <0.005$). There were no significant differences in negative mood scores from pre-post exposure for the thin ideal condition $F(1,190) = 1.74$, $p = 0.19$. These findings are presented in Figure 1 below.

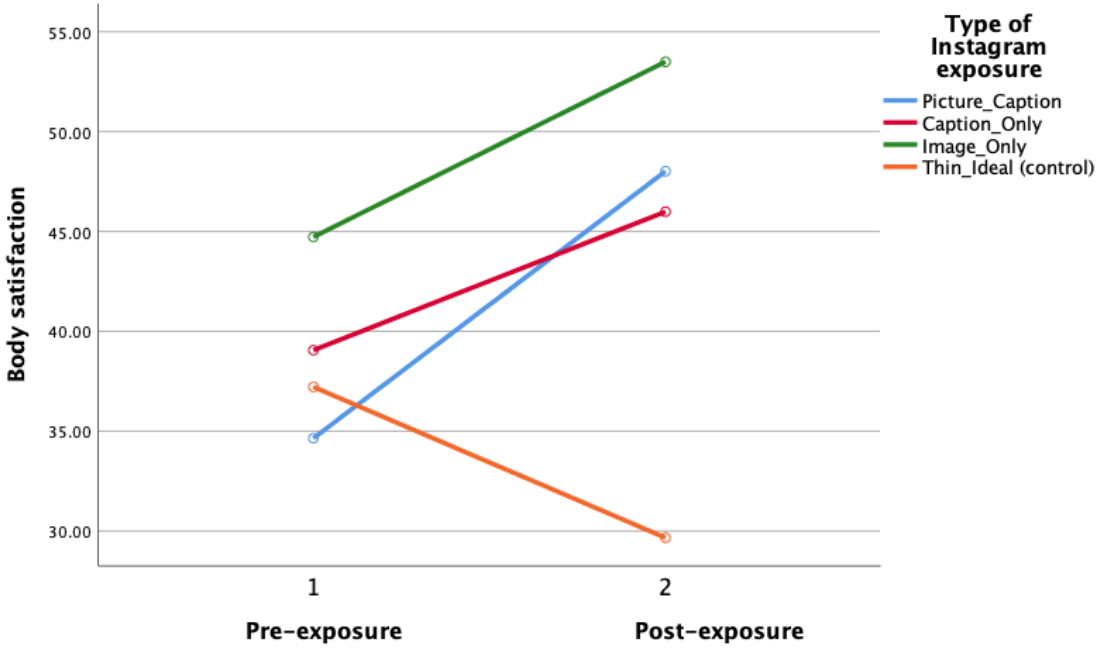
Figure 1: Changes in negative mood over time for the types of Instagram exposure.



3.3 Effect of type of Instagram exposure on body satisfaction

For body satisfaction, there was a statistically significant main effect of time $F(1,3) = 31.35$, $p = < 0.001$, $\eta^2 = 0.01$ and group $F(1,3) = 3.33$, $p = < 0.05$, $\eta^2 = 0.05$ and a significant interaction effect $F(1,3) = 23.23$, $p = < 0.001$, $\eta^2 = 0.02$), which is presented in Figure 2. Simple main effects analysis showed that body satisfaction significantly increased from pre- to post-exposure for the combined image and caption condition ($M_{pre} = 34.64$, $SE = 3.43$; $M_{post} = 48.01$, $SE = 3.59$, $F(1,3) = 38.28$, $p < 0.001$), caption only condition ($M_{pre} = 39.05$, $SE = 3.81$; $M_{post} = 45.98$, $SE = 3.99$, $F(1,3) = 10.97$, $p = < 0.005$), and image only ($M_{pre} = 44.72$, $SE = 3.60$; $M_{post} = 53.49$, $SE = 3.77$, $F(1,3) = 29.45$, $p = <.001$) conditions. For the thin ideal condition, body satisfaction decreased from pre- to post-exposure ($M_{pre} = 37.31$, $SE = 3.53$; $M_{post} = 29.66$, $SE = 3.70$, $F(1,3) = 18.55$, $p < 0.001$). Additionally, a Tukey post-hoc test revealed body satisfaction was significantly higher post-exposure in the body positive combined caption and image ($MD = 18.35$, $SE = 5.04$, $p = 0.05$), caption only ($MD = 16.32$, $SE = 5.31$, $p < 0.05$), and image only ($MD = 23.83$, $SE = 5.16$, $p < 0.001$) groups compared to the thin ideal group.

Figure 2: Changes in body satisfaction over time for the types of Instagram exposure.



3.4 Effect of type of Instagram exposure on body appreciation

For state body appreciation, there was no statistically significant difference between the conditions post-exposure $F(3,189) = 1.714$, $p = .17$, partial $\eta^2 = .026$.

3.5 Effect of type of Instagram exposure on self-objectification

For state self-objectification, there was no statistically significant difference between the groups post exposure when measured using the Modified Twenty Statements Test $F(3,190) = 1.489$, $p = .219$, partial $\eta^2 = .023$ or the SOBBS $F(3,189) = .535$, $p = .659$, partial $\eta^2 = .008$.

3.6 Effect of type of Instagram exposure on broad conceptualisations of beauty

There was no significant difference in broad conceptualisations of beauty between the groups post-exposure $F(3,189) = .995$, $p = .397$, partial $\eta^2 = .016$.

3.7 Controlling for trait body appreciation

Repeated-measures ANCOVAs were carried out to test whether the observed significant effects of Instagram exposure type on positive mood, negative mood, and body satisfaction differed when controlling for trait body appreciation.

When controlling for trait body appreciation, the increase in positive mood from pre- (M = 91.02; SE = 5.00) to post-exposure (M = 96.74; SE = 5.00) remained for all conditions ($F(1,188) = 21.57$, $p < 0.001$, $\eta^2 = 0.02$).

For negative mood, the significant main effect of time ($F(1,188) = 10.41$, $p < 0.001$, $\eta^2 = 0.01$) and the interaction effect ($F(1,188) = 5.85$, $p < 0.001$, $\eta^2 = 0.01$) remained. As before, there was no main effect of group ($F(1,188) = 0.36$, $p = 0.78$, $\eta^2 = 0.00$). Consistent with the previous analysis, negative mood decreased from pre- to post-exposure for the body positive combined image and caption condition ($M_{pre} = 27.93$, $SE = 3.04$; $M_{post} = 20.67$, $SE = 2.78$, $F(1,188) = 6.62$, $p < 0.05$). However, this was not the case for the caption only ($F(1,188) = 3.71$, $p = 0.6$), image only ($F(1,188) = 3.72$, $p = 0.06$), and thin ideal ($F(1,188) = 0.062$, $p < 0.8$) conditions.

Finally, for body satisfaction, there was no main effect of time ($F(1,188) = 0.69$ $p = 0.79$) when controlling for body appreciation. However, there was a main effect of group ($F(1,188) = 4.22$, $p < 0.05$) and an interaction effect ($F(1,188) = 22.57$, $p < 0.001$). A Tukey post-hoc test revealed that body satisfaction significantly increased in the combined image and caption group from pre- to post- exposure (MD = -13.38, SE = 1.84, p = < 0.001) when controlling for state body appreciation.

3.8 Attitudes towards body positive accounts

There was a significant difference in positive attitude scores for body positive and thin ideal Instagram posts $F(3,190) = 11.20$, p = <.001. Specifically, participants in the body positive

conditions caption and image (*MD = 0.95, SE =* 0.13), caption only (*MD =* 1.03, *SE* = 0.14), and image only (*MD* = 0.85, *SE* = 0.14) reported significantly more positive attitudes towards the accounts than those in the thin ideal condition. Means and standard deviations for attitude scores by type of Instagram exposure are presented in Table 2.

Table 2

Mean (SD) positive attitude scores by type of Instagram exposure

Condition	Positive attitude score
Body positive (images and captions)	3.72 (0.69)
Body positive captions only	3.81 (0.65)
Body positive images only	3.62 (0.81)
Thin-ideal	2.77 (0.49)

4. Discussion

The aim of the present study was to replicate Cohen and colleagues' (2019a) BoPo Instagram experiment by examining young women's mood and body image after viewing body positive (consisting of images and captions) Instagram posts in comparison to thin-ideal Instagram posts. Additionally, the study was extended by measuring broad conceptualisations of beauty, utilising a second measure of self-objectification, and comparing the impact of different aspects of body positive posts (combined images and captions, captions only, and images only).

In line with the hypotheses, body satisfaction significantly increased pre- to post-exposure in all body positive conditions and decreased in the thin ideal condition. However, when controlling for body appreciation, the significant effect only remained for the combined image and caption condition. Also consistent with the study predictions, negative mood

significantly decreased in all body positive conditions from pre-post exposure; however, there were no significant changes in mood for the thin ideal condition. Additionally, after controlling for existing levels of body appreciation, the improvements were only maintained for the body positive condition that consisted of posts with both images and captions. This suggests that trait body appreciation accounted for some of the effects of viewing body positive posts on body satisfaction and mood. This suggests that a combination of images and captions may be necessary to improve body satisfaction and mood.

Much previous research, including Cohen and colleagues' (2019a) study, has found that exposure to the thin ideal is related to decreased body satisfaction and increased negative mood (Betz & Ramsey, 2017; Brown & Tiggemann, 2016; Robinson et al, 2017). While body satisfaction did significantly decrease in the thin ideal condition in the current study, negative mood did not significantly change, which contradicts previous research. Nonetheless, exposure to body positive content, including a combination of images and captions, captions only, and images only, did lead to improvements in body satisfaction and negative mood compared to the thin ideal condition. Past research has observed that viewing average sized models acts as a 'relief' from thin ideal posts (Diedrichs & Lee, 2011; Halliwell & Dittmar, 2004). Therefore, this may account for the improvement in body satisfaction and negative mood in the young women in this study. These findings support the notion that body positive content on Instagram is a practical way to promote positive body image (Halliwell, 2015).

An unexpected finding was that positive mood significantly increased from pre-post exposure in all groups, including the thin ideal condition. Furthermore, this effect remained when trait body appreciation was controlled for in the analysis. This is a surprising finding given that exposure to the thin ideal has been consistently found to have a negative impact

on viewers' mood. Additionally, in Cohen et al's (2019a) experiment, participants' positive mood increased for women viewing body positive Instagram images compared to women viewing images depicting the thin-ideal or natural environments. The reason for this difference in findings is not clear; however, it is possible that the onset of the COVID-19 pandemic during data collection led to general decreases in mood and exposure to (any) Instagram posts may have acted as a distraction, thereby enhancing mood. Whiting and Williams (2013) found that social media is used for gratification, with 64% of respondents linking social media to a source of enjoyment and 60% indicating social media is relaxing. Furthermore, Good, Sambhantham and Panigani (2013) found that looking at photos and posts can have a positive impact on wellbeing. Despite both these studies being based on Facebook activity, the premise that looking at social media posts can improve wellbeing may apply to Instagram given they are both photo-based social media platforms. Thus, the act of viewing Instagram posts may have distracted participants from COVID-19 or other life stressors, improving their positive mood from pre-to-post-exposure, regardless of the type of Instagram exposure. It would be beneficial to carry out this study again to better understand the impact of viewing different posts on positive mood.

Contrary to the study hypotheses, there were no differences between the experimental conditions in relation to levels of self-objectification, state body appreciation, or broad conceptualisations of beauty. While women's levels of self-objectification did not differ between the conditions in the current study, the fact that they were comparable to those who viewed the thin ideal images may suggest that body positive content may have an unintended negative impact on viewers by encouraging them to partake in self-objectification. In line with this, previous research has suggested that exposure to posts depicting the thin ideal and even body positive posts can lead to increased self-objectification

in the viewer (Betz & Ramsey, 2017; Cohen et al., 2017 If this is the case, it brings into question the potential benefits of body positive posts, which may be causing inadvertent harm. However, the means for self-objectification across all groups was relatively low in the present study (SOBS *M* = 3.07/10, *SD* = 0.72; Ten Statements *M* = 1.06/10, *SD* = 1.36), which may have impacted the results. Furthermore, self-objectification was only measured post-experiment to avoid demand characteristics. As such, it is not possible to fully assess whether self-objectification changed due to exposure. To address this, future research should assess self-objectification pre- and post-exposure to be able to draw firmer conclusions.

It is possible that the Instagram content in the present study featured a level of sexualisation. It is well acknowledged that viewing images depicting the thin-ideal increases young women's levels of self-objectification due to their sexualised nature (e.g., suggestive posing in swimwear; Fardouly, Willburger & Vartanian, 2018; Hendrickse et al., 2017). Similarly, content analyses suggest that body positive imagery including sexually suggestive posing, a focus on a singular body part and posing in revealing clothing mirrors themes of self-objectification (Cwynar-Horta., 2016; Cohen et al., 2019b). Indeed, 14 out of the 17 body positive images within the present study contained women posing nude, in bikinis, or in form-fitting fashion. Thus, the young women in the present study may have perceived the body positive Instagram posts as equally sexualised as the thin-ideal Instagram posts; therefore, leading to self-objectification in all conditions. Therefore, interventions that raise young women's awareness of self-objectification should continue to be developed (Augustus-Horvath & Tylka, 2011). Given that past research has shown that imagery without bodies can lessen self-objectification (Vandemia et al., 2021); our research suggests that body positive captions may be an effective intervention, future research should continue to explore the

benefits of viewing bodyless body positive Instagram posts on young women's body image and mood.

Additionally, the present study found there were no differences between the groups for state body appreciation. These findings contradict past research which suggests that exposing women to images that depict body positivity improves young women's body appreciation (Cohen et al, 2019a; Manning & Mulgrew, 2022; Williamson & Karazsia, 2018). It is possible that the body positive posts in the present study were not enough to shift viewers focus from physical appearances. As well as physical appearances in images, body positive captions may direct the viewers' attention to appearances. Indeed, research by Tiggemann and Zinoview (2019) concluded that body positive hashtags under natural, non-enhanced images may draw attention to appearances and result in greater dissatisfaction and appearance comparison. Despite the pilot study indicating that the body positive stimuli were perceived as body positive, they still focused on appearance and had minimal emphasis on appreciating other aspects of self, such as body functionality. Considering this, future research should explore the effect of viewing body positive posts showcasing bodyless images accompanied by captions diverting the viewers' attention from their appearance.

There were no significant differences in broad conceptualisations of beauty between the exposure conditions. This is surprising given that most body positive posts are found to represent broad conceptualisations of beauty (Cohen et al., 2019b). However, in a recent study by Manning and Mulgrew (2022), trait broad conceptualisations of beauty was not found to moderate the effects of body positive exposure (consisting of images and captions) on body appreciation, appearance satisfaction, positive mood and social comparison. Based on this limited research, it appears that women's trait body image is an important aspect to consider. Further, one explanation for our finding may be that a trait measure of broad

conceptualisation of beauty was used in the absence of a validated state measure. Therefore, it is perhaps unlikely that a brief exposure to body positive posts would be sufficient to shift existing levels of broad conceptualisations of beauty. To further explore whether body positive posts can increase broad conceptualisations of beauty, future research should seek to use a validated state measure.

Extending Cohen and colleagues' (2019a) experiment, and suggestions from other researchers (Tiggemann, Andberg & Brown, 2020), the present study also explored the relative impact of viewing body positive Instagram posts (consisting of both images and captions), body positive captions only, and body positive images only on young women's body image and mood, in comparison to viewing thin-ideal Instagram posts. In relation to the improvements in positive mood, negative mood, and body satisfaction identified in the analyses, there were no differences between the three body positive conditions (combined images and captions, captions only, images only), suggesting all three combinations can have positive effects. However, when controlling for levels of trait body appreciation, the combined condition including images and captions was the only experimental condition to remain significant for negative mood and body satisfaction. Therefore, this suggests body positive pictures or captions in isolation may be enough to increase mood and body satisfaction and a combination of images and captions for the posts are needed to be effective. However, these findings do contradict previous research which has implied that the positive effect of body positive posts is purely a function of the image, rather than the caption (Tiggemann & Anderberg, 2019; Tiggemann, Anderberg & Brown, 2020 Tiggemann & Zinoviev, 2019). While some have suggested that using body positive captions in isolation may be beneficial by preventing issues caused by images being sexually suggestive and encouraging self-objectification and appearance comparisons (Cohen et al., 2019b; Fardouly

et al., 2017), the current findings suggest that they may need to be accompanied by images to be effective at improving body satisfaction and mood.

Conversely others have found that body positive captions may serve as a protective factor against poor body image and mood (Davies et al., 2020; Slater et al., 2017). For example, Slater et al. (2017) found women who viewed self-compassion quotes experienced increased positive body image, self-compassion and reduced negative mood compared to viewing neutral images (Slater et al., 2017). Therefore, it is possible that including aspects of self-compassion within body positive captions may enhance this effect and could be explored in future research.

Another consideration is that the body positive captions selected in the pilot study had a variety of narratives. For instance, captions either challenged diet culture, beauty ideals, appearance comparisons, emphasised non-physical attributes (e.g., friendships), or highlighted the unrealistic nature of beauty ideal imagery. A strength of including an array of body positive captions is that it reflects the composition of authentic body positive Instagram accounts as they typically integrate all the above narratives (Cohen et al., 2019b). On the other hand, it might be that one type of caption is more effective than the others. Of note, Davies et al. (2020) found that captions diverting attention away from appearances entirely and towards the background of imagery did not increase negative mood. Future research could consider examining the different styles of body positive captions, such as captions challenging beauty ideals compared to captions emphasising non-physical attributes, and captions using self-compassion, to establish which element is contributing to the observed effects.

Finally, women in the body positive conditions displayed more positive attitudes towards the accounts (e.g., liked the people in the accounts, wanted to be friends with the

women in the accounts, and wanted to follow them) than the thin ideal accounts. These findings echo those of Cohen et al. (2019a) and suggest that in addition to improving body satisfaction and negative mood, women generally like and want to engage with accounts portraying body positivity more than thin ideal accounts. Practically, this suggests that body positive social media interventions may be something that women want to engage with.

4.1 Limitations

One limitation of the current study is that the levels of exposure were not equivalent between the body positive conditions (17 posts) and the thin ideal condition (20 posts). Those exposed to Instagram posts depicting the thin ideal therefore had slightly longer exposure to the experimental stimuli compared to those who viewed body positive Instagram posts. Therefore, future studies should ensure exposure the number of stimuli is equal to improve greater validity. Secondly, many of the experimental stimuli portrayed multiple aspects of body positivity (e.g., personal psychological literation and systemic change; Darwin & Miller, 2011). It is possible that different types of body positive content might have differing impacts on viewers. Therefore, future research should consider comparing these and other aspects such as focussing on functionality appreciation, rather than appearance. Additionally, some of the body positive photographs (*n* = 3) depicted self-affirmation quotes rather than just pictures of a broad range of bodies. This was due to the stimuli being replicated from Cohen et al's study; however, this blurs the boundaries between the body positive image and caption conditions somewhat. Therefore, this study should be replicated using stimuli that more clearly fits into each condition (e.g., photographs of women with diverse bodies).

Further, if developed, a state measure of broad conceptualisations of beauty should be utilised to fully understand the effect on body positive Instagram posts. Additionally, to

limit possible demand characteristics, the current study lacked pre-exposure measures of body appreciation, self-objectification, and broad conceptualisations of beauty. Future research might consider a study design that allows for pre-and-post measurement of these variables, such as collecting pre-measures a week before the experiment. Similarly, future studies may prefer to use alternative validated measures of mood which are widely used in body image research, such as the Positive and Negative Affect Schedule (Watson et al., 1988) and short form assessments (Thompson, 2007). Lastly, the posts were taken from real Instagram posts to enhance ecological validity and reduce bias. However, the body positive caption only and the body positive image only Instagram exposure conditions were not ecologically valid as body positive Instagram posts do not typically display a caption without an image, or vice versa, consequently limiting the replicability of real-world effects.

5. Conclusion

Despite the limitations, the present study contributes to the growing positive body image literature by demonstrating that exposure to body positive Instagram posts improves young women's body satisfaction and negative mood in comparison to viewing thin-ideal Instagram posts and that women like and want to engage with body positive content over thin ideal content. Additionally, the findings suggest that it may be important to include both body positive images and captions for them to be effective for most women. Future research should look to measure state broad conceptualisations of beauty and assess self-objectification pre- and post-exposure to better determine whether body positive content is associated with these constructs. Additionally, it would be useful to consider whether certain types of captions are better at harnessing the effects of body positivity. In practical terms, the findings from this study suggest that following body positive content on social media may improve body image and mood in young women.

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