

Add a comment ... how fitspiration and body positive captions attached to social media images influence the mood and body esteem of young female Instagram users.

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### ***Abstract***

Social media content can negatively influence body esteem in young women by reinforcing beliefs that to be considered attractive, people must look a certain way. The current study examines how text associated with attractive social media images impacts on female users' mood and feelings about their own body. Female participants ( $N = 109$ ) aged between 18 and 25 years were randomly allocated to one of three conditions in which they viewed the same fitspiration-style images from Instagram. However, the captions associated with each image were experimentally manipulated to reflect either a fitspiration, body positive, or neutral theme. Images associated with fitspiration captions encouraging observers to improve their personal fitness led to increased negative mood. When body-positive captions encouraging the self-acceptance of appearance or highlighting the unrealistic nature of social media content were viewed with the same images, no increase in negative affect was observed, and participants reported greater body esteem post exposure. The findings provide partial support for the idea that body positive comments accompanying images on Instagram may have some protective value for female body esteem. Captions may play an important part in observers' reactions to social media images, beyond the influence of the images alone.

### ***Highlights***

- Identical images from Instagram were viewed with different image captions.
- Fitspiration-style image captions increased negative mood in observers.
- Fitspiration-style and neutral image captions were associated with poorer weight esteem.
- Image captions advocating body positivity were associated with better weight esteem.
- Caption type had no effect on sexual or physical conditioning esteem.

### ***Key Words***

Social Media; Instagram; Body Esteem; Mood; Body Positivity; Fitspiration

## 1. Introduction

The current investigation explores whether the written captions that Instagram profile owners choose to accompany the images they post influences the personal reactions of observers to those images. Social media sites have set new norms in how people present themselves to others, with images reflecting thin and toned physical appearance being increasingly prevalent (Tiggemann & Zaccardo, 2018). Exposure to such images has been found to contribute to body image concern in young women (e.g., Fardouly & Vartanian, 2016; Tamplin, McLean, & Paxton, 2018). Users' comments posted as responses to social media images have been demonstrated to influence the impressions formed of profile owners (Walther, Van Der Heide, Hamel, & Shulman, 2009) and the body satisfaction of observers who read them (Tiggemann & Barbato, 2018). The comments chosen by profile owners to caption their images can be used to reinforce appearance ideals (Simpson & Mazzeo, 2016). However, little is known about the direct impact of these image captions, and more research is needed to understand their specific effects on social media users.

'Fitspiration' posts which combine images and messages emphasizing the appeal of exercise and diet to improve physical health, attractiveness, and lifestyle are common on social media (Deighton-Smith & Bell, 2018; Griffiths & Stefanovski, 2019). Exposure to such content has been linked to increased negative mood and reduced body satisfaction in young women (Tiggemann & Zaccardo, 2015) without necessarily leading observers to engage in greater exercise (Robinson et al., 2017). Such content often encourages restrictive appearance standards and guilt-focused messages regarding weight, diet, and body shape which are thematically similar to thinspiration (Boepple & Thompson, 2016). Whilst fitspiration-style posts are known to often include images of healthy foods (e.g., Tiggemann & Zaccardo, 2018), investigations into the impact of fitspiration on body satisfaction have mainly used experimental stimuli containing images of female bodies only. Furthermore, a content analysis by Carrotte, Prichard, and Lim (2017) revealed fitspiration images are not only more likely to adhere to thin and athletic ideals, but also contain sexualized images that objectify female body parts. It follows that fitspiration trends may exert additional pressures on how women should look that go beyond simple weight concern, and which require a multifaceted approach for assessing body-esteem outcomes.

Prichard, McLachlan, Lavis, and Tiggemann (2018) examined the presence or absence of appearance-related inspirational comments overlaid on fitspiration images of women performing exercise or posed, finding that negative mood and body dissatisfaction outcomes occurred irrespective of the presence of text. However, when presented as replies from other Instagram users to images posted by attractive women, Tiggemann and Barbato (2018) found that comments praising physical appearance led to greater

body dissatisfaction in observers than comments referring to the background or location of the images. Comments presented below Instagram images of highly attractive women, emphasizing their selective and edited nature, were found to be ineffective at reducing body dissatisfaction in observers and led to less favorable impressions of the profile owner (Fardouly & Holland, 2018). This suggests their use could be counterproductive as a strategy for addressing body image concerns. However, Slater, Varsani, and Diedrichs (2017) demonstrated that viewing a mock Instagram account containing a mix of fitspiration images and images of self-compassion quotes overlaid on patterned backgrounds, improved body satisfaction outcomes compared to viewing fitspiration images alone. The precise role played by words either overlaying or accompanying social media images remains unclear, and their influence seems dependent on how such text is specifically presented (e.g., as a quote within an image, as a disclaimer label, caption, or response to an image).

Cohen, Fardouly, Newton-John, and Slater (2019) have shown exposure to Instagram posts consisting of body positive images and captions can lead to improved outcomes for young adult women compared to thin-ideal or landscape-focused posts. However, since both body-size and body-presence varied across the conditions in their study, the effect of caption text alone cannot be interpreted. It is possible that body-positive captions married to images of idealized appearance could serve to discourage harmful body comparisons, in a similar manner to the self-compassion comments used by Slater et al. (2017). The present study further examines the impact of social media images depicting fitspiration ideals, by exploring whether their effects on body esteem and mood can be alleviated by the written messages captioning each image.

**Hypothesis 1.** Exposure to images accompanied by fitspiration-style captions (advocating fitness, health, and dieting) will reduce positive mood and increase negative mood, post compared to pre-exposure.

**Hypothesis 2.** Exposure to images accompanied by captions advocating body positivity will reduce negative mood and improve positive mood, post compared to pre exposure.

**Hypothesis 3.** Exposure to images accompanied by body positive captions will be associated with better post-exposure body esteem outcomes compared to identical social media images accompanied by fitspiration captions, or neutral captions.

## **2. Method**

### *2.1. Sample*

Young adult women ( $N = 154$ ) were purposively sampled from active Instagram users. Participants were randomly allocated to one of three conditions in which they viewed images from real Instagram posts, drawn from public profiles of young white women. Participants with incomplete responses or those taking less than three seconds to view each image were screened out, leaving 109 women aged 18-25 years ( $M = 21.58$ ;  $SD = 1.54$ ). A *priori* power analysis using effect size estimates from recent social media studies (Saiphoo & Vahedi, 2019) indicated that a minimum of 33 participants were required per condition.

### *2.2. Design*

A pool of 50 images were sampled from public accounts of known fitness advocates, with images being cross-referenced against common fitspiration hashtags (e.g., #fitspo; #fitspiration). A panel of four female Instagram users of similar age to the study sample independently rated each image on 10-point scales for visual appeal, presence of fitness themes, and thinness of women shown. A total of 19 images were selected to match content typically found on fitspiration social media feeds (Carrotte et al., 2017). Of these, 68% were of thin, toned, young white women in gym wear; 11% were of thin women completing fitness activities (e.g., hiking or swimming); and 21% were food-related images. The mean thinness rating of women in the selected images was 7.98 (10 being the thinnest). Each Instagram post and peripheral detail (e.g., 'likes' received) were identical across conditions, with the exception of the profile owners' comments used to caption each image. In the 'fitspiration' condition, captions reflected aspirational health and fitness messages (e.g., *"Every workout is worth it to achieve the perfect body"*). In the 'body positive' condition, captions were sourced directly from Instagram profiles of known body positivity advocates, with 68% focusing on accepting and encouraging healthy notions of body size (e.g., *"Choosing to feel good about yourself, no matter what, is more important than your reflection in a mirror"*), and 32% focusing on self-admissions of the images' contrived nature (e.g., *"After editing it to death, I actually like this picture"*). In the neutral condition, captions directed attention to other background aspects of the image (e.g., *"Perfect weather"*).

The image presentation order was randomized across participants. To ensure images were attended to, participants were timed and informed that they would be given a short memory test at the end of the study. The average time spent considering each image was 11.25s (95%CI [10.02, 12.47]).

## 2.3. Measures

### 2.3.1. State mood

Pre- and post-exposure mood was assessed using the International-Positive and Negative Affect Scale-Short Form (Thompson, 2007) where participants rated 10 adjectives reflecting positive (e.g., inspired) and negative (e.g., ashamed) mood, on a scale from 1 (*not at all*) to 5 (*extremely*). Averaged Cronbach's alpha values were .78 for positive mood and .85 for negative mood.

### 2.3.2. Body esteem

The Body Esteem Scale (BES; Franzoi & Shields, 1984) was used post-exposure to evaluate how individuals felt about 35 different parts or attributes of their own body (e.g., legs, waist) at that point in time, from 1 (*extremely negative*) to 5 (*extremely positive*). Whilst the BES is typically considered as a trait measure, it correlates well with situational measures of body image (Thomas & Freeman, 1990). Measures assessing satisfaction with individual body parts are also known to show similar temporal instability to state body dissatisfaction ratings (Fuller-Tyszkiewicz, Richardson, Lewis, Smyth, & Krug, 2018). BES items are divided into three subscales measuring esteem derived from sexual attractiveness, weight concern, and physical conditioning. The BES was selected to provide a more nuanced measure of body esteem compared to simple visual analogue scales (VAS), with subscales that reflected the key themes associated with fitness content (Carrotte et al., 2017). Observed Cronbach's alpha values were .83 (Sexual Attractiveness), .90 (Weight Concern), and .87 (Physical Conditioning).

### 2.3.3. Satisfaction with diet, exercise, and health.

Baseline information of each participants' general satisfaction with their diet, exercise habits, and personal health rated from 1 (*extremely unhappy*) to 5 (*extremely happy*) were taken at the start of the study. These were included to provide a pre-manipulation check for individual differences in participants' overall level of esteem with their general physical health and vitality following random allocation to conditions. Since these three items correlated strongly and significantly ( $r_s > .60$ ) with each other, they were combined into a single measure of health satisfaction (Cronbach's  $\alpha = .81$ ). This baseline measure correlated strongly with overall body esteem post-exposure,  $r(107) = .61, p < .001$ .

### **3. Results**

#### *3.1. The Influence of Social Media Comment Types on Mood*

Preliminary analysis showed no significant difference in baseline health satisfaction between the three conditions,  $F(2,106) = 1.27, p = .285, \eta^2 = .023$ . Participants in each condition also did not differ on baseline positive mood,  $F(2,106) = 0.87, p = .423\text{ns}, \eta^2 = .016$ , or negative mood,  $F(2,106) = 0.97, p = .384, \eta^2 = .018$ .

The impact of comment style on mood was assessed using  $3 \times 2$  mixed ANOVAs with three planned orthogonal comparisons. For positive mood, no significant interaction,  $F(1,106) = 1.27, p = .283, \eta^2_p = .024$ , and no significant main effects of time,  $F(1,106) = 1.76, p = .188, \eta^2_p = .016$ , or caption condition,  $F(1,106) = 0.25, p = .779, \eta^2_p = .005$ , were found. For negative mood, there was no interaction between time and condition,  $F(2,106) = 0.93, p = .398, \eta^2_p = .017$ , and no significant main effect of condition,  $F(2,106) = 1.85, p = .162, \eta^2_p = .034$ . However, a significant main effect of time occurred,  $F(1,106) = 6.81, p = .01, \eta^2_p = .060$ , indicating that negative mood increased from pre- to post-exposure.

To evaluate Hypothesis 1, the first planned comparison tested pre- and post-exposure mood scores for participants in the fitspiration condition. This indicated no reduction in positive mood,  $F(1,106) = 0.15, p = .698, \eta^2_p = .001$ , but a significant increase in negative mood,  $F(1,106) = 5.95, p = .016, \eta^2_p = .053$ , after viewing images, partially supporting the hypothesis (Table 1).

To evaluate Hypothesis 2, the second planned comparison tested pre- and post-exposure mood scores for participants in the body positive condition. This indicated no significant change in positive mood,  $F(1,106) = 3.58, p = .061, \eta^2_p = .033$ , or negative mood,  $F(1,106) = 0.31, p = .580, \eta^2_p = .003$ , after viewing images, rejecting the hypothesis.

In addition, the planned comparison of pre- and post-exposure mood scores in the neutral condition showed no significant change in positive mood,  $F(1,106) = 0.69, p = .408, \eta^2_p = .006$ , or negative mood,  $F(1,106) = 2.26, p = .136, \eta^2_p = .021$ , after viewing images.

#### *3.2 The Influence of Social Media Comment Types on Body Esteem*

To examine differences in BES subscales post-exposure, one-way independent groups ANOVAs were conducted, with three planned orthogonal comparisons (Table 2). These showed significant differences in weight concern,  $F(2,106) = 5.10, p = .008, \eta^2 = .09$ , and overall body esteem,  $F(2,106) = 3.59, p = .031, \eta^2 = .06$ , but not sexual attractiveness or physical condition, between the three caption conditions.

To evaluate Hypothesis 3, the first planned comparison showed weight esteem,  $t(106) = 2.78, p = .007, d = 0.54$ , and overall body-esteem,  $t(106) = 2.06, p = .042, d = 0.40$ , were significantly higher in the body positive condition than the fitspiration condition. The second planned comparison showed weight esteem,  $t(106) = 2.76, p = .007, d = 0.53$ , and overall body-esteem,  $t(106) = 2.52, p = .007, d = 0.49$ , were also significantly higher in the body positive condition than neutral caption condition, supporting the hypothesis. The third planned comparison showed weight esteem,  $t(106) = -0.11, p = .911, d = 0.02$ , and overall body-esteem,  $t(106) = 0.38, p = .705, d = 0.08$ , did not differ between the fitspiration and neutral caption conditions.

#### **4. Discussion**

The aim of the current study was to explore the role played by the captioning of social media images on women's mood and body esteem. It was hypothesised that exposure to images captioned with fitspiration-style messages promoting exercise, fitness, and weight loss, would lead to more negative outcomes for participants' mood and body esteem. As with previous research (e.g., Tiggemann & Zaccardo, 2015), increases in negative mood occurred following exposure to fitspiration posts, which did not occur when participants were exposed to the same images, displayed with body positive captions. It was also hypothesised that captions promoting body acceptance and highlighting the unrealistic nature of social media images, might produce more positive outcomes for participants' mood and body esteem. Contrary to this, body positive captions did not lead to changes in positive or negative mood after viewing images, but they were associated with greater post-exposure body esteem compared to neutral or fitspiration captions. These results complement research which has shown a positive impact of body-positive imagery (e.g., Cohen, Fardouly, et al., 2019) and may suggest body positive captions could have some protective value, preventing increases in negative mood, when accompanying potentially harmful images, consistent with the self-compassion findings of Slater et al. (2017). It has been suggested that engagement with body-positivity may help reduce damaging social comparisons and encourage flexibility in the acceptance of different body types so that observers are less likely to critique their own appearance through social media comparisons with other women (Kelly, Vimalakanthan, & Miller, 2014). However, it should be noted that neutral comments directing attention away from body appearance entirely and towards the background of each image also did not increase negative mood. Future research could, therefore, consider whether active engagement with body positive captions moderates the relationship between appearance comparison concerns and body esteem, or whether *any style* of captioning that does



not focus attention directly on physical appearance could be effective at preventing increases in negative mood.

The small to medium effect sizes observed in this study are consistent with those reported previously for conventional media, but they underrepresent those found in more recent appearance-focused studies of social media (Saiphoo & Vahedi, 2019). Fardouly, Pinkus, and Vartanian (2017) suggest that appearance comparisons made via social media may be more harmful than comparisons made in person, since there is a greater discrepancy between one's natural appearance and how women portray themselves on social media, than there is between one's appearance and those they interact with face-to-face on daily basis. The effect sizes we observed may suggest the impact of social media captions on psychological outcomes for mood and body esteem may not be as strong as those observed previously for fitspiration images (Robinson et al., 2017; Tiggemann & Zaccardo, 2015) or body positive images (e.g. Cohen, Fardouly, et al., 2019). Future studies of captioning effects may therefore require larger sample sizes than that used in the present study to avoid the possibility of Type II error and to corroborate the relative effect of captions compared to images.

A limitation of the current design was the absence of an identical baseline measure of body esteem, such that it cannot be empirically determined from our data if exposure to body positive captions caused increases in body esteem. To avoid pretesting effects with BES items, the scale was administered once, post exposure. We chose this scale and approach given known measurement issues with VAS scales used in similar research (Torrance, Feeny, & Furlong, 2001) and to avoid difficulties where identical ratings are completed at short intervals. In lieu of an identical baseline measure, participants were randomly allocated to conditions and satisfaction ratings with health, diet and exercise were taken, which are known to correlate strongly with body esteem (Meland, Haugland, & Breidablik, 2006). No baseline differences in this health satisfaction measure, or participant mood, were found between the three caption conditions, which might otherwise partially explain observed differences in post-exposure body esteem. We note however, that whilst health satisfaction correlated well with body esteem, it accounted for only 37% of the variance in post-exposure scores in our study. The use of proxy baseline measures does not, therefore, represent a perfect solution and future research could consider alternative means of overcoming pretesting sensitization effects such as taking baseline measures at different testing sessions, retrospective pretesting (Pratt, McGuigan, & Katzev, 2001) or more complex experimental designs (Braver & Braver, 1988).

A further limitation of our study may be the specific stimuli selected, which not only included posed and active images of people, but also food. This was done to improve the authenticity of the study by reflecting real-life fitspiration trends on Instagram, where 20-25% of images are known to be food-related (Carrotte et al., 2017; Deighton-Smith & Bell, 2018). The public presentation of food, nutrition, and eating habits has become a ritual component of social media, although the values attached to such content in young people is not well understood (Goodyear, Armour, & Wood, 2019). Whilst the food images we used were constant across all conditions, how these may have impacted on participants relative to other images, or have interacted with caption content, is not known. Future research could consider the effects of food-related images when combined with images of attractive women on the impressions formed of profile owners and their consequences for observers.

Since body positive comments do not prevent observers from being exposed to idealized images, their ability to effect body esteem is restricted (Paraskeva, Lewis-Smith, & Diedrichs, 2017). In the present study, the effect of body positive captions appeared largely specific to weight-related body esteem. No advantage of body positive over fitspiration captions was found for sexual attractiveness or physical conditioning esteem, consistent with the view that fitspiration posts may have both motivational as well as negative effects (Tiggemann & Zaccardo, 2015). We used a mixture of body positive captions including those encouraging inner-positivity as well captions challenging the unrealistic nature of media images. A strength of this approach is that it reflects the composition of real Instagram accounts promoting body positivity which typically integrate both message types (Cohen, Irwin, Newton-John, & Slater, 2019). However, a consequence of this decision is that our results do not indicate which specific elements of body positive captions were responsible for the observed effects. Moreover, previous research has suggested that body positivity (e.g. Cohen, Fardouly, et al., 2019) and disclaimer-style messages (e.g. Fardouly & Holland, 2018) may have opposite effects, such that further research is required to fully understand their combined effect when integrated into a typical body acceptance feed.

Fardouly and Holland (2018) have highlighted the apparent contradiction between attractive, sexualised images of thin and toned women, combined with messages down-playing the importance of physical appearance on social media may lead observers to perceive the profile owner negatively, as being insincere. It is possible that such an effect may have restricted the observed impact on mood and body esteem of the body positive condition in the present study. This observation also highlights that there may be other dimensions to the captioning of images and how they interact with image content which merit attention, such as the perceived provenance, honesty, humour, or self-deprecating qualities of the

message that will influence the degree to which observers identify with caption writers or are affected by their words. The Warranting Hypothesis proposed by Walther et al. (2009) suggests perceivers' reactions to material posted on social media rely more heavily on information which targets themselves cannot manipulate, rather than content they have control over. In the case of disclaimer messages which declare an image has been edited, both user-generated disclaimers in social media (Fardouly & Holland, 2018; Livingston, Holland, & Fardouly, 2020) and other-generated disclaimers in conventional media (Bury, Tiggemann, & Slater, 2016; McComb & Mills, 2020; Tiggemann, Brown, Anderberg, 2019) appear ineffective. Whether social media comments left by others rather than captions created by profile owners are more important in minimising the effect on observers, therefore, remains unclear. To our knowledge, there is yet to be a social media study of body esteem that has considered the impact of both message types together.

In conclusion, the current study provides partial support for the idea that body positive captions accompanying images on Instagram may function in a similar way to self-compassion quotes and have some protective value for observers. However, their impact may be limited in scope with respect to specific aspects of body esteem and require concordance between the image and caption theme to be seen as authentic by observers. Body positive captioning may also be no more effective at improving mood than other captioning styles that draw attention away from physical appearance entirely.

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**Table 1.**

Mean positive and negative affect scores and 95% confidence intervals before and after viewing the three social media comment conditions ( $N = 109$ ).

| Measure         |               | Comment Condition             |                |                              |                |                         |                |
|-----------------|---------------|-------------------------------|----------------|------------------------------|----------------|-------------------------|----------------|
|                 |               | Body Positive<br>( $n = 36$ ) |                | Fitspiration<br>( $n = 34$ ) |                | Neutral<br>( $n = 39$ ) |                |
|                 |               | <i>M</i>                      | <i>95% CI</i>  | <i>M</i>                     | <i>95% CI</i>  | <i>M</i>                | <i>95% CI</i>  |
| Positive Affect | Pre-Exposure  | 14.67                         | [13.39,15.94]  | 13.47                        | [12.16, 14.78] | 13.90                   | [12.67, 15.12] |
|                 | Post-Exposure | 13.69                         | [12.24, 15.15] | 13.68                        | [12.18, 15.17] | 13.49                   | [12.09, 14.88] |
| Negative Affect | Pre-Exposure  | 7.50                          | [6.27, 8.73]   | 8.41                         | [7.15, 9.68]   | 8.64                    | [7.46, 9.82]   |
|                 | Post-Exposure | 7.81                          | [6.41, 9.20]   | 9.79                         | [8.36, 11.23]  | 9.44                    | [8.10, 10.78]  |

**Table 2.**Comparison of mean body esteem sub-component scores between comment type condition ( $N = 109$ ).

| Body Esteem Component | Comment Condition                 |               |                                  |               |                             |               | <i>F</i> | <i>p</i> |
|-----------------------|-----------------------------------|---------------|----------------------------------|---------------|-----------------------------|---------------|----------|----------|
|                       | Body Positive<br>( <i>n</i> = 36) |               | Fitspiration<br>( <i>n</i> = 34) |               | Neutral<br>( <i>n</i> = 39) |               |          |          |
|                       | <i>M</i>                          | 95% <i>CI</i> | <i>M</i>                         | 95% <i>CI</i> | <i>M</i>                    | 95% <i>CI</i> |          |          |
| Sexual Attractiveness | 3.56                              | [3.36, 3.77]  | 3.41                             | [3.20, 3.62]  | 3.30                        | [3.11, 3.50]  | 1.72     | .185     |
| Weight Concern        | 3.28 <sup>1,2</sup>               | [3.02, 3.54]  | 2.76 <sup>1</sup>                | [2.50, 3.03]  | 2.78 <sup>2</sup>           | [2.53, 3.03]  | 5.10     | .008     |
| Physical Condition    | 3.21                              | [2.97, 3.46]  | 3.01                             | [2.76, 3.27]  | 2.89                        | [2.65, 3.12]  | 1.81     | .169     |
| Body-Esteem Total     | 3.37 <sup>1,2</sup>               | [3.17, 3.58]  | 3.07 <sup>1</sup>                | [2.86, 3.28]  | 3.01 <sup>2</sup>           | [2.82, 3.21]  | 3.59     | .031     |

*Note.* <sup>1,2</sup> Indicates a significant difference ( $p < .05$ ) between conditions sharing the same denotation (planned orthogonal comparisons).